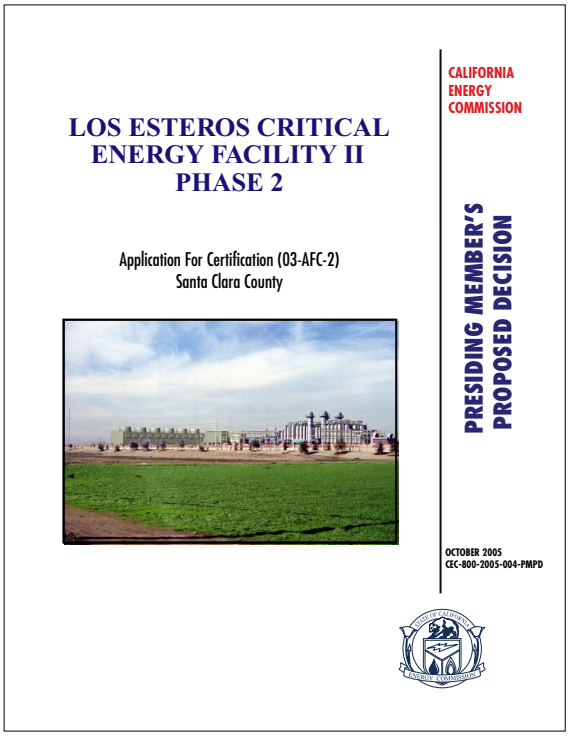
CALIFORNIA
ENERGY
COMMISSION

LOS ESTEROS CRITICAL ENERGY FACILITY II PHASE 2

Application For Certification (03-AFC-2)
Santa Clara County

PRESIDING MEMBER'S PROPOSED DECISION

OCTOBER 2005
CEC-800-2005-004-PMPD



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BEFORE THE STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

The Committee hereby submits its Presiding Member's Proposed Decision for the ***LOS ESTEROS CRITICAL ENERGY FACILITY, PHASE 2*** (Docket Number 03-AFC-2). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code of Regs., §§ 1749-1752. 5).

Because the local zoning designation is not consistent with construction of the proposed project, we cannot, at this time, recommend the Application for Certification for the ***LOS ESTEROS CRITICAL ENERGY FACILITY, PHASE 2*** be approved. At a Committee Conference scheduled for November 2, 2005, we will review any changes to the relevant zoning designation.

Dated on October 7, 2005, at Sacramento, California.

Signed
JACKALYNE PFANNENSTIEL
Vice Chair and Presiding Member
Los Esteros Critical Energy Facility, Phase 2

Signed
JOSEPH DESMOND
Chairman and Associate Member
Los Esteros Critical Energy Facility, Phase 2

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INTRODUCTION

A. SUMMARY

This document is the California Energy Commission's Presiding Member's Proposed Decision (PMPD).[1] The Energy Commission has exclusive jurisdiction in California over the licensing of power plants that are 50 megawatts (MW) or more. The Commission 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 Los Esteros Critical Energy Facility (LECEF 2) Phase 2. Applicant Calpine requests a license to convert the existing 180 megawatt (MW) simple-cycle power plant to a 320 MW combined-cycle operation. The existing plant is a simple-cycle natural gas-fired peaking power plant located in San Jose, California. As originally planned, there were three phases to the project.

Phase 1 consists of four General Electric LM6000 SPRINT combustion turbine generators (CTG), four selective catalytic reduction (SCR) and oxidation catalyst units, four heat recovery steam generator (HRSG) casings and stacks (installed in anticipation of Phase 2), a one-cell cooling tower, and ancillary equipment. Phase 1 was originally granted a license on July 2, 2002 (see Proceeding 01-AFC-12), was constructed, and became fully operational in March 2003. Phase 1 was also the subject of a recertification hearing before this Commission under this Docket number. Recertification was granted in the Commission Decision adopted March 16, 2005.

Phase 2 of the project, under consideration here, includes conversion of LECEF 2 to a combined-cycle facility through the addition of HRSG tube sections and

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

associated evaporator drums and piping, HRSG duct burners, a nominal 140 MW steam turbine generator, a six-cell cooling tower, ancillary equipment, and a 230 kV transmission interconnection with the SVP Switching Station.

Phase 3 of the project involves a proposal to add even more equipment and systems designed to provide cooling and high reliability and energy services to a large "Super Hub" computer server center proposed by the U.S. DataPort Corporation to be located adjacent to LECEF. Phase 3 may go forward at some time in the future when the server center is constructed, but licensing thereof is not a part of this Application and will not be discussed further herein.

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 application. The document contains the Committee's reasons supporting its PMPD and references to portions of the record, which support the Committee's findings and conclusions.[2]

Prior to the Evidentiary Hearing, Applicant and Staff had agreed on most issues in this matter. Applicant testimony and Staff testimony was admitted by stipulation without cross-examination, and in the case of some topics, with informal cross-examination. (06/30/05 RT 8:1-18:14; 38:9-14.) The Bay Area Air Quality Management District (BAAQMD) and the applicant submitted the weight of relevant evidence supporting their common position on the acceptable level of ammonia slip for the project. Only one Intervenor actively participated in the Commission's evidentiary hearings on the LECEF 2, Phase 2 project by cross-examining witnesses, and/or presenting witnesses and documentary evidence of their own. That Intervenor was Californians For Renewable Energy Inc. (CARE).

[2] References to the evidentiary record, which appear in parentheses following the referenced material, may include an exhibit number and page and/or a reference to the date, page and line number(s) of the reporter's transcript e.g., (Ex.1, p. 55; or 06/30/05 RT 123:8-124:3.) Evidentiary Hearings were conducted on June 30, 2005.

CARE focused its questions and arguments on the topics of Air Quality, Biological Resources and Land Use (the Bike Trail Issue discussed, *infra*). CARE also introduced evidence on the Bike Trail Issue. (Testimony of Mr. Beattie, Exhibit 34, see 06/30/05 RT 58:8-21.) California Unions for Reliable Energy (CURE) intervened but did not participate in the Evidentiary Hearings. (06/30/05 RT 4-70.)

This Decision discusses public benefits of the project in the areas concerning transmission system engineering and in socioeconomic matters. Benefits include improved reliability of the local transmission system, improved local voltage support, provision of local generation, reduced transmission overloads and losses, and improving system reliability. Benefits to the local economy would come from increased tax revenues, employment, sales of services, manufactured goods and equipment. These benefits are discussed further under the topics of Project Alternatives, Transmission System Engineering, and Socioeconomics.[1]

We must note that to date the City of San Jose has not made zoning changes required for the project. Thus LECEF Phase 2 and its related facilities are not a permissible use under the currently applicable City of San Jose zoning designations. The project does not comply with LORS unless the applicable zoning for the LECEF Phase 2 is changed by the City. As a result, the lack of appropriate zoning at this time prevents the Committee from recommending that the license for Phase 2 be granted. We will review the zoning status at the Committee Conference scheduled for November 2, 2005.

---

[1] For a discussion of earlier participation in this proceeding, see 2005 Decision, pp. 2-3. There are two prior Commission Decisions discussing this same subject matter and we hereby take judicial notice of them. They are the Commission Decision in Docket 01-AFC-12, the original LECEF proceeding, dated July 2, 2002, and the Commission Decision in Phase 1 of this proceeding, dated March 16, 2005. Because much of the evidence herein is duplicative of that in those earlier proceedings, we will, in the interest of continuity and economy, adopt herein portions of those decisions not in conflict with evidence submitted in these evidentiary hearings. Reference to the July 2, 2002 Decision will be in the form of "2002 Decision, pp.#" and reference to the March 16, 2005 Decision will be in the form of "2005 Decision, pp.#".

B. PROJECT NAME, OWNER, AND OBJECTIVES

1. *NAME*: Los Esteros Critical Energy Facility (LECEF 2)

Throughout this and other documents referring to this project, the acronym "LECEF" is used constantly. In those various documents, LECEF can refer to the original project licensed in proceeding 01-AFC-12, Phase 1 of this project (recertification of the simple-cycle facility), Phase 2 (conversion of the facility to a combined cycle operation), or the combination of Phase 1 and Phase 2 that comprises the entire subject of this application (03-AFC-2). Sometimes it is even used to designate the project owner of the same name. To avoid further confusion and to conform to our prior Decision (03/16/05), the following acronyms will be used throughout this Decision:

LECEF: The originally licensed project, a simple-cycle power plant (01-AFC-12), the site in general and, occasionally, the Applicant;

LECEF 2: The current proceeding, consisting of Phase 1 and Phase 2;

- **Phase 1 -** The proceeding to recertify the simple-cycle LECEF that was the subject of the Commission Decision in this proceeding dated March 16, 2005;

- **Phase 2 -** This proceeding seeking a license for conversion of LECEF to a combined-cycle operation and the subject of this Decision.

2. *PROJECT OWNER*

a) Los Esteros Critical Energy Facility, LLC, a wholly-owned subsidiary of Calpine Corporation

3. *PROJECT OBJECTIVES*

(per project Owner)

To produce electric power to export for 24 hours per day, 7 days per week, year-round, except as required for planned maintenance.

C. PROJECT DESCRIPTION

The project is located in Township 6 South, Range 1 West (as shown on the USGS Milpitas 7.5-minute quadrangle) in northern San Jose, Santa Clara County, at 800 Thomas Foon Chew Way. It consists of a fenced 21-acre site within a 34 acre parcel. Thomas Foon Chew Way is a 2,700 foot private access road curving through the adjacent buffer lands leading East to the project site and the Pacific Gas & Electric (PG&E) Los Esteros Substation from Zanker Road. The area is currently zoned light-industrial and the parcel is covered by a proposed development zone designation specifically allowing the current power plant with a 180 MW output. No additional zoning action was required for Phase 1 recertification, but is required for Phase 2. As explained herein, the necessary rezoning should be accomplished through the City of San Jose within the very near future. (Ex.1, p. 2-1 to 2.2; Ex. 30, p. 3-2 to 3-3; 06/30/05 RT 41:17-44:25.) See **Figures 1 and 2**, below. **Figure 1** is an architectural rendering of the proposed combined-cycle facility. (Ex. 30, p. 3-1.) **Figure 2** shows the general area of North San Jose including the project location. (Ex. 1, p. 1-7.)

The project site is fenced on all sides with the south and west bounded by a sound wall on an elevated berm. The San Jose/Santa Clara Water Pollution Control Plant (WPCP) is across Zanker Road to the northwest of the site. The larger site is bounded on the west by city buffer lands, and Zanker Road, and on the north by a strip of land on which Silicon Valley Power plans to build a 230 kV switching station, and the PG&E Los Esteros Substation. Undeveloped buffer lands and the WPCP sludge drying ponds lie further north of the project. The southern 13-acres of the parcel lie outside the fence line of the power plant and are bordered by Alviso-Milpitas Road and State Route 237. . (Ex. 30, p. 3-2; Ex.1, p. 2-1; 03/16/05, p. 4.)

PROJECT DESCRIPTION - FIGURE 1

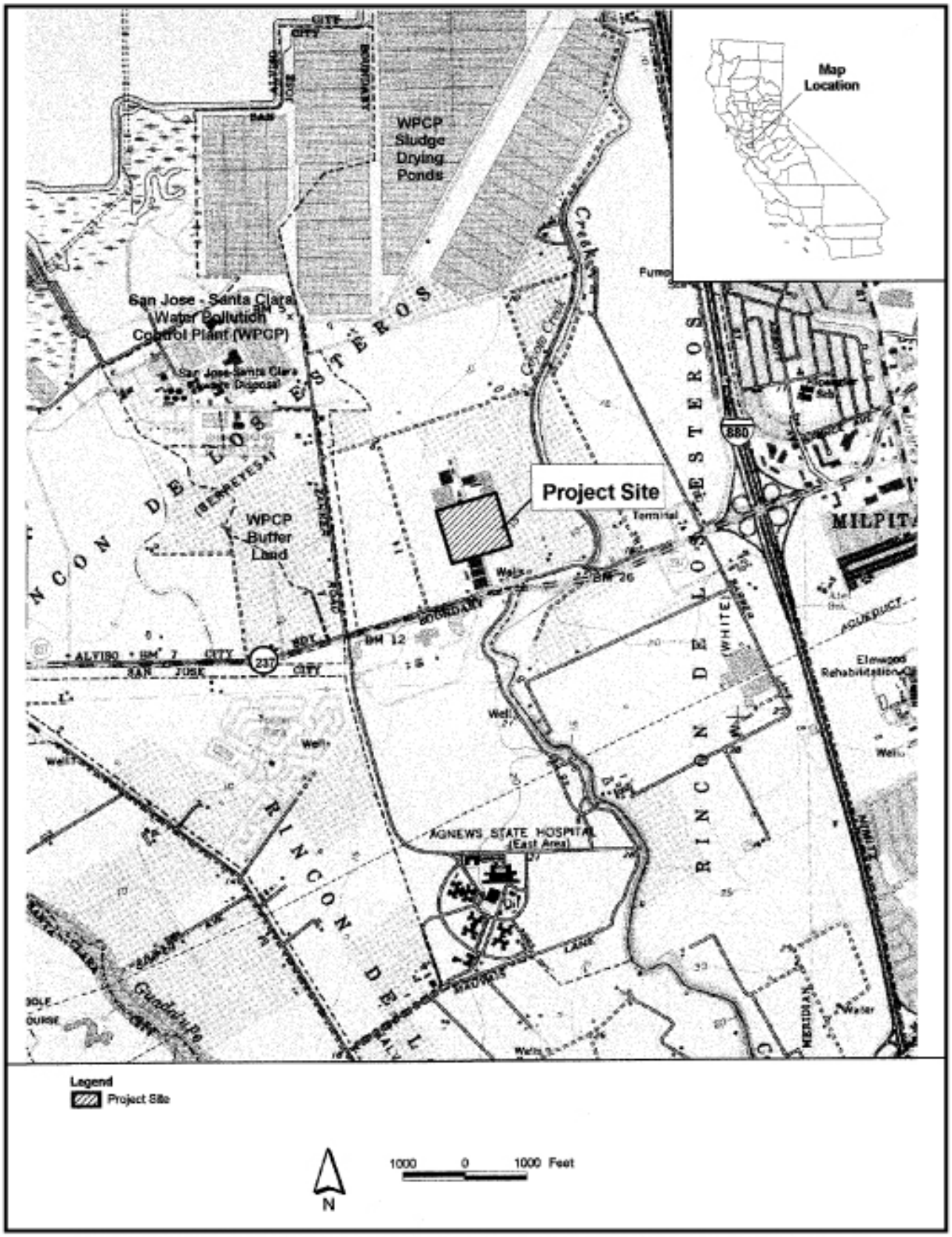
Los Esteros Critical Energy Facility II - Phase 2 - Simulation: Completed Combined-Cycle Facility

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, MAY 2005

SOURCE: LECEF LLC

PROJECT DESCRIPTION - FIGURE 2

Los Esteros Critical Energy Facility II - Phase I - Local Area



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, NOVEMBER 2004

SOURCE: AFC Figure 1.1-2

The current LECEF is powered by four LM6000 combustion turbine generators (CTGs) with spray intercooling injection (SPRINT) to enhance power, and operates with selective catalytic reduction (SCR) to reduce carbon monoxide and nitrous oxide (NO_x) emissions. The project was designed to accommodate conversion to combined-cycle operation and the four housings for the heat recovery steam generator equipment (HRSG's) and combustion exhaust stacks were constructed as part of the original project. The HRSGs also contain the equipment for the SCR emissions reduction systems. LECEF has a 180 megawatt (MW) net capacity. LECEF utilizes recycled water from the South Bay Water Recycling Program (SBWR) through one 18-inch diameter line, 1,500 feet in length, connecting with the SBWR recycled water main located in the City of San Jose's buffer lands west of the LECEF. After use LECEF directs waste water back to the WPCP facility through a waste water collection pipeline to the west at Zanker Road. Electricity from LECEF is delivered to the grid through an interconnection to the PG&E 115 kV Los Esteros Substation-Nortech line at a point adjacent to the plant access road. Natural gas is supplied through a 550 foot-long 10-inch diameter line connecting to PG&E lines 101 and 109 located to the south and adjacent to State Route 237. Storm water run-off from the facility is collected and discharged to the Coyote Creek high-flow channel to the west. Completion of the discharge line, scheduled for 2005, will direct the storm water run-off to the Coyote Creek low-flow channel. (Ex. 30, 3-3 to 3-5; Ex.1, 2-1 to 2-8.)

Construction of the LECEF was completed and the facility became fully operational on March 7, 2003. (Exhibit 3, 1-3.)

D. PAST AND FUTURE PROJECT/SITE DEVELOPMENT

C* Power, LLC, another wholly owned Calpine subsidiary, originally applied for a license to build and operate LECEF in August 2001, under the expedited licensing provisions then existing under California Public Resources Code

section 25552. This Commission granted the original license for LECEF on July 2, 2002, to run for a period of three years. The simple-cycle power plant was constructed and became operational in March 2003. The legal transfer of ownership from C* Power, LLC, to Los Esteros Critical Energy Facility, LLC, was acknowledged by this Commission on August 25, 2004. On June 16, 2004, the Commission recertified the existing plant , granting a license for the life of the project.

This proceeding (Phase 2) requests a license to convert the simple-cycle power plant to a combined-cycle operation allegedly achieving much higher efficiency and adding equipment to increase the maximum output to 320 MW.

E. THIS CERTIFICATION PROCESS

Public Resources Code section 25552 as originally enacted required that any peaking power plant licensed under this section be "modified, replaced, or removed within a period of three years…." In May 2001, the Legislature amended Public Resources Code section 25552 in pertinent part to read that any peaking power plant licensed under this section be "**recertified**, modified, replaced, or removed within a period of three years…." (*emphasis added*). As noted above, the original license for LECEF was issued on July 2, 2002, after the amendment to Public Resources Code section 25552. The Commission Decision on June 16, 2004 (03-AFC-2, Phase 1) recertified the existing power plant for the life of the project.

LECEF 2, Phase 2 and its related facilities fall within Energy Commission licensing jurisdiction. (Pub. Resources Code, §§ 25500 et seq.). During its licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Resources Code, §§ 25519(c), 21000 et seq.) The Commission's process and associated documents

are functionally equivalent to the preparation of an Environmental Impact Report under CEQA. (Pub. Resources Code, § 21080.5.)

The Commission's process is designed to allow the review of a project to be completed within a specified period; a license issued by the Commission is in lieu of other state and local permits. The Commission's certification process provides a thorough and timely review and analysis of all aspects of this proposed project. A Petition for conversion to a combined-cycle operation is no different, except that we have the benefit of the prior Decisions and analyses in the matter. During the process, we conduct a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

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

The process begins when an applicant submits its Application for Certification (AFC). Commission staff reviews the data submitted as part of this AFC and determines whether or not it contains adequate information to permit review to commence; and makes recommended findings to the Commission. Once the Commission determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the review process. The Commission also appoints a hearing officer to provide legal assistance to the Committee in each case. This process includes holding public conferences and evidentiary hearings, as well as providing a recommendation to the full Commission concerning a project's ultimate acceptability. The Committee, and ultimately the Commission, serves as fact-finder and decision-maker.

The Commission has a Public Adviser. The role of the Commission's Public Adviser is to assist members of the public and intervenors with their understanding of and participation in the Commission's siting process.

All parties, including the Applicant, Commission staff, and all Intervenors, are subject to the Commission's *ex parte* rule, which prohibits them from communicating on substantive matters with Committee members, other Commissioners, their staffs, and the hearing officer, except for communications which are on the public record.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such further technical information as is necessary. During this time, the Commission staff sponsors numerous public workshops at which intervenors, agency representatives, members of the public, Staff, and Applicant meet to evaluate and resolve pertinent issues. Staff then publicizes its initial technical evaluation of the project in the document called a Preliminary Staff Assessment (PSA). After a period of Staff Workshops and comments on the PSA, it is enhanced by the publication of a Final Staff Assessment (FSA) as is done in other cases using a 12-month process

Following completion of the FSA and any supplements thereto, the Committee scheduled an Evidentiary Hearing and requested Evidentiary Hearing Statements to assess the adequacy of the available information, identify issues, and determine the positions of the various participants. Information obtained from these Evidentiary Hearing Statements formed the basis for organizing and conducting the evidentiary hearings as necessary. These hearings are conducted after Staff has finalized its technical evaluation of the project.

At the evidentiary hearings following the release of the FSA 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 provide the basis for the decision-makers' analysis.

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

F. PROCEDURAL HISTORY

The Public Resources Code and the Commission'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.

On December 30, 2003, Los Esteros Critical Energy Facility, LLC, filed an Application for Certification for the Los Esteros Critical Energy Facility, Phase 1, Relicense, and Phase 2, Combined Cycle Conversion. This AFC first sought a recertification for continued operation of Phase 1, a 180 megawatt natural gas-fired peaking power plant consisting of four simple-cycle combustion turbine generators and associated equipment. The Commission Decision on June 16, 2004 (03-AFC-2, Phase 1) recertified the existing power plant for the life of the project.

That same AFC also seeks a license for conversion of the facility to a combined-cycle operation (Phase 2) and that portion of the AFC is the subject of this Decision.

Shortly thereafter, Staff sent a “request for agency participation” to those governmental agencies likely to have an interest in the project. On March 17, 2004, the full Commission determined that the Applicant had made its AFC sufficiently informative and complete to commence the 12-month review process set forth in Public Resources Code, section 25540.6.

On April 19, 2004, the Committee issued its notice for its initial event, an “Informational Hearing and Site Visit.” The 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, LECEF; it was also published in local general circulation newspapers.

On May 4, 2004, the Committee conducted the Informational Hearing and Site Visit in San Jose. There, the Committee and other participants discussed the proposed project, described the Energy Commission’s review process, and identified opportunities for public participation. Before beginning the hearing, Applicant hosted a tour of the existing power plant site.

For a review of procedural steps concerning Phase 1, see 03/16/05, pp. 12-14. The Commission recertified Phase 1 on March 16, 2005.

On January 6, 2004, Staff released its PSA on Phase 2 and afterward held various workshops to receive comments thereon. On May 27, 2005, Staff issued its FSA on Phase 2. A Notice of Evidentiary Hearing and request for Evidentiary Hearing Statements was issued by the Committee on June 16, 2005. Following receipt thereof, Evidentiary Hearings for Phase 2 were held on June 30, 2005, in

Sacramento. The Committee, after reviewing and compiling the evidentiary record, publishes this Presiding Member's Proposed Decision (PMPD).

I. PROJECT DESCRIPTION AND OBJECTIVES

SUMMARY OF THE EVIDENCE

The LECEF is located within a 21-acre project site that includes the fenced area of the LECEF and the facility's surrounding landscaping. The project site is located within a larger, 34-acre parcel. The parcel originally analyzed in the first LECEF proceedings was a 55-acre parcel which now contains the 34-acre project parcel, the PG&E Los Esteros Substation, and the 2.5 acre strip of land between that substation and the LECEF project. Since our last Decision, Silicon Valley Power (SVP) has constructed a 230 kV switching station on the 2.5 acre parcel. This project was completed in early December 2004. The larger, 34-acre parcel also includes a vacant 13-acre parcel to the south of the project site that will be used for laydown and worker parking during the construction of Phase 2. (Ex. 1, 2-1; Ex. 30, 3-2; 03/16/05, p. 15.)

The LECEF project site is located at 800 Thomas Foon Chew Way in north San Jose. South of the project parcel is State Route 237. **See Figure 1, above,** for an architectural rendering of the proposed combined-cycle facility. To the east is agricultural land, and further east is Coyote Creek. The PG&E Los Esteros Substation and the Silicon Valley Power (SVP) Switching Station are immediately north and adjacent to the LECEF. **Figure 2, above,** shows the general vicinity of northern San Jose including the project location. Further to the north is agricultural land, San Jose/Santa Clara Water Pollution Control Plant (WPCP) buffer land that is open space, and the WPCP sludge drying yards and ponds. To the west is undeveloped WPCP buffer land. Zanker Road runs north-south about 2,500 feet west of the project. (Ex. 1, 2-1 to 2-2; Ex. 30, 3-2.)

The project parcel and several surrounding parcels are located within an area designated as Light Industrial in the San Jose General Plan. The area is zoned Planned Development Zoning Project (PDZ). The PDZ zoning was originally

requested by U.S. Dataport (USDP) for the purpose of constructing a large computer server center, including an energy center to provide reliable power and chilled water. The City of San Jose approved that PDZ designation in April 2001 (City Council Ordinance #26343, April 3, 2001; specific zoning PDSCH # 00-06-048). Subsequently, after agreeing to the current LECEF design, USDP and Calpine jointly applied for a revision to the PDZ to include the LECEF as the energy source for the potential data center and capable of independent operation. The City of San Jose approved the new PDZ designation in March 2002. (City Council Ordinance #26579, March 5, 2002; specific zoning PDSCH # 01-09-088.) Due to current market conditions, construction of the proposed USDP has not occurred and is unlikely in the near future. (Ex. 1, 2-2; Ex. 30, 3-2 to 3-3.) Phase 2 of the project requires amending the PDZ to accommodate the addition of cooling towers and the increased output capacity of the combined-cycle facility. The applicant has submitted an application packet to the City of San Jose for that purpose, as better discussed under "Land Use", *supra*. As explained hereinafter, that zoning change must be complete before this Commission can approve the Application. (Ex. 1, 2-2; Ex. 30, 3-3.)

As licensed and constructed, the LECEF currently consists of the following listed features. There were no additional physical changes at the site required for re-certification of Phase 1:

- Four GE LM6000 SPRINT combustion turbine generators (CTGs) with water injection;
- oxidation catalysts and selective catalytic reduction (SCR) pollution control equipment, installed within four HRSG casings and stacks (these casings were installed during Phase 1 in anticipation of a later conversion to combined-cycle);
- a single-cell cooling tower (2 cells were originally permitted);
- a 115-kilovolt-(kV) switchyard;
- a 152-foot-long, wood pole transmission line to the Pacific Gas & Electric Company's (PG&E's) 115 kV Los Esteros Substation-Nortech transmission line, immediately to the west of the LECEF switchyard;

- a 2,700-foot-long primary access road, named Thomas Foon Chew Way, linking LECEF with Zanker Road;
- a 470-foot-long emergency access road, linking Thomas Foon Chew Way and Alviso-Milpitas Road;
- a 550-foot-long, 10-inch-diameter natural gas supply line between the facility and PG&E lines 101 and 109;
- one 1,500-foot-long recycled water supply line between the facility and the WPCP's recycled water supply pipeline in Zanker Road;
- a 2,000-foot-long sanitary sewer discharge line to the City of San Jose's sewer main in Zanker Road;
- a 1,000-foot-long storm water line between the facility and the Coyote Creek high –flow channel to the east. In accordance with existing Conditions of Certification, permit applications are currently in process for construction of a permanent stormwater outfall that extends the drain approximately 250 feet into the low-flow channel of Coyote Creek; and,
- a 370-horsepower diesel fire pump. (Ex. 1, 2-2; Ex. 30, 3-3; 03/16/05, pp. 16-17.)

Figure 3 depicts a site plan for the combined-cycle facility. Major equipment that will be added for the proposed Phase 2 conversion to combined-cycle operation, and depicted in **Figure 4,** includes the following major components:

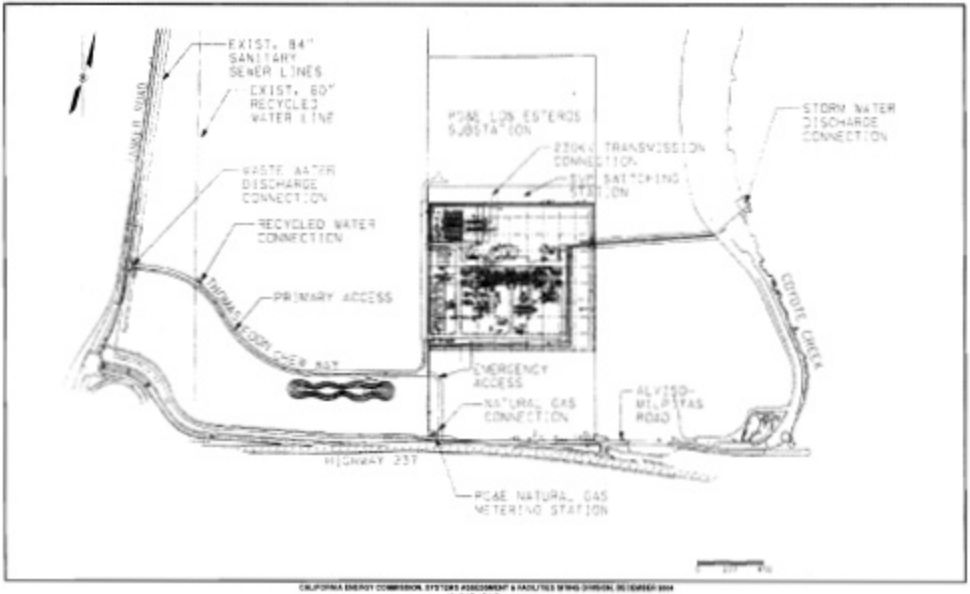
- Tube sections and associated steam drums and piping to be installed within and around each of the existing HRSG casings;
- HRSG duct burners;
- A six-cell, plume-abated cooling tower array;
- A nominal 140 MW steam turbine generator (STG);
- Circulating water pumps and boiler feedwater pumps;
- A de-aerating surface condenser;
- A second 10,000 gallon aqueous ammonia storage tank to be installed in the existing secondary containment basin; and
- A 230 kV connection to the adjacent Silicon Valley Power (SVP) switching station, including two 115/230 kV transformers within the existing LECEF switch yard which will require extending the LECEF switchyard fence eastward. (Ex. 1, 2-13; Ex. 30, 3-3 TO 3-4.)

Construction of the **Phase 2** combined-cycle conversion could be accomplished in a phased manner, shutting down individual power trains of the simple-cycle facility for conversion while other power trains remained available for dispatch, or shutting down the entire facility during conversion. These decisions would be driven by customer demand for peak period electricity. A commissioning period for the Phase 2 combined-cycle facility could be as brief as 2 to 4 months, or could be extended depending upon the scenario presented at that time. (Ex. 30, 3-4.)

The Applicant owns the 34-acre project parcel on which the 21-acre LECEF facilities and the 13-acre vacant area to the south are situated. The parcel is located in Township 6 South, Range 1 West; Latitude 37° 25'30", Longitude 121° 55' 50"; UTM zone 10, easting 594,500, northing 4,142,530 (NAD 27, UTM Zone 10). The project site is at an elevation of approximately 15 feet above sea level. The nearest residences are located approximately 0.6 mile southwest, 0.8 mile east, and 1.4 miles southeast of the project site center. San Francisco Bay lies approximately 7 miles west-northwest of the site. (03/16/05, p. 17; Ex. 30, 3-4.)

The recycled water supply for **Phase 1** of the project is provided from the Water Pollution Control Plant (WPCP) through the South Bay Water Recycling (SBWR) program. The cities of San Jose and Santa Clara jointly own the WPCP facility, but the City of San Jose operates and maintains the facility. Water from the SBWR recycled water main comes to the site via a 1,500-foot-long pipeline. The pipeline is routed south of the project site and turns west, along an existing utility corridor, to connect to the existing SBWR recycled-water pipeline parallel to State Route 237 on the adjacent WPCP buffer lands. The facility is in the SBWR's recycled water service area, and the City of San Jose has adequate recycled water supplies to serve Phase 1. No potable water pipelines are planned. (Ex. 1, 2-2, 2-10 to 2-11; Ex. 30, 3-4.)

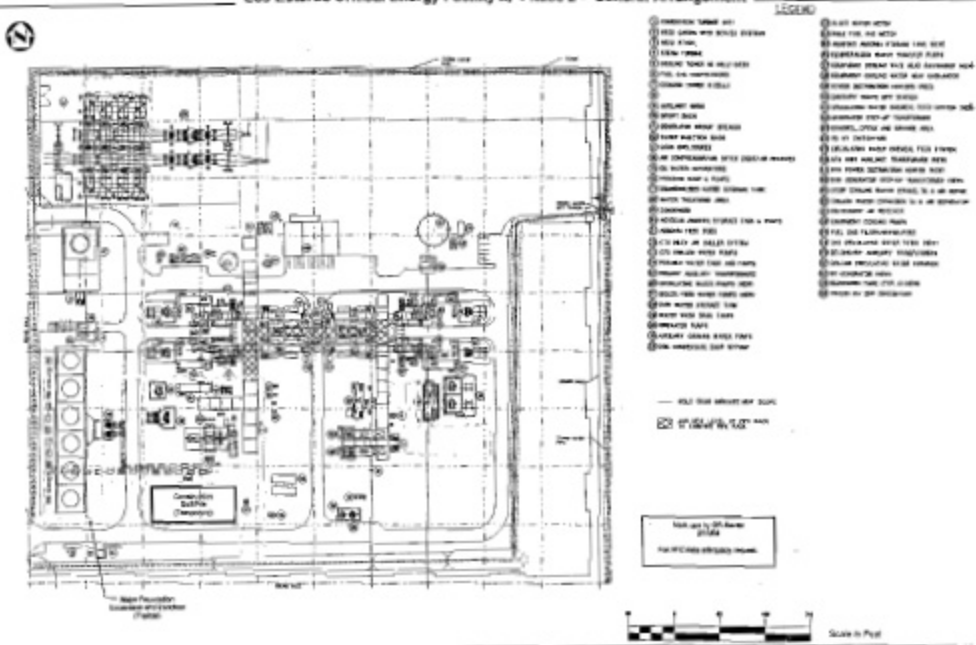
PROJECT DESCRIPTION – FIGURE 3
Los Esteros Critical Energy Facility II, Phase 2 - Site Plan



PROJECT DESCRIPTION

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2004
SOURCE: AFC Figure 2-4-1

PROJECT DESCRIPTION – FIGURE 4
Los Esteros Critical Energy Facility II, Phase 2 - General Arrangement



The recycled water supply for **Phase 2** of the project will also be provided by the WPCP through the SBWR program. Water from the SBWR recycled-water main will come to the site via the same 1,500-foot-long pipeline, as shown on **Figure 3**. The facility is in the SBWR's recycled water service area, and the City of San Jose has adequate recycled water supplies to serve the combined-cycle facility. Recycled water from the SBWR program will be used for plant cooling and process water needs. The line has the capacity to provide the annual average 1.313[4] million gallons per day (mgd) of recycled water required for the combined-cycle operation as well as the projected peak usage amount of 2.95 mgd. Wastewater discharge back to the WPCP, through the existing 2000 foot-long sanitary sewer line, is projected at an average rate of 0.280 mgd, and at peak periods as high as 0.615 mgd. Potable water for use at the control room and administrative facilities is currently trucked to the facility. (Ex. 30, 3-4 to 3-5.)

A 1,000-foot-long storm water line between the facility and the Coyote Creek high-flow channel to the east was completed during construction of the original LECEF. In accordance with the original LECEF (01-AFC-12) and the Phase 1 Conditions of Certification (**SOIL & WATER 3, 4,** and **10**), permit applications are currently in process with the San Francisco Regional Water Quality Control Board and the U.S. Army Corps of Engineers for completing the construction of a permanent stormwater outfall that extends the drain approximately 250 feet into the low-flow channel of Coyote Creek. Completion is scheduled for 2005. The Phase 2 facilities are not expected to increase the volume of stormwater run-off coming from the project site and directed through the outfall line shown in **Figure 3**. (Ex. 30, 3-5.)

[4] The AFC (Ex. 1), at page 2-21 indicates that the "maximum" make-up water rate for the project is 952 gallons per minute (gpm). This is clearly a clerical error as evidenced by the rest of the same paragraph and Exhibit 30. The word "maximum" should read "average." The 952 gpm computes to 1.36 mgd. This difference from the 1.313 mgd in the FSA is explained by improvements since the AFC was submitted, as discussed in more detail under the topic of Soil and Water Resources.

Natural gas for the project is supplied at a pressure of 250 to 400 pounds per square inch (psi) through a 550-foot-long, 10-inch-diameter natural gas supply line between the LECEF and PG&E lines 101 and 109 which run parallel to the SR 237, south of the project site. (See **Figure 3**.) On-site compressors will provide consistent pressure to the four turbines and the duct burners to be installed within the HRSGs. For Phase 2, the HRSG duct burners will operate on natural gas only. Combined-cycle natural gas use will increase from approximately 48,000 million British thermal units (MMBTU) per day, higher heating value[5] (HHV) for Phase 1 to approximately 61,344 MMBTU per day HHV during use of the added duct burners. (Ex. 1, 2-21; Ex. 30, 3-5.)

The four CTGs generate power at 13.8kV. For a description of the power transmission, see 03/16/05, pp. 18-19. The CTG exhaust gases will be used to generate steam in the HRSGs. The HRSGs will use a reheat steam cycle design with duct firing. Steam from the HRSGs will be admitted to a condensing steam turbine generator. Approximately 130 to 140 MW will be produced by the steam turbine when the CTGs are operating at base load conditions with normal duct firing within the HRSGs. The facility is expected to have an overall annual availability in the general range of 92 to 98 percent. (Ex. 1, 2-13, 2-19.)

During Phase 2 operations, the hot combustion gases exit the turbine sections and enter the HRSGs. In the HRSGs, boiler feedwater is converted to superheated steam and delivered to the steam turbine at three pressures to increase cycle efficiency. After multiple uses of the steam, it enters the surface condenser where it is condensed. The heat energy released by condensing the steam is transferred to the circulating water which, in turn, releases heat energy to the atmosphere by means of a mechanical-draft cooling tower. (Ex. 1, 2-19.)

The electric power produced by the facility during Phase 2 operation will be transmitted to the regional transmission grid. The STG will generate power at

[5] HHV is the gross energy available from a fuel.

13.8 kV. The 13.8 kV generator output will be connected by isolated phase bus through a generator circuit breaker to an oil-filled generator step-up transformer, which will increase the voltage to 115 kV. The high voltage side of the STG step-up transformer is connected to the switchyard via underground cables. (Ex. 1, 2-20.)

Electricity generated by LECEF is currently distributed to PG&E's 115 kV Los Esteros Substation-Nortech transmission line. This interconnection would be removed prior to the startup of the completed Phase 2, or at the time of connecting LECEF to the new SVP Switching Station. The combined-cycle project would expand the LECEF switchyard to include two 115/230 kV transformers connecting at 230 kV through two aerial lines. The new lines, approximately 200 feet in length, will connect the Phase 2 project to the SVP 230 kV Switching Station recently constructed between the PG&E Los Esteros Substation and the LECEF.

Silicon Valley Power, the municipal utility for the City of Santa Clara, is engineering a new 230 kV line between its Northern Receiving Station and the PG&E Los Esteros Substation. This new line will not connect directly into the Los Esteros Substation, but will connect to the new SVP 230 kV Switching Station. SVP will connect its 230 kV buses to the PG&E Los Esteros Substation 230 kV buses, separated by new breakers. These breakers and the bus connection require a 60x400 foot expansion of the PG&E Los Esteros Substation fence line southward into the SVP site. This new PG&E-SVP 230 kV interconnection provides a termination point for the 320 MW output of the Phase 2 combined-cycle project. This transmission interconnection is the preferred permanent termination for the 230 kV output of the proposed 320 MW LECEF Phase 2 combined-cycle plant. (Ex. 30, 3-5 to 3-6.)

In addition to analyzing the connection of the Phase 2 combined-cycle output of the LECEF to SVP, the Updated Final System Impact Study by PG&E also

analyzes the impacts of permanently connecting the Phase 1 simple-cycle 180 MW power output to the new SVP Switching Station. This interconnection of the Phase 1 output would involve adding the 115/230 kV LECEF transformers, and making the identical connections described above for Phase 2, and converting the simple-cycle output to 230 kV from its current 115 kV. Under this option, the addition of the new 115/230 kV transformers and interconnection of LECEF to the SVP Switching Station could occur earlier and independently from the Phase 2 combined-cycle conversion. This interconnection would be required prior to synchronizing any of the converted combined-cycle power trains to the SVP grid, and is a practical first step in the phased conversion process. The Applicant is requesting Energy Commission approval to modify the Phase 1 termination accordingly. (Ex. 30, 3-6.)

FINDINGS AND CONCLUSIONS

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

1. Applicant has constructed and operates the LECEF, a nominal, 180 MW simple-cycle natural gas-fired merchant power plant consisting of four turbine islands, a 115-kV switchyard, other power-generation equipment, emission control equipment, and ancillary facilities.

2. The project site is located in the Alviso community of north San Jose in Santa Clara County in an area annexed and previously zoned for industrial development consistent with the original LECEF, but not presently zoned for Phase 2. Proof of proper zoning will be provided prior to submission of this Proposed Decision to the Commission as a whole.

3. Existing linear facilities include a 152-foot-interconnect to the PG&E-controlled grid (that would be removed prior to the startup of a completed Phase 2), gas pipeline interconnections, recycled water supply and discharge pipelines, a storm water line to Coyote Creek, an access road and an emergency access road.

4. Applicant proposes to construct and operate LECEF 2, a nominal 320 MW combined-cycle natural gas-fired merchant power plant incorporating the

above-described LECEF and adding a 140MW Steam Turbine Generator and associated equipment, a new interconnection to the regional transmission grid, and ancillary equipment and facilities.

5. Additional lineal facilities include two aerial lines, each approximately 200-foot long, providing a 230 kV connection to the adjacent Silicon Valley Power switching station.

We conclude that the LECEF Phase 2 is described in sufficient detail 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. (Pub. Resources 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. (Ex. 1, [Vol. 1], sec. 9.)[6] Staff also conducted an Alternatives analysis as part of its Staff Analysis of the LECEF 2, Phase 2 project. (Ex. 30, sec.6.) In addition, this Commission has twice reviewed the evidence on Alternatives (2002 Decision, pp. 21-28 and 2005 Decision. pp. 20-26) and we adopt those reviews and the findings contained therein. 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 project…", as well as an evaluation of the "no project" alternative. [14 CCR, § 15126 (e).]

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, § 15125 (d)(5).]

[6]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).]

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence of record addresses alternatives to the LECEF. The methodology used to evaluate this alternatives section includes:

- Identifying the basic objectives of the project;
- Providing an overview of the project's potentially significant adverse impacts (including appurtenant facilities);
- Evaluating possible alternatives to the project;
- Discussing the possibility of alternative locations for sites; and
- Evaluating the impacts of no project.

1. Project Objectives

Staff summarized Applicant's objectives for constructing the LECEF project as follows, noting that LECEF began commercial operation on March 7, 2003:

- To provide electrical energy in the deregulated power market;
- To be located near key infrastructure including transmission line interconnections, supplies of natural gas, and recycled water;
- Add support and reliability to the North San Jose Transmission Reinforcement Project recently approved by the CPUC; and
- To provide a reliable source of energy for the future U.S. Dataport facility, mitigating the diesel-fueled reliable energy center in that original proposed development. (Ex. 30, 6-2.);

2. Potentially Significant Adverse Impacts

The environmental impacts of the project are discussed in detail in the individual subject areas of this Decision. However, in its Alternatives analysis Staff determined that there were no potentially significant, unmitigated, adverse environmental impacts in any of the subject areas of discussion. Staff's conclusion and Applicant's ability to mitigate impacts to levels of insignificance is discussed under the respective topics. (Ex. 30, 6-2.) In addition, Staff determined, and we agree, that since the LECEF is already constructed and operating, no further consideration of alternative sites was warranted. (Ex. 30, 6-1.)

3. Technological Alternatives

LECEF has been constructed, has begun commercial operation, and is now seeking to convert the plant to a combined-cycle facility. No alternative technology, site, or demand-reduction program provides a practical alternative, or has the ability to replace the 180 MW electrical output of the LECEF in the North San Jose area served by the project. Alternative generation typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project to ensure a reliable supply of electricity for north San Jose and California. (Ex. 30, 6-6.)

Staff and Applicant did not consider alternative technologies (solar, wind, biomass, and hydroelectric) to be feasible alternatives to the combined-cycle LECEF 2. (Ex. 1, 9-3 to 9-4; Ex. 30, 6-6.) We concur with the analyses provided by the Applicant and Staff.

Staff also considered **Alternative Cooling Technologies** as a part of its investigation into technology alternatives. According to Staff (Ex. 30, p. 6-2), questions have been asked throughout the analysis process about processes that would reduce the potential impacts to water resources from power plant cooling, including impacts on the availability of recycled water for future uses in the region, and potential impacts to the quality of the WPCP product such as increased salinity, and decreased quality of the Santa Clara/San Jose Water Pollution Control Plant (WPCP) discharge back to the San Francisco Bay. The City of San Jose, Environmental Services Department, Watershed Protection (City) and Energy Commission staff have determined that the LECEF Phase 2 combined-cycle project will not have a significant negative impact on these parameters. Early analysis by staff considered the value of a zero liquid discharge system (ZLD). Other projects where water availability is critical have employed dry cooling technology. Since some discussion has occurred at

workshops and hearings regarding these technologies and their potential for application to the LECEF Phase 2 project, Staff determined that an analysis was appropriate. (Ex. 30, p. 6-3.) We agree and adopt Staff's brief analysis of both Zero Liquid Discharge (ZLD) and Dry Cooling.

Zero Liquid Discharge (ZLD) is principally a variation on the evaporative cooling system in which the residual blow-down water from the wet-cell cooling towers is filtered and processed for recirculation multiple times through the cooling system. The continued filtration and recirculation of the blow-down water essentially continues the evaporation eliminating the need for discharging the water back to the sewer system. The ZLD system also reduces the amount of water required for cooling. Additional recycled water is added to this treated blow-down water to make up for water evaporated from the cooling towers. The solid residue from the filtration and treatment process is then disposed of at an appropriate landfill. Additional treated water storage capacity, condensers, a crystallizer and associated pumps and piping would need to be added to the site. After discussions with the applicant and the City staff determined that the recently modified service agreements for recycled water use and modifications to equipment and operation protocols at LECEF insures that no incremental adverse impacts occur to the South Bay Water Recycling Program, to the WPCP, or to the effluent eventually discharged from the WPCP to the San Francisco Bay. The principal benefit of a ZLD system is a reduction of demand for the recycled water used for cooling tower operation, and elimination of the waste water return stream with its concentrated total dissolved solids (TDS). ZLD creates an additional solid waste stream, and would require retrofitting the currently operational LECEF. The redesign and adding of new equipment could add substantial costs to the project. Staff determined that the potential benefits of a ZLD system were not significantly greater that those already achievable at the LECEF, including the beneficial use of the recycled water produced by the WPCP. (Ex. 30, 6-3.)

Dry cooling is an alternative means of reducing impacts to California's water supply through the use of air cooled condensers that eliminate the need for wet-cell cooling towers, and water for evaporative cooling. Dry cooling eliminates the need for the treated water storage system, drum-type condensers, and pumps associated with circulating the cooling water between the turbines and the cooling towers. The evaporative 6-cell cooling tower array is replaced by up to 30 air cooled condensers mounted above horizontal fans. Steam from the cooling water used in the combustion process is directed through piping to the air cooled condensers. These individual fan and condenser housings are elevated over 100 feet above the ground with walls around the base to direct the flow of ambient air, used as the cooling mechanism, upward through the elevated fan units and across bundles of finned tubes which carry the steam. The ambient temperature air cools the steam resulting in condensation within the tubes. The resulting water is then used as make up water and re-circulated through the combustion cooling system. These unit fans may be 32 feet or more across. The amount of space required for the complete dry cooling array is considerably larger than for wet-cell cooling towers. The cost of dry cooling arrays may be double that of the evaporative cooling, and add a greater draw on the electrical output of the facility thereby reducing the power output to the grid. Visual impacts of dry cooling may be considerable due to the large area needed for the cells, and the high elevations for the steam ducts and finned cooling tubes. These attributes, and the fact that LECEF Phase 2 plans to continue the beneficial use of recycled water, make the design change impractical for this project. (Ex. 30, 6-3 to 6-4.)

4. Alternative Locations

Two alternative sites were reviewed and rejected as being inferior during the original siting process for LECEF (2002 Decision). The LECEF site itself was viewed as a preferred alternative site for the Metcalf Energy Center siting case approved by the Energy Commission in 2001. Because the project is already constructed and operating, no alternative sites are considered for the Phase 2 conversion. (Ex. 30, 6-2.)

LECEF has been constructed, has begun commercial operation, and is seeking a license to convert to a combined-cycle facility. No alternative technology, site, or demand-reduction program provides a practical alternative, or has the ability to replace the 180 MW electrical output of the LECEF in the North San Jose area served by the project. Alternative generation typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project to provide peaking, load-serving or load-following capability in order to ensure a reliable supply of electricity for north San Jose and California. (Ex. 30, 6-6.)

No alternative sites were proposed by the Applicant or by Staff as the proposed project is a fully operational power plant interconnected to the grid. (Ex. 30, 6-1.)

5. No Project

CEQA Guidelines and Energy Commission regulations require us to consider the "No Project" Alternative. This alternative assumes that the requested license is not granted, the power plant remains as a simple-cycle facility, and the impacts of that scenario are compared to those of the proposed project.

The California Independent System Operator (ISO) has analyzed the electric reliability problems of the greater San Jose area and concluded that more local generation is needed. Such generation greatly reduces stress on the transmission system and increases critical reliability margins. The LECEF project was licensed in 2002 to provide additional local generation, with attendant reliability benefits. The ISO and Energy Commission staff had previously identified the LECEF project location as an ideal location that would maximize the benefits of new generation for overall electricity grid reliability. The Commission has previously analyzed numerous San Jose area sites in the Metcalf Energy proceedings, and concluded that benefits of locating a project at

the LECEF site included important line loss savings, a reduction of reliability must run concerns, and the ability to provide Bay Area grid reliability benefits (Ex. 30, 6-4; 2005 Decision, p. 23.)

The need for new generation in the region remains significant. Estimated need for the North San Jose area is 800 MW in 2004, rising to 900 MW by 2008. With the completion of the 120 MW PICO power plant, the North San Jose area will have approximately 420 MW of "internal" generating capacity. Even with the proposed conversion of LECEF to combined cycle mode (adding an additional 140 MW) local generation will only account for approximately 65 percent of the area's peak power demand, requiring continued import of 300 MW in 2008. (Ex. 30, 6-4; Decision, pp. 23-24.)

If the project is not licensed ("no project"), the increased system reliability benefits of LECEF will be forgone, and new generation projects will presumably be needed in other San Jose locations. Moreover, the use of the excellent site location near existing substations and switchyards would not be utilized to provide the additional 140 MW of electrical output the Phase 2 project would deliver from the LECEF facility. (Ex. 30, 6-4.)

If the conversion is licensed, it will continue to emit criteria pollutants into the greater San Jose region. These emissions will be slightly greater than those of the simple-cycle facility the project augments. Although the facility is a modern and relatively clean gas-fired project these emissions may contribute to regional air pollution. The expected emissions may also add a slight contribution to nitrogen deposition on sensitive serpentine soils downwind of the project that host listed endangered species that rely on such soils. However, if the project is not licensed, it is relatively likely that additional generation sources will be built elsewhere in the region that will have similar environmental impacts. Moreover, it is doubtful that these future projects would have as beneficial a location for the purposes of transmission system reliability. If the locations of future generation

capacity are less optimal, the system will be somewhat less efficient, requiring some level of generation greater than that of the addition of the 140 MW from the LECEF combined-cycle conversion to achieve a similar level of reliability. (Ex. 30, 6-4 to 6-5.)

The No Project Alternative under CEQA assumes that the LECEF project license to convert to combined-cycle is not approved and the power plant remains a 180 MW simple-cycle facility. In the CEQA analysis, the No Project Alternative is compared to the proposed project and determined to be superior, equivalent, or inferior to it. The CEQA Guidelines state that "the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." [14 CCR §15126.6(i).] Toward that end, the No Project analysis considers "existing conditions" and "what would be reasonably expected to occur in the foreseeable future if the project were not approved…." [14 CCR §15126.6(e)(2).]

The LECEF was constructed under the Energy Commission's expedited power plant review process, which was intended to provide power within a short timeframe to serve California's growing demand. The need for electricity capacity in the region, and the state, has not lessened. Estimated need for the North San Jose area is 800 MW in 2004, rising to 900 MW by 2008. The San Jose and Silicon Valley generally have an even greater need for additional local generation capacity (Ex. 30, 6-5; 2005 Decision, pp. 23-25.)

In the original LECEF AFC, Calpine stated that the "No Project" Alternative would not provide increased peaking generation to serve the State's electricity demand. Also, the "No Project" Alternative would eliminate the expected benefits that the LECEF 2 project brings to San Jose and the Northeastern Transmission System Reinforcement Project service area, including increased property taxes, employment, sales taxes, and sales of services. Conversion to combined-cycle

operation would add employment opportunity and provide an increase in local and regional purchases in support of the LECEF 2 facility. The proposed combined-cycle LECEF 2 would also provide an additional 140 MW of needed capacity to the North San Jose area. Staff and Applicant agree that, when all of the factors discussed above are considered, the project appears to be environmentally superior when compared to the “no project” alternative. (Ex. 1, sec. 9; Ex. 30, 6-5.) This concurs with the opinions expressed by Mr. Gross and Mr. Santos at the Information Hearing. (5/04/04 RT 44-51) and contradicted by no one.

Both Staff and Applicant have conducted comprehensive Alternatives analysis. Those analyses and lack of any evidence to the contrary convince us of the appropriateness of this project.

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

2. The evidentiary record contains an appropriate discussion of alternative technologies, fuels, linear routings, and the “no project” alternative.

3. No alternative to the 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 Final Staff Analysis.

We therefore conclude that the evidence of record contains an analysis of possible alternatives to the LECEF project, including its appurtenant facilities, which satisfies 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 LECEF 2 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. (See Ex. 30, 7-1.)

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. Facility closure can be temporary or permanent. Temporary closure is defined as a shutdown for a period exceeding the time required for normal maintenance, including for overhaul or replacement of the combustion turbines. Causes for temporary closure include a disruption in the supply of natural gas or damage to the plant from earthquake, fire, storm, or other natural acts. Permanent closure is defined as a cessation in operations with no intent to restart operations owing to plant age, damage to the plant beyond repair, economic conditions, or other reasons. (Ex. 1, p. 4-1.)

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

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

FINDINGS AND CONCLUSIONS

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

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Los Esteros Critical Energy Facility 2, Phase 2, will be designed, constructed, operated, and closed in conformity with applicable law.

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

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

COMPLIANCE PLAN

GENERAL CONDITIONS OF CERTIFICATION

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;
2. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
3. documenting and tracking compliance filings;
4. ensuring that the compliance files are maintained and accessible; and
5. receiving and resolving complaints.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and the Energy Commission when handling disputes, complaints and amendments.

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

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 or operation-related questions, and complaints or concerns.

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 the construction and operation of the plant due to oversight and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

Energy Commission Record

The Energy Commission shall maintain as a public record, in either the Compliance file or Docket file, for the life of the project (or other period as required):

all documents demonstrating compliance with any legal requirements relating to the 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.

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.**

GENERAL CONDITIONS OF CERTIFICATION

COM-1, Unrestricted Access

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 files and 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.

COM-2, Compliance Record

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.

COM-3, Compliance Verification Submittals

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) specifically tailored to each AFC to ensure post-certification compliance with adopted conditions.

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

1. adhering to the procedures spelled out in the verification;
2. reporting on the work done and providing the pertinent documentation in annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
3. providing appropriate letters from delegate agencies verifying compliance;
4. Energy Commission staff audits of project records; and/or
5. Energy Commission staff inspections of mitigation or other evidence of mitigation.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

All submittals shall be addressed as follows:

Lance Shaw
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 (allowing sufficient lead time for the CPM to process the amendment to the conditions of certification) the owner shall so state in the submittal and include a detailed explanation of the effects on the project if this date is not met.

COM-4, Pre-construction Matrix, Tasks Prior to Start of Construction, and Compliance Reporting

Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's first compliance submittal, and shall be submitted prior to the first pre-construction meeting, if one is held. It will be in the same format as the compliance matrix referenced below.

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

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project construction.

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.

It is important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change based upon the Final Decision.

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.

Employee Orientation

Environmental awareness orientation and training will be developed for presentation to new employees during project construction as approved by Energy Commission staff and described in the conditions for Biological, Cultural, and Paleontological resources. At the time this training is presented, the project owner's representative shall present information about the role of the Energy Commission's delegate Chief Building Official (CBO) for the project. The role and responsibilities of the CBO to enforce relevant portions of the Energy Commission Decision, the CBSC, and other relevant building and health and safety requirements shall be briefly presented. As part of that presentation, new employees shall be advised of the CBO's authority to halt project construction activities, either partially or totally, or take other corrective measures, as appropriate, if the CBO deems that such action is required to ensure compliance with the Energy Commission Decision, the CBSC, and other relevant building and health and safety requirements. At least 30 days prior to construction, the project owner shall submit the proposed script containing this information for CPM review and approval.

COM-5, Compliance Matrix

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of 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. the project’s preconstruction and construction milestones, including dates and status (if milestones are required).

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 in one annual compliance report.

COM-6, Monthly Compliance Report

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.**

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and ten 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;
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, with justification, 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 resolved complaints, and the status of any unresolved complaints.

COM-7, Annual Compliance Report

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix 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.

COM-8, Construction and Operation Security Plan

At least 14 days prior to commencing construction, a site-specific Security Plan for the construction phase shall be submitted to the CPM for approval. At least 30

days prior to the initial receipt of hazardous materials on-site, a site-specific Security Plan for the operational phase shall be submitted to the CPM for review and approval.

Construction Security Plan

The Construction Security Plan shall include the following:

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

1. The Operations Security Plan shall include the following:
2. permanent site fencing and security gate;
3. evacuation procedures;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. fire alarm monitoring system;
6. site personnel background checks, including employee and routine on-site contractors [Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate. All site personnel background checks shall be consistent with state and federal law regarding security and privacy.];
7. site access for vendors; and
8. requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B.
9. In addition, in order to ensure adequate perimeter security, the Security Plan shall include either:
    a. guards on-site 24 hours per day, 7 days per week <u>or</u>
    b. operations staff on-site 24 hours per day 7 days per week **plus** all of the following:
        - The entire power plant perimeter is protected by a chain-link fence topped with barbed or concertina wire.
        - The site is equipped with security cameras that can zoom, have low-light function, and are recorded, viewed, and controlled from

the power plant control room and which are positioned such that they cover 100% of the perimeter fenceline, the aqueous ammonia storage tank, and the entrance to the control room.

- Perimeter breach detectors (either infrared or microwave) that are placed inside along the entire perimeter fence and report to the control room.

Vulnerability Assessment

In addition, in order to determine the level of security appropriate for this power plant, the project owner shall prepare a Vulnerability Assessment and implement site security measures that is consistent with guidelines including but not limited to the Chemical Accident Prevention Alert regarding Site Security (EPA 2000), the Department of Justice Chemical Facility Vulnerability Assessment Methodology (US DOJ 2002), the North American Electric Reliability Council Security Guidelines for the Electricity Sector (NAERC 2002), the U.S. Department of Energy Vulnerability Assessment Methodology for Electric Power Infrastructure (DOE 2002), and from the California Energy Commission. The level of security to be implemented is a function of the likelihood of an adversary attack, the likelihood of adversary success in causing a catastrophic event, and the severity of consequences of that event. This Vulnerability Assessment will be based, in part, on the use and storage of certain quantities of acutely hazardous materials as described by the California Accidental Release Prevention Program (Cal-ARP, Health and Safety Code section 25531). Thus, the results of the off-site consequence analysis prepared as part of the Risk Management Plan (RMP) will be used to determine the severity of consequences of a catastrophic event and hence the level of security measures to be provided.

The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the Security Plan. The CPM may authorize modifications to these measures, or may recommend additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the Security Plan. The CPM may authorize modifications to these measures, or may recommend additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

COM-9, Confidential Information

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

COM-10, Department of Fish and Game Filing Fee

If required 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 Siting 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.

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

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 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 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).

Facility Closure

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

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

Closure Definitions

Planned Closure

A planned closure occurs 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.

Unplanned Temporary Closure

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

Unplanned Permanent Closure

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

General Conditions for Facility Closure

COM-12, Planned Closure

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.

The plan shall:

- 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;

- 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;
- identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
- 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.

In the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

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.

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.

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

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

The project owner shall resubmit an on-site contingency plan for CPM review and approval. The plan shall be submitted within 60 days (or other time agreed to by the CPM) after certification. The approved plan must be in place within 120 days after recertification of project operation of the facility and shall be kept at the site at all times.

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

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more

than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. (Also see the analysis for the technical areas of Hazardous Materials Management and Waste Management.)

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

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

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than 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 of time agreed to by the CPM).

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

The on-site contingency plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure.

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

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

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

CBO Delegation and Agency Cooperation

In performing construction 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.

Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental control when conducting project monitoring.

Enforcement

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

Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

Noncompliance Complaint Procedures

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 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.

Informal Dispute Resolution Procedure

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

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 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.

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 that the Energy Commission 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.

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 which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint 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.

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).

POST CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION: AMENDMENTS, OWNERSHIP CHANGES, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify project design, operation or performance requirements, change any condition of certification and to transfer ownership or operational control of the facility. It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769. Implementation of a project modification without first securing Energy Commission or Energy Commission staff approval may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for **amendments** and for **insignificant project changes** as specified below. For verification changes, a letter from the project owner is sufficient. In all cases, changes should not be implemented until approved by the Commission or in the case of a verification change, by the CPM. The petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval and the process that applies are explained below.

Amendment

The project owner shall petition the energy commission, pursuant to Title 20, California Code of Regulations, Section 1769, when proposing modifications to project design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis, and approval by the full commission. This process takes approximately two to three months to complete, and possibly longer for complex project modifications.

Change of ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process takes approximately one month to complete, and requires public notice and approval by the full commission.

Insignificant Project Change

Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards, and do not require any additional mitigation, may be processed as insignificant project changes. The CPM, after review and concurrence with technical staff may issue a notice of insignificant project change pursuant to section 1769(a) (2). This process requires a 14-day public review of the Notice of Insignificant Project Change of staff's intention to approve the modification unless substantive objections are filed. If substantial objections are filed the notification must be heard at a Public Business Meeting and approved by the Commission.

Verification Change

A verification may be modified by the CPM without requesting an amendment to the decision if the change does not conflict with the conditions of certification and provides an effective alternate means of verification. This process usually takes less than five working days to complete.

COM-6, KEY EVENTS LIST

PROJECT: _____

DOCKET # _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
CERTIFICATION DATE/OBTAIN SITE CONTROL	
ONLINE DATE	
POWER PLANT SITE ACTIVITIES	
START SITE MOBILIZATION	
START GROUND DISTURBANCE	
START GRADING	
START CONSTRUCTION	
BEGIN POURING MAJOR FOUNDATION CONCRETE	
BEGIN INSTALLATION OF MAJOR EQUIPMENT	
COMPLETION OF INSTALLATION OF MAJOR EQUIPMENT	
FIRST COMBUSTION OF GAS TURBINE	
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	4	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-2	4	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	4	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether the condition was satisfied by work performed by the project owner or his agent.
COM-4	5	Pre-construction Matrix, Tasks Prior to Start of Construction , and Compliance Reporting	Construction shall not commence until 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; and ▪ the CPM has issued a letter to the project owner authorizing construction.
COM-5	6	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.
COM-6	6	Monthly Compliance Report	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 (see page 19).

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-7	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	8	Security Plans	Thirty days prior to commencing construction, the project owner shall submit a Security Plan for the construction phase. Sixty days prior to initial receipt of hazardous material on site, the project owner shall submit a Security Plan & Vulnerability Assessment for the operational phase.
COM-9	10	Confidential Information	Any information the project owner deems confidential shall be submitted to the Dockets Unit with an application for confidentiality.
COM-10	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	10	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COM-12	11	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	12	Unplanned Temporary Closure/On-site Contingency Plan	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COM-14	13	Unplanned Permanent Closure/On-site Contingency Plan	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.

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: Los Esteros Critical Energy Facility AFC Number: (03-AFC-2)
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

The broad engineering assessment conducted for the LECEF 2 Power Project is comprised of individual analyses affecting the facility design, as well as the efficiency and the reliability of the proposed power plant. The subjects of this assessment include not only the power generating equipment, but other project-related elements such as the associated linear facilities (the transmission line, the natural gas supply pipeline, and the raw water supply pipeline).

A. FACILITY DESIGN

SUMMARY OF THE EVIDENCE

The facility-design portion of the engineering assessment combines four technical areas: civil engineering; structural engineering; mechanical engineering; and electrical engineering as noted by Staff in a review of the existing Facility Design Conditions of Certification. (Ex. 30, p. 5.1-1.) The basis for the Conditions of Certification in each technical section are those found in the Commission Decision for the original LECEF (01-AFC-12) and the Commission Decision on the recertification of the license on March 16, 2005 (Phase 1 of this AFC). The Staff's analysis is based upon an already-constructed and operating project, as well as information presented in the current AFC and other information furnished by the Applicant and/or others. The licensing of the conversion project requires that any and all changes to laws, ordinances, regulations and standards (LORS), and any changes in the environment be considered in developing new Conditions of Certification. These new Conditions of Certification reflect both modification of existing conditions and the development of new conditions as appropriate.

Phase 1 of LECEF II is a nominal 180-megawatt (MW) natural-gas-fired simple-cycle peaking facility. Electrical generation is at 13.8 kilovolts (kV), which is stepped up to 115 kV for connection to the system grid. The facility's

interconnection involves a wooden-pole line connecting the LECEF switchyard with the PG&E's 115 kV Los Esteros-Nortech line. (Ex. 1, p.2-2.)

The project site is located in Seismic Zone 4, a designation indicating the highest level of potential earthquake-related shaking in California. To address this potentiality, major structures and components must be designed and constructed to conform to the analysis requirements of the most recent edition of the California Building Code.[7] (01-AFC-12, p. 47.)

Key facility design features of Phase 1 are as follows:

- Four General Electric LM6000 SPRINT combustion turbine generators (CTGs) equipped with water injection to control oxides of nitrogen (NO_x) emissions, water injection for power augmentation, and associated auxiliary equipment. Carbon monoxide (CO) emissions are controlled in the CTG combustors through good combustion practices. Each CTG generates a nominal 45 MW.
- Selective catalytic reduction (SCR) and oxidation catalyst units for further NO_x and CO emissions reduction. These are housed in four HRSG casings that were installed during construction in anticipation of the Phase 2 installation of steam generator tubing and other combined-cycle equipment.
- A one-cell cooling tower for plant equipment cooling.
- A 10-inch-diameter, 550-foot long natural gas pipeline that connects to existing PG&E lines 101 and 109, both of which are located adjacent to State Route 237.
- One 18-inch-diameter, 1,500-foot-long recycled water pipeline that connects with the South Bay Water Recycling Program's (SBWRP's) recycled water main, located within the City of San Jose's buffer land west of the project site.
- An 18-inch-diameter 2,000-foot-long waste water pipeline connecting LECEF with the City's sanitary sewer line located in Zanker Road.
- A 1,000-foot-long storm water drain that connects LECEF to an existing 24-inch diameter outfall, located to the east of the site at the flood control channel adjacent to Coyote Creek. In accordance with existing Conditions of Certification, permits applications are currently in process for construction of a permanent storm water outfall that extends the drain approximately 250 feet into Coyote Creek. Agencies involved in issuing these permits include the

[7] The 1998 edition of the California Building Code was in effect and the time of our last Decision. (See 2005 Decision, p. 49, fn. 9.) That version has now been superseded by the 2001 version. (See Ex. 30, p. 5.1-2, further discussed below)

U.S. Army Corps of Engineers (404 Section 7 Nationwide Permit); the California Department of Fish and Game (Streambed Alteration Agreement); the Santa Clara Valley Water District (encroachment permit); and the San Francisco Bay Regional Water Quality Control Board (Section 401 Water Quality Certification). Applicant anticipates that construction of the permanent outfall will occur in the summer of 2005. (Ex. 1, pp. 2-2 to 2-8; Ex. 30, p. 3-3; Ex. 30, p. 4.9-6.)

Phase 1 operation design and operation is adequately discussed in our last Decision (2005 Decision, pp. 50-57) and need not be repeated here. No changes are required for our findings therein. LECEF was constructed between July 2002 and October 2003. There was no new construction associated with Phase 1 of this Application. The Phase 1 facility has been designed to operate to export electric power for 24 hours per day, 7 days per week, year-round, except as required for planned maintenance. (Ex. 1, p. 2-13.)

Phase 2 design involves a conversion of the existing facility to combined-cycle operation. The resulting facility will have a nominal 320 MW generating capacity. The combined-cycle conversion will be accomplished through the addition of several key components:

- HRSG tubes, evaporator drums, piping and associated equipment (casings for the HRSGs were licensed and installed as part of Phase 1)
- HRSG duct burners
- One nominal 140 MW steam turbine generator
- A deaerating surface condenser
- A six-cell mechanical-draft, plume-abated evaporative cooling tower
- Circulating water pumps
- Boiler feed water pumps
- Water treatment
- Steam turbine generator step-up transformer
- Electrical equipment enclosure and accessories for combined-cycle configuration
- Cycle blowdown tanks
- Two 115:230 kV step-up transformers

Electrical generation will be at 13.8 kilovolts, which will be stepped up to 115 kV and sent to the LECEF switchyard. In the switchyard, the power will be stepped up to 230 kV through the two transformers and sent via two aerial 230 kV 200-foot long transmission lines to the planned SVP 230 kV switching station, to be located immediately north of the existing LECEF switchyard. The total facility generation capacity (Phases 1 and 2 combined) is expected to be approximately 320 MW upon completion of Phase 2. (Ex. 1, p. 2-13.) See also Figures 3 and 4, *supra*.

For Phase 2, the CTG exhaust gases will be used to generate steam in the HRSGs. The HRSGs will use a reheat steam cycle design with duct firing. Steam from the HRSGs will be admitted to a condensing steam turbine generator. Approximately 130 to 140 MW will be produced by the steam turbine when the CTGs are operating at base load conditions with normal duct firing within the HRSGs. The facility is expected to have an overall annual availability in the general range of 92 to 98 percent. (Ex. 1, pp. 2-13, 2-19.)

The existing emission control systems from Phase 1 will continue in use. NOx and CO emissions from the duct burners will be controlled through good combustion practices and through the SCR and oxidation catalyst units. During Phase 2 operations, the hot combustion gases exit the turbine sections and enter the HRSGs. In the HRSGs, boiler feed water is converted to superheated steam and delivered to the steam turbine at three pressures: high-pressure (HP), intermediate-pressure (IP), and low-pressure (LP). The use of multiple steam delivery pressures increases cycle efficiency. High-pressure steam expands through the HP section of the steam turbine and is discharged as cold reheat steam. Cold reheat steam is combined with the IP steam and returned to the reheater sections of the HRSGs. This mixed, reheated steam (called “hot reheat”) is then expanded in the IP steam turbine section. Steam exiting the IP section of the steam turbine is mixed with LP steam and expanded in the LP steam turbine section. Steam leaving the LP section of the steam turbine enters

the surface condenser where it is condensed. The heat energy released by condensing the steam is transferred to the circulating water which, in turn, releases heat energy to the atmosphere by means of a mechanical-draft cooling tower. (Ex. 1, p. 2-19.)

The HRSGs provide for the transfer of heat from the exhaust gases of the CTGs to the feed water, which is turned into steam. The HRSGs will be three-pressure, reheat, natural circulation units equipped with duct burners, insulation, lagging, and emissions control equipment. Major thermal components of each HRSG include an LP economizer, LP drum, LP evaporator, LP superheater, IP economizer, IP evaporator, IP drum, IP superheater, IP reheater, HP economizers, HP evaporator, HP drum, and HP superheaters. The LP economizer receives condensate from the condenser hot well via the condensate pumps. The LP economizer is the final heat transfer section to receive heat from the combustion gases prior to their exhausting to the atmosphere. From the LP economizers, the condensate is directed to the LP drums where it is available to generate LP steam and supply condensate to the boiler feed pumps. The boiler feed pumps draw suction from the LP drums and provide additional pressure to serve the separate IP and HP sections of the HRSGs.

Feed water from the boiler feed pumps is sent to the HP sections of the HRSGs. High-pressure feed water flows through the HP economizers, where it is preheated prior to entering the HP steam drums. Within the HP steam drums, a saturated liquid state will be maintained. The saturated water will flow through downcomers from the HP steam drums to the inlet headers at the bottom of the HP evaporators. Saturated steam will form in the tubes as energy from the combustion turbine exhaust gases is absorbed. The HP-saturated liquid/vapor mixture will then return to the steam drums, where the steam separators in the drums will separate the two phases. The saturated water will return to the HP evaporators, while the vapor continues on to the HP superheaters. Within the HP superheaters, the temperature of the HP steam will be increased above its

saturation temperature, or “superheated” prior to being admitted to the HP section of the steam turbine. (Ex. 1, p. 2-19.)

Feedwater will also be sent to the IP sections of the HRSGs by an interstage bleed from the boiler feed pumps. Similar to the HP sections, feedwater will be preheated in the IP economizers and steam will be generated in the IP evaporators. The saturated IP steam will pass through IP superheaters and then be mixed with “cold reheat” steam from the discharge of the steam turbine HP section. The blended steam will then pass through additional IP superheaters, reheating the steam to a superheated state. The “hot reheat” steam will then be admitted to the steam turbine IP section.

Condensate will be preheated by the LP economizers prior to entering the LP steam drums. Similar to the HP and IP sections, steam will be generated in the LP evaporators and superheated in the LP superheaters. The superheated LP steam will then be admitted to the LP section of the steam turbine along with the steam exhaust from the steam turbine IP section. Duct burners will be installed in the HRSGs. These burners will provide the capability to increase steam generation and provide greater operating flexibility and improved steam temperature control. The duct burners will burn natural gas only. The duct burners for each HRSG will be sized for a heat output of up to 125 million British thermal units (BTUs) per hour on a lower heating value (LHV) basis (139 MMBTU/hr HHV). The HRSGs will include the existing SCR and oxidation catalyst units from Phase 1. (Ex. 1, p. 2-20.)

The steam turbine system consists of a condensing steam turbine generator (STG) with reheat. The STG also includes: gland steam system, lubricating oil system, hydraulic control system, and steam admission/induction valving. Steam from the HRSG HP, IP, and LP superheaters enters the associated steam turbine sections through the inlet steam system. The steam expands through multiple stages of the turbine, driving the generator. On exiting the turbine, HP exhaust is

directed to the HRSGs to be “reheated” and the LP exhaust is directed into the surface condenser to be condensed. (Ex. 1, p. 2-20.)

The electric power produced by the facility during Phase 2 operation will be transmitted to the regional transmission grid. Some of this power will be used for the U.S. DataPort Super Hub computer server center, once the server center is constructed. Phase 2 will include several additional pieces of power using equipment, such as pumps and fans. Phase 2 specific transmission lines and auxiliary uses are discussed in the following subsections. (Ex. 1, p. 2-20.)

The STG will generate power at 13.8 kV. The 13.8 kV generator output will be connected by isolated phase bus through a generator circuit breaker to an oil-filled generator step-up transformer, which will increase the voltage to 115 kV. Surge arresters will be provided at the high-voltage bushings to protect the transformers from surges on the 115 kV system caused by lightning strikes or other system disturbances. The transformers are set on concrete pads within containment systems designed to contain the transformer oil in the event of a leak or spill. The high voltage side of the STG step-up transformer is connected to the switchyard via underground cables. The switchyard will be expanded to include two 115 to 230 kV step-up transformers. The switchyard will interconnect with the SVP 230 kV Switching Station via two 230 kV aerial transmission lines. (Ex. 1, p. 2-20.)

Auxiliary power to the Phase 2 equipment will be supplied at 4,160 volts AC by a double-ended 4,160-volt switchgear lineup. The existing oil-filled 115 to 4.16 kV station service stepdown transformers that supply primary power to the switchgear will be used if possible. A new oil-filled 115 to 4.16 kV unit auxiliary transformer may be required based on the actual loads. The 4,160-volt switchgear lineup supplies power to the new cooling tower fans, new circulating water pumps, and new boiler feed pumps. A new station service transformer (SST), rated 4,160 to 480 volts for 480-volt power distribution, may be required

based on the actual loads and the spared capacity in the existing system. (Ex. 1, p. 2-21.)

The STG is equipped with 125 VDC battery/charger systems for its hydraulic control and lube oil pumps and generator protection. The balance of plant equipment installed for Phase 2 that needs DC back up power will be connected to the existing DC power supply. Similar to Phase 1, the power block has essential-service (120-volt AC, single-phase, 60-Hz) power users including essential instrumentation, critical equipment loads, and unit protection and safety systems. The existing essential service AC and DC supply systems will provide power to Phase 2 users. For Phase 2, the HRSG duct burners will operate on natural gas only. Low-pressure gas for the HRSG duct burner systems will be provided by a central pressure reduction station located upstream of the gas compressors, and an LP gas distribution system. Maximum natural gas requirements during operation are approximately 61,344 MMbtu/day (HHV). (Ex. 1, p. 2-21.)

Phase 2 will require additional water for make-up to the new six-cell cooling tower. The existing single-cell cooling tower will remain in operation to provide cooling for the facility's auxiliary systems. The facility will also require additional water for makeup for blowdown and losses from the steam cycle. The average make-up water rate for the project is 912 gallons per minute (gpm), for an estimated annual average water makeup rate of 1.31 million gallons per day (mgd). Operation after the construction of Phase 2 will involve slightly higher quantities of demineralized water consumption to make up for steam cycle blowdown and losses. However, the size of the demineralizer unit and tank will not change due to this increased usage. (Ex. 1, p. 2-21, p.7-3; Ex. 30, pp. 4.9-6 to 4.9-7.) For a more detailed description of water supply and usage, se our section on Water Resources, *infra*.

Phase 2 will use the existing connections to the San Jose/Santa Clara WPCP for recycled water. No additional supply lines are required. The new six-cell cooling tower installed as part of Phase 2 will use the same chemicals as the existing cooling tower to control corrosion and scale in the tower and circulating water system. The RO product will also be used for steam cycle make-up. Phase 2 will involve the installation of a new six-cell, plume-abated evaporative cooling tower to remove heat from the circulating water system and the STG coolers. (Ex. 1, p. 2-21 to 2-22.)

For more information on the site and related project description, please see the **Project Description** section of this Decision. Additional engineering design details are contained in the AFC (Ex. 1) in Appendices 10-A through 10-D

Staff evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff also assessed the criteria for designing and constructing linear support facilities such as a natural gas pipeline and electric transmission line. The applicant proposes to use accepted industry standards, design practices and construction methods in preparing and developing the site. Staff concluded that the project, including its linear facilities, would “most likely” comply with all applicable site preparation LORS. Staff proposed acceptable conditions of certification (see below and the Geological and Paleontology section of this Decision) to ensure compliance. (Ex. 30, p. 5.1-2.)

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect

at the time design and construction of the project actually commences. Existing structures and equipment need not be upgraded to the current edition of applicable codes. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 2001 CBSC is in effect, the 2001 CBSC provisions, identified herein, shall be replaced with the applicable successor provisions. (Ex. 30, pp.5.1-2 to 5.1-3.)

Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff proposed Condition of Certification **STRUC-1** (adopted below), which in part requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction. (Ex. 30, p. 5.1-3.)

The AFC describes a project Quality Program that will be used on the project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this quality assurance/quality control (QA/QC) program would ensure that the project is actually designed, procured, fabricated, and installed as contemplated in this analysis. Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions. (Ex. 30, p. 5.1-3.)

The Staff's design review and construction inspection process is developed to conform to CBC requirements and to ensure that all facility design Conditions of

Certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegates typically include the local building official and/or independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections. (Ex. 30, p. 5.1-3.)

Staff has proposed conditions of certification to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities and qualifications of the applicant's engineers responsible for the design and construction of the project (proposed Conditions of Certification GEN-1 through GEN-8). Engineers responsible for the design of the civil, structural, mechanical and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations and specifications submitted to the CBO. These conditions require that no element of construction subject to CBO review and approval shall proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS. . (Ex. 30, p. 5.1-4.)

The testimony of record indicates the Conditions of Certification will ensure that the final design and construction of the proposed project complies with applicable standards. Contained in these Conditions are requirements specifying the roles, qualifications, and responsibilities of engineers overseeing project design and construction. The Conditions also require that no elements of construction proceed without approval from the local building official and that qualified special

inspectors perform appropriate inspections required by the California Building Code. (See Condition **STRUC-1**.)

The environmental impacts of the project are discussed elsewhere in this Decision (for example, under topics such as Biological Resources and Noise). The testimony indicates that Facility Design considerations do not pose the potential for creating cumulative adverse impacts. Finally, the testimony addresses potential project closures under three scenarios: planned closure, unexpected temporary closure, and unexpected permanent closure. The testimony of record indicates that the general-closure provisions contained in the Compliance Plan (*ante)* and supplemented by our Conditions of Certification are sufficient to adequately address and minimize any potential adverse impacts associated with project closure.

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from "mothballing" to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time. In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. Staff has proposed general conditions (see **General Conditions**) to ensure that these measures are included in the Facility Closure plan. (See Ex. 30, p. 5.1-4

FINDINGS AND CONCLUSIONS

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

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

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

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

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

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 2001 California Building Standards Code (CBSC)(also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy code, California Fire Code, California Code of Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBC in effect is that edition that has been adopted by the California Building Standards

Commission and published at least 180 days previously.) The project owner shall insure that all the provisions of the above applicable codes be enforced during any construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility [2001 CBC, Section 101.3, Scope]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** Section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall insure that all contracts with contractors, subcontractors and supplies shall clearly specify that all work performed and materials supplied on this project comply with the codes listed above.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [2001 CBC, Section 109 – Certificate of Occupancy.]

Once the Certificate of Occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility which may require CBO approval for the purpose of complying with the above stated codes. The CPM will then determine the necessity of CBO approval on the work to be performed.

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a preliminary 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 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 and to the CPM the preliminary 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, as applicable, 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 Generator Foundation and Connections	4
SCR Unit Structure, Foundation and Connections	4
Transformer Foundation and Connections	4
CT Inlet Air Filter/Duct Structure, Foundation and Connections	4
Inlet Air Chillers Skid Foundation and Connections	4
Exhaust Stack Structure, Foundation and Connections	4
Fuel Gas Filter Foundation and Connections	4
Fuel Gas Compressor Foundation and Connections	1
Gas Turbine Enclosures Structure, Foundation and Connections	4
Potable Water Tank Foundation and Connections	1
Ammonia Storage Tank & Pump Foundation and Connections	1
Cooling Tower Foundation and Connections	1
Lube Oil Storage Room Structure, Foundation and Connections	1
Starting Hydraulic Skid Foundation and Connections	4
Performance Skid Foundation and Connections	4
Demineralized Water Filter Skid Foundation and Connections	4
Auxiliary Water Injection Pumps Foundation and Connections	4
Air Compressor/Air Dryer Foundation and Connections	1
Oil/Water Separator Foundation and Connections	2
Wash Water Drain Tank Foundation and Connections	2
Ammonia Vaporizer Skid Foundation and Connections	4
Switchgear Building Structure, Foundation and Connections	1
Black Start Generator Foundation and Connections	1
Fire Water Tank Foundation and Connections	1
Fuel Gas Metering Station Structure, Foundation and Connections	1
Fire Water Primary and Emergency Pump Foundation and	1

Equipment/System	**Quantity (Plant)**
Connections	
Auxiliary Cooling Water Pump Foundation and Connections	1
Service/Administration Building Structure, Foundation and Connections	1
Switchyard Control Room Structure, Foundation and Connections	1
115-kV Switchyard Building Structure, Foundation and Connections	1
Steam Turbine (ST) Foundation and Connections	1
Steam Turbine Generator (STG) Foundation and Connections	1
Steam Condenser and Auxiliaries Foundation and Connections	1
Heat Recovery Steam Generator (HRSG) Structure, Foundation and Connections	4
HRSG Feed Pumps Foundation and Connections	4
STG Unit Auxiliary Transformer Foundation and Connections	1
STG Power Distribution Center Structure, Foundation and Connections	1
STG Main Transformer Foundation and Connections	1
Condensate Pumps Foundation and Connections	2
Circulating Water Pumps Foundation and Connection	2
Condensate Storage and Transfer System Foundation and Connections	1
Boiler Feed Water Pump Foundation and Connections	2
Cooling Tower Structure, Foundation and Connections	1
Cooling Tower Blowdown Storage Tank, Foundation and Connections	1
Circulating Water Chemical Feed System Foundation and Connections	1
Aqueous Ammonia Storage Tank Foundation and Connections	1
Equipment Cooling Water Heat Exchanger Foundation and Connections	1
Potable Water Systems	1 Lot
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2001 CBC

[Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

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

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

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

The RE shall:

1. Monitor construction progress of work requiring CBO design review and inspection to ensure compliance with LORS;
2. Ensure that construction of all the facilities subject to CBO design review and inspection conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;
3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;
4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;

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

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

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

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

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

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: D) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 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.

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. [2001 CBC, Section 104.2, Powers and Duties of Building Official.]

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

A. The civil engineer shall:

1. Review the Foundation Investigation Report, Geotechnical Report or Soils Report prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;
2. Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and
3. Provide consultation to the RE during the construction phase of the project, and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

1. Review all the engineering geology reports;

2. Prepare the Foundation Investigations Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations]; Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33, Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and

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

This engineer shall be authorized to halt earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations. [2001 CBC, section 104.2.4, Stop orders.]

C: The engineering geologist (or soils engineer) shall:

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

2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both).

D: The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

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

E: The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO,

stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

F: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist~~s~~ assigned to the project.

At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2001 CBC, Chapter 17 [Section 1701, Special Inspections; Section, 1701.5 Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** Section of this document.

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

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

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

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required [2001 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities or the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project

owner shall advise the CPM, within five days, the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project [2001 CBC, Section 106.4.2, Retention of plans].

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

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

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils Report, Geotechnical Report of Foundation Investigations Report required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report Section 3309.6, Engineering Geology Report, and Chapter 18, Section 1804, Foundation Investigations].

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) prior to the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO

based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [2001 CBC, Section 104.2.4, Stop orders.]

Verification: The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

CIVIL-3 The project owner shall perform inspections in accordance with the 2001 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations shall be subject to inspection by the CBO and the CPM.

If, in the course of inspection, it is discovered that the work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM [2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes), for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans 2001 CBC, Section3318, Completion of Work.]

Verification: Within 30 days (or project owner and CBO approved alternative timeframe) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended

purposes. The project owner shall submit a copy of the CBO's approval to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in **Facility Design Table 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.

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [2001 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [2001 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; 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 [2001 CBC, Section 106.3.4, Architect or Engineer of Record.]; and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to the applicable LORS [2001 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 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 **Facility Design Table 1** of Condition of Certification **GEN-2** above, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM.

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

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

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2001 CBC, Chapter 17, Section 1701, Special Inspections, Section 1701.5, Type of Work (requiring special inspection), Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The

NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2001 CBC, Chapter 1, Section 106.3.2, Submittal documents, and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 2001 CBC shall, at a minimum, be designed to comply with the requirements of that Chapter.

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

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **Facility Design Table 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 [2001 CBC, Section 106.3.2, Submittal Documents, Section 108.3, Inspection Requests, Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request, Section 301.1.1, Approval].

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

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

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [2001 CBC, Section 104.2.2, Deputies].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table** 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 for the responsible mechanical engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

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

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [2001 CBC, Section 108.3 – Inspection Requests.]

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and
2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, the above listed documents including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

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

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans specifications and

calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [2001 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record.]

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

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 2001, Section 106.3.2, Submittal documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [2001 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

A. Final plant design plans to include:
   1. One-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and
   2. System grounding drawings.
B. Final plant calculations to establish:
   1. short-circuit ratings of plant equipment;
   2. ampacity of feeder cables;
   3. voltage drop in feeder cables;
   4. system grounding requirements;
   5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
   6. system grounding requirements; and
   7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the Monthly Compliance Report:
   1. receipt or delay of major electrical equipment;
   2. testing or energization of major electrical equipment; and
   3. a signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval of 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 RELIABILITY

Applicable law does not establish specific criteria for power plant reliability or procedures for ensuring reliable operation.[8] Nevertheless, the CEC is required to make findings concerning whether the project is likely to be operated in a safe and reliable manner. [Cal. Code of Regs., tit. 20, § 1752 (c).] Generally, a project is considered acceptable if it does not degrade the reliability of the utility system to which it is connected. In this regard, it is normally necessary to examine whether the LECEF 2 is likely to achieve a level of reliability similar to that of other power plants on the system.

SUMMARY OF THE EVIDENCE

Applicant proposes to operate the LECEF 2 throughout its actual life as a combined-cycle power plant. The Phase 1 facility has been designed to operate to export electric power for 24 hours per day, 7 days per week, year-round, except as required for planned maintenance. Applicant intends for the Phase 2 project to meet this same availability goal upon completion of combined-cycle conversion. (Ex. 1, p. 2-26.)

As part of its plan to provide needed reliability, the applicant proposes to operate the 320 MW (nominal net output) LECEF Phase 2, providing power to its customers. (Ex. 1 §§ 1.1, 2.4, Ex. 30, p. 5.4-2.) The project is expected to operate at an overall availability of 92 to 98 percent (Ex. 1 § 2.4.1), and at a capacity factor, over the life of the plant, of 20 to 100 percent of maximum load. (Ex. 30, p. 5.4-2.)

The availability factor for a power plant is the percentage of the time that it is available to generate power; both planned and unplanned outages subtract from

[8] Staff views a project as acceptable if it does not degrade the reliability of the utility system to which it is attached—it exhibits reliability equal to that of other power plants on the system. (Ex. 30, p.5.4-1.)

its availability. Measures of power plant reliability are based on its actual ability to generate power when it is considered available and are based on starting failures and unplanned, or forced, outages. For practical purposes, reliability can be considered a combination of these two industry measures, making a reliable power plant one that is available when called upon to operate. Throughout its intended 30-year life (Ex. 1, §10.2.2), the LECEF Phase 2 will be expected to perform reliably. Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and resistance to natural hazards. Staff examined these factors for and compared them to industry norms. (Ex. 30, p. 5.4-2.)

Equipment availability will be ensured by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems, as set forth below.

The applicant describes a QA/QC program (Ex. 1, §2.7.5) typical of the power industry. Equipment will be purchased from qualified suppliers, based on technical and commercial evaluations. Suppliers' personnel, production capability, past performance, QA programs and quality history will be evaluated. The project owner will perform receipt inspections, test components, and administer independent testing contracts. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, we adopt appropriate Conditions of Certification set forth in the section entitled **Facility Design**. (Ex. 30, p. 5.4-2.)

A generating facility called on to operate in baseload service for long periods of time must be capable of being maintained while operating. A typical approach for achieving this is to provide redundant examples of those pieces of equipment

most likely to require service or repair. The applicant plans to provide appropriate redundancy of function for the combined cycle portion of the project. (Ex. 1, §§ 2.4.2, 2.7.2.) The fact that the project consists of four trains of gas turbine generators/HRSGs provides inherent reliability. Failure of a non-redundant component of one train should not cause the other trains to fail, thus allowing the plant to continue to generate (at reduced output). Further, the plant's distributed control system (DCS) will be built with typical redundancy. Emergency direct current (DC) and alternating current (AC) power systems will be supplied by redundant batteries, chargers, and inverters. Other balance of plant equipment will be provided with redundant examples. With this opportunity for continued operation in the face of equipment failure, staff concluded, and we agree, that equipment redundancy will be sufficient for a project such as the LECEF Phase 2. (See Ex. 30, pp. 5.4-2 to 5.4-3.)

The applicant proposes to establish a preventive plant maintenance program typical of the industry. (Ex. 1, § 2.7.5.2.) Equipment manufacturers provide maintenance recommendations with their products and the applicant will base its maintenance program on these recommendations. The program will encompass preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. With these programs, the project will be adequately maintained to ensure acceptable reliability. (Ex. 30, p. 5.4-3.)

For any power plant, the long-term availability of fuel and of water for cooling or process use is necessary to ensure reliability. The need for reliable sources of fuel and water is obvious; lacking long-term availability of either source, the service life of the plant may be curtailed, threatening the supply of power as well as the economic viability of the plant. (Ex. 30, p. 5.4-3.)

The LECEF Phase 2 will burn natural gas from the Pacific Gas and Electric (PG&E) distribution system. Natural gas to the existing simple cycle Los Esteros Critical Energy Facility (LECEF, Phase 1) is currently delivered by an existing 10-

inch diameter, 550-foot long pipeline that is connected to both PG&E gas lines 101 and 109. This gas supply line will also be used to provide the required gas supply for the LECEF Phase 2. (Ex. 1, §§ 1.1, 6.0, 6.1, 10.2.1.) This PG&E natural gas system represents a resource of considerable capacity and offers access to adequate supplies of gas. (Ex. 30, p. 5.4-3.)

The existing LECEF, Phase 1, obtains recycled water from the San Jose/Santa Clara Water Pollution Control Plant through the South Bay Water Recycling (SBWR) program, via a 1,500-foot long, 18-inch diameter pipeline. The SBWR has committed to providing recycled water for the LECEF Phase 2 operation via the same pipelines. (Ex. 1, AFC §§ 1.1, 2.4.4, 7.0.) The applicant predicts average process make-up water consumption of approximately 952 gallons per minute. (Ex. 1, §§2.4.4, 7.2.1.) Potable water is currently trucked to the facility. The applicant plans to continue receiving truck deliveries to the LECEF 2 for potable water needs. These sources yield sufficient likelihood of a reliable supply of water. (For further discussion of water supply, see the **Soil and Water Resources** section of this Decision.) (Ex. 30, pp. 5.4-3 to 5.4-4.)

Natural forces can threaten the reliable operation of a power plant. High winds, tsunamis (tidal waves), and seiches (waves in inland bodies of water) will not likely represent a hazard for this project, but seismic shaking (earthquake) and flooding could present credible threats to reliable operation. (Ex. 30, p. 5.4-4.)

The site lies within Seismic Zone 4. (Ex. 1, AFC §§ 2.6.1, 8.4.1.3, 8.4.1.4, 8.4.4.2; and as defined in the California Building Code; see also that portion of this Decision entitled **Geological and Paleontology**.) The project will be designed and constructed to the latest appropriate LORS. (Ex. 1, AFC §§2.6.1, 8.4.4.2, Appendix 10.) Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic

design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Conditions of Certification in that portion of this Decision entitled **Facility Design** will ensure this. In light of the historical performance of California power plants and the electrical system in seismic events, Staff believes, and we agree, there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events. (Ex. 30, p. 5.4-4.)

Flooding

The project site lies at an elevation of 14 feet above mean sea level. However, it does not lie within either a 100-year or a 500-year floodplain. (Ex. 1, §§ 2.6.1, 8.15.1.3.) No concerns with the power plant functional reliability due to flooding events were demonstrated. (Ex. 30, p. 5.4-4; see also that portion of this Decision entitled **Soil and Water Resources**.)

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1998 through 2002:

For combined cycle units of all MW sizes, the Availability Factor is 89.95 percent. The gas turbines employed in this project have been on the market for several years now, and can be expected to exhibit typically high availability. The applicant's prediction of an annual availability factor of 92 to 98 percent (Ex. 1, § 2.4.1) appears reasonable compared to the NERC figure for similar plants throughout North America. In fact, these new machines can well be expected to outperform the fleet of various (mostly older) gas turbines that make up the NERC statistics. Further, since the LECEF Phase 2 consists of four parallel gas

turbine generating trains, maintenance can be scheduled during those times of year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures. The applicant's estimate of plant availability, therefore, appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant. (Ex. 30, pp. 5.4-4 to 5.4-5.)

Closure of the 320 MW Phase 2 facility, whether planned or unplanned, would not be a sufficient generation loss to significantly impact system reliability. Reliability impacts on the overall electric system from facility closure, should there be any, are discussed in the **Transmission System Engineering** section of this Decision.

The evidence indicates an equivalent availability factor of 92 to 98 percent. Based on a review of the evidence, we conclude that the LECEF Phase 2 will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability.

As with Phase 1, no LORS apply to power plant reliability. There are no Conditions of Certification in the area of **Power Plant Reliability**. (Ex. 30, p. 5.4-5.)

FINDINGS AND CONCLUSION

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

1. There are no established specific criteria governing power plant reliability or procedures for ensuring reliable operation.

2. It is reasonable to use industry standards in assessing the reliability of the proposed project.

3. The estimated equivalent availability factor for the LECEF is from 92 to 98 percent.

4. The equipment availability, redundancy, maintenance, quality assurance, quality control, and facility design factors described in the evidence of record make it likely that the LECEF 2 will meet industry norms for reliability.

5. Fuel supplies for the proposed project are available in quantities sufficient to ensure reliable project operation.

6. Water supplies for the proposed project are available in sufficient quantities to meet project needs.

7. The project will not degrade the overall reliability of the electrical system nor contribute to a cumulative adverse impact to such system.

We conclude, that the project is likely to operate in an acceptably reliable manner. There are no conditions associated with power plant reliability.

C. POWER PLANT EFFICIENCY

The California Environmental Quality Act (CEQA) and its implementing regulations require us to consider a proposed power plant's:

- energy requirements and energy use efficiency;
- effects on local and regional energy supplies and resources;
- requirements for additional energy supply capacity; and
- compliance with existing energy standards
- whether there are any feasible alternatives that could reduce a wasteful, inefficient, and unnecessary consumption of energy. (Pub. Resources Code, § 21002.1; CCR, tit. 14, Appendix F.)

SUMMARY OF THE EVIDENCE

The evidence of record addresses:

- whether the LECEF 2 will likely present any adverse impacts to energy resources;
- whether any adverse impacts would likely be significant and; if so,
- whether feasible mitigation measures exist to adequately reduce or eliminate them.

The applicant proposes to convert the Los Esteros Critical Energy Facility (LECEF, Phase 1) from the current simple-cycle configuration to a combined-cycle configuration. The new facility (LECEF Phase 2) would generate up to 320 MW of power (nominal net output). (Ex. 1, §§ 1.1, 2.1, 2.4.) (Note that this nominal rating is based upon preliminary design information and generating equipment manufacturers' guarantees. The project's actual maximum generating capacity may differ from this figure.) The current LECEF consists of four General Electric LM6000 Sprint combustion turbine (CT) generators with inlet air chillers producing up to 45 MW each (nominally), for a total of 180 MW. The gas turbines are equipped with water spray intercooling for power augmentation, and with water injection, selective catalytic reduction (SCR) and oxidation catalysts to

control air emissions. (Ex. 1, §§ 2.1, 2.3.) As proposed, the LECEF Phase 2 would include the addition of four multi-pressure heat recovery steam generators (HRSGs) with duct burners, and a single multi-pressure, reheat, 140 MW (nominal) condensing steam turbine (ST) generator arranged in a four-on-one combined-cycle train. (Ex. 1, §§ 1.1, 2.1, 2.4, 2.4.1, 2.4.1.1, 2.4.1.2.) Natural gas to the LECEF is currently delivered by an existing 10-inch diameter, 550-foot long pipeline that is connected to both PG&E gas lines 101 and 109. This gas supply line would also be used to provide the required gas supply for the LECEF Phase 2. (Ex. 1, §§ 1.1, 6.0, 6.1, 10.2.1; Ex. 30, pp. 5.3-1 to 5.3-2.)

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, §15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy. (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F.)

The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient and unnecessary consumption of fuel or energy.

Any power plant large enough to fall under Energy Commission jurisdiction will consume large amounts of energy. Under normal conditions, the LECEF Phase 2 would burn natural gas at a maximum rate of 55,265 million Btu per day, lower heating value (LHV). (Ex. 1 §2.4.3.) This is a substantial rate of energy consumption, and holds the potential to impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 46 percent to 49 percent LHV depending on the amount of duct burning. (Ex. 1 §§ 1.6.4, 10.3 Ex. 30, pp. 5.3-1 to 5.3-2.)

Under normal conditions, the LECEF currently burns natural gas at maximum rate of 43,243 million Btu per day LHV at an average fuel efficiency of 38 percent LHV. (Ex. 1 §§ 1.6.4, 2.3.3, 10.3.) Under the same conditions, the LECEF Phase 2 would burn natural gas at a maximum rate of 55,265 million Btu per day LHV at an average fuel efficiency of 46 percent with the HRSG duct firing (Ex. 1 §§ 1.6.4, 2.4.3, 10.3), an increase of 12,022 million Btu per day. Although the combined-cycle Phase 2 would require more natural gas supply than the existing simple-cycle LECEF, the resultant fuel efficiency would increase considerably, by at least eight percent, and the resultant power output would increase by 140 MW (nominally). In the existing competitive market, such an efficient power plant can be expected to displace power from less efficient plants. Therefore, even though Phase 2 would require additional supply of energy, it would use it more efficiently than the simple-cycle LECEF, thus creating less impact on consumption of energy from available resources. (Ex. 30, pp. 5.3-2 to 5.3-3.)

The Applicant has described its sources of supply of natural gas for the project. (Ex. 1 §§ 1.1, 6.0, 6.1, 10.2.1.) Natural gas to the LECEF is currently supplied from the existing PG&E gas distribution system from gas supply lines 101 and 109. These lines would also be used to provide the required gas supply for the combined-cycle Phase 2. The PG&E natural gas system has access to gas from the Rocky Mountains, Canada and the Southwest. This represents a resource of considerable capacity. Furthermore, the PG&E gas supply represents an

adequate source for a project of this size. It is therefore highly unlikely that the project could pose a substantial increase in demand for natural gas in California. (Ex. 30, p. 5.3-3.)

Natural gas fuel will be supplied to the project by PG&E lines 101 and 109 via an existing 10-inch diameter, 550-foot long pipeline. (Ex. 1, §§ 1.1, 6.0, 6.1, 10.2.1.) This is a resource with adequate delivery capacity for a project of this size. There is no real likelihood that the Phase 2 LECEF will require the development of additional energy supply capacity. (Ex. 30, p. 5.3-3.)

No standards apply to the efficiency of the combined-cycle Phase 2 or other non-cogeneration projects. The LECEF could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power. (Ex. 30, p. 5.3-3.)

As proposed for Phase 2, the LECEF will be configured as a combined-cycle power plant, in which electricity is generated by the existing four gas turbines, and additionally by an ST that operates on heat energy recuperated from the gas turbines' exhaust. (Ex. 1 §§ 1.1, 2.1, 2.4, 2.4.1, 2.4.1.1, 2.4.1.2.) By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency of any combined-cycle power plant is increased considerably from that of either gas turbines or STs operating alone. Such a configuration is well suited to the large, steady loads met by a baseload plant, intended to supply energy efficiently for long periods of time. (Ex. 30, p. 5.3-3.)

The gas turbines are currently equipped with water spray intercooling and inlet air chillers. As proposed in Phase 2, the LECEF 2 would include the addition of HRSG duct burners, multi-pressure HRSG and ST units, a de-aerating surface condenser, a multi-cell cooling tower and a circulating water system. (Ex. 1, §§ 1.1, 2.1, 2.3, 2.4.) Staff found these features contribute to meaningful efficiency enhancement to the LECEF. The four-train CT/HRSG configuration also allows for high efficiency during unit turndown because a single fully loaded CT is more efficient than two CTs operating at 50 percent load. The LECEF Phase 2 includes HRSG duct burners, partially to replace heat to the ST cycle during high ambient temperatures when CT capacity drops, and partially as added power. Duct firing also provides a number of operational benefits, such as load following and balancing and optimizing the operation of the ST cycle. (Ex. 30, pp. 5.3-3 to 5.3-4.)

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The GE LM6000 Sprint turbine currently employed in the LECEF represents one of the most modern and efficient such machines now available. The applicant will configure the existing four GE LM6000 Sprint gas turbine generators in a four-on-one combined cycle power train. (Ex. 30, p. 5.3-4.)

The project objectives include generation of additional electricity efficiently through the conversion of waste-heat to energy. (Ex. 1, §§ 1.4, 9.0, 9.1.1, 9.6.) Alternative generating technologies were not considered for this project, since the development of the LECEF Phase 2 will involve the conversion of the current simple-cycle configuration to a combined-cycle configuration using the existing natural gas fueled technology.

The current LECEF uses the GE LM6000 Sprint, one of the most modern simple-cycle gas turbine generators available. The LM6000 Sprint is further enhanced by the incorporation of spray intercooling (thus the name, SPRay INTercooling).

This takes advantage of the aeroderivative machine's two-stage compressor. By spraying water into the airstream between the two compressor stages, the partially compressed air is cooled, reducing the amount of work that must be performed by the second stage compressor. This reduces the power consumed by the compressor, yielding greater net power output and higher fuel efficiency. The benefits in generating capacity and fuel efficiency increase with rising ambient air temperatures. At temperatures above 90°F, the Sprint machine enjoys a four percent increase in both power output and efficiency (GTW 2000). Alternative machines that can meet the project's objectives were not considered since the project's objectives include producing more electricity efficiently using the existing machines. (Ex. 1, §§ 1.4, 9.0, 9.1.1, 9.5, 9.6.) These gas turbines will operate in combination with a multi-pressure, reheat, condensing steam turbine generator (the most modern steam turbine technology applicable) adding 140 MW (nominal) of power without considerable additional fuel consumption, resulting in increase in the overall efficiency from 38 percent LHV (from the existing simple-cycle configuration) to between 46 and 49 percent LHV (based on the amount of duct burning), a significant efficiency improvement. (Ex. 30, pp. 5.3-4 to 5.3-5.)

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods. The two commonly used techniques are the evaporative cooler or fogger, and the chiller; both devices increase power output by cooling the gas turbine inlet air. A mechanical chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An absorption chiller uses less electric power, but necessitates the use of a substantial inventory of ammonia. An evaporative cooler or a fogger boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The difference in efficiency among these techniques is relatively insignificant. The applicant proposes to continue using the existing inlet air-chilling system. (Ex. 1,

§§ 2.3.1.1, 2.3.1.2, 2.4.) Given the climate at the project site and the relative lack of clear superiority of one system over the other, Staff agreed, as do we, that the applicant's approach will yield no significant adverse energy impacts. In conclusion, the Phase 2 project configuration (combined-cycle) and generating equipment chosen appear to represent the most efficient combination to satisfy the project objectives. There are no feasible alternatives that could significantly reduce energy consumption or produce additional electricity efficiently using the existing gas turbines. (Ex. 30, p. 5.3-5.)

There are no nearby power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the project. Staff knows of no other projects that could result in cumulative energy impacts. Staff believes that construction and operation of the LECEF Phase 2 will not bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the project. The older, less efficient power plants consume more natural gas to operate than the new, more efficient plants such as the LECEF Phase 2. The high efficiency of the proposed Phase 2 should allow it to compete very favorably, running at a high capacity factor, replacing less efficient power generating plants, and thus not adversely impacting or even reducing the cumulative amount of natural gas consumed for power generation. (Ex. 30, p. 5.3-5.)

Closure of the facility, whether planned or unplanned, will not influence, nor will it be influenced by, project efficiency. Any efficiency impacts due to closure of the project would be on the electric system as a whole. Yet the vast size of the electric system serving California, the number of generating plants offering to sell power into it, and the existence of the California Independent System Operator to ensure the efficient management of the system, all lend assurance that closure of this facility will not produce significant adverse impacts on efficiency. (Ex. 30, pp. 5.3-5 to 5.3-6.)

The project, if constructed and operated as proposed, would generate a nominal 320 MW of electric power (net output), at an overall project fuel efficiency between 46 and 49 percent LHV. While the project will consume substantial amounts of energy, it will do so in the most efficient manner practicable. As the result of the conversion of the simple-cycle configuration to a combined-cycle configuration, the impact to energy resources from the additional fuel consumption will be balanced by the improvement in fuel efficiency and the additional electricity that will be produced by the project. The project will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. We conclude that the project would present no significant adverse impacts upon energy resources. No cumulative impacts on energy resources are likely. Facility closure would not likely present significant impacts on electric system efficiency. (See also Ex. 30, p. 5.3-6.) No Conditions of Certification were proposed or needed.

FINDINGS AND CONCLUSION

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

1. Applicant will employ gas turbines that are among the most fuel-efficient currently available.

2. The project will not create a substantial increase in demand for natural gas.

3. Available gas supplies exceed the fuel requirements of the proposed project.

4. The proposed project's turbine configuration and generating equipment offer the most efficient, feasible combination available to satisfy project objectives.

5. The operational efficiency of the proposed project is substantially equal to or exceeds that of other available technologies and

6. The proposed project will not consume natural gas in a wasteful, inefficient, or unnecessary manner.

D. TRANSMISSION SYSTEM ENGINEERING

The Commission's analysis of the project's "Transmission System Engineering" factors includes evaluation of the outlet connecting lines, the power plant switchyard, termination facilities, and outlet alternatives. It also involves a determination of whether or not the project's transmission intertie facilities are likely to conform with all applicable laws, ordinances, regulations and standards intended to ensure safe and reliable electric power transmission and, if not, to determine appropriate mitigation measures. Under the California Environmental Quality Act (CEQA), the Commission must conduct an environmental review of the "whole of the action", which may include facilities not licensed by the Commission. (Cal. Code of Regs., tit. 14, § 15378.) Therefore, the Energy Commission must identify and evaluate the environmental effect of construction and operation of any new or modified transmission facilities required for the project's interconnection to the electric grid. This examination was coordinated with the evaluation performed by the California Independent System Operator (Cal-ISO) in order to determine the project's effects of the interconnected electrical grid.

Because the Silicon Valley Power system is not a part of the California Independent System Operator (Cal-ISO) grid, the Cal-ISO is not directly responsible for ensuring electric system reliability for the generator interconnection and will not provide formal analysis and testimony for this project. Staff coordinated its analysis with the Cal-ISO, soliciting and considering their input. (Ex. 30, p. 5.5-2.)

SUMMARY OF THE EVIDENCE

The Transmission System Engineering (TSE) analysis identifies whether or not the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations, and standards (LORS), required for

safe and reliable electric power transmission, and assesses whether or not the applicant has accurately identified all interconnection facilities required as a result of the project. Staff's analysis (Ex. 30, pp. 5.5-1 to 5.5-8) evaluated the power plant switchyard, outlet lines, termination and downstream facilities identified by the applicant and staff and results in proposed Conditions of Certification to ensure the project complies with applicable LORS during the design review, construction, operation and potential closure of the project.

The LECEF site was selected, in part, for its proximity to PG&E's Los Esteros Substation. The Los Esteros Substation serves as a connecting point between the Newark and Metcalf Substations at 230 kV and between the Nortech, Trimble, and Montague Substations and the Agnew Generating Plant at 115 kV. The 115 kV lines are part of PG&E's Mission Trail operating region. The Los Esteros Substation is also planned to serve as a connecting point to Silicon Valley Power's (SVP) Northern Receiving Station. This existing and planned transmission network will deliver the power generated at the LECEF to the electric grid. (2005 Decision, p. 83.)

The applicant proposes to convert the existing simple-cycle 180 MW Los Esteros Critical Energy Facility to a 320 MW combined-cycle power plant in 2008 (Phase 2). The conversion would require expansion of the existing power plant switchyard by adding two 115/230 kV transformers and two new 200-foot 230 kV circuits connecting from the existing Los Esteros Critical Energy Facility switchyard to the new Silicon Valley Power (SVP) Switching Station recently constructed adjacent to and contiguous with Pacific Gas and Electric's Los Esteros Substation. All of the new Phase 2 transmission facilities would be constructed within the fenceline of the existing project except a short overhead section of the transmission line connecting to the SVP Switching Station. However, the interconnection of the Phase 2 to the new SVP Switching Station requires new circuit breakers and the expansion of the PG&E substation fence line to the south by 40X600 feet. Staff concluded that the switchyard, outlet lines

and termination are acceptable and will comply with applicable Laws, Ordinances, Regulations and Standards. The results of the Updated Final System Impact Study for Phase 2 indicate that the operation of the project will not cause overloads on transmission facilities and will slightly reduce some pre-project overloads, thus improving system reliability. The Phase 2 project provides additional generation in a generation deficient area and will enhance local reliability and reduce transmission system losses. (Ex. 30, p. 5.5-1.)

The Updated Final System Impact Study includes an analysis of the interconnection of the simple-cycle 180 MW facility to the new SVP facility through the planned 115/230 kV step-up transformers planned for Phase 2. This interconnection would be required prior to synchronizing any of the converted combined-cycle power trains to the grid, and is a practical first-step in the phased conversion process. No negative impacts were identified in connecting the 180 MW Phase 1 project to the new SVP Switching Station at 230 kV in advance of the conversion to combined-cycle. (Ex. 30, p. 5.5-1.)

Phase 2 would be located within the fence line of the existing LECEF project site in San Jose. The existing generating facility consists of four combustion turbines (CTG), each with an output of approximately 45 MW (180 MW total). Phase 2 would modify Phase 1 by adding steam generation equipment in conjunction with one condensing steam turbine generator (STG) with an output of 140 MW. The LECEF output at completion of Phase 2 would be 320 MW. The applicant proposes that Phase 2 would begin operation in 2008. (Ex. 30, p. 5.5-3.)

The proposed Phase 2 project would expand the existing LECEF switchyard to include two short 230 kV connecting lines and two 115/230 kV transformers. The expanded switchyard would then connect to the SVP Switching Station through two 200-foot long three-phase single circuit 230 kV overhead transmission lines. Each of these transmission circuits would be sized to carry the output of the entire facility. The Phase 2 switchyard expansion and transmission lines would

be built within the fenceline of the existing project except for a short section leading up to the SVP switchyard and will not require new rights-of-way. However, interconnecting Phase 2 to the SVP switching station will require circuit breakers between the SVP and PG&E facilities and expansion of the PG&E substation to the south by dimensions of 40X600 feet. This work will be completed with the construction of LECEF Phase 2, if required. When the interconnection of LECEF to the SVP Switching Station is completed, **Condition of Certification** TSE-5g requires the existing Phase 1 tap interconnection to PG&E's Los Esteros Substation–Nortech 115 kV circuit and the supporting poles to be removed. (Ex. 30, p. 5.5-3.)

Both PG&E and SVP have been improving the transmission network in Santa Clara County and the surrounding region over the past several years. Improvements included the recently (2003) completed PG&E Los Esteros Substation, several new 115 kV lines and the adjacent switching station that SVP has constructed. Two 230 kV lines connect the Los Esteros Substation to PG&E's Metcalf and Newark substations while one 230 kV line is planned to connect the SVP Switching Station to SVP's Northern Receiving Station. Four 115 kV transmission circuits connect the Los Esteros Substation to the Nortech, Trimble, Montague and Agnew substations. While the existing and future transmission system now meets, and would in the future meet, system reliability criteria, increasing the output capacity of the LECEF as proposed by applicant would provide a more robust system. (Ex. 30, p. 5.5-4.)

For interconnecting a proposed generating unit to the grid, a System Impact Study and a Detailed Facility Study (DFS) are generally performed to determine the alternate and preferred interconnection methods. The studies also determine the downstream transmission system impacts, and the mitigation measures needed to conform with the system performance levels required by utility reliability criteria, NERC planning standards, WSCC reliability criteria, and Cal-ISO reliability criteria. The studies determine both positive and negative impacts

and for the reliability criteria violations, determine the alternate and preferred additional transmission facilities or other mitigation measures. The studies are conducted with and without the new generation project and its interconnection facilities by using the computer model base case for the year the generator project would come on-line. The studies normally include a Load Flow study, Transient Stability study, Post-transient Load Flow study, and Short Circuit study. The studies are focused on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties. The studies must be conducted under the normal condition (N-0) of the system and also for all credible contingency/emergency conditions, which includes the loss of a single system element (N-1) such as a transmission line, transformer, or a generator and the simultaneous loss of two system elements (N-2), such as two transmission lines or a transmission line and a generator. In addition to the above analysis, the studies may be performed to verify whether sufficient active or reactive power is available in the area system or area sub-system to which the new generator project would be interconnected. New or modified downstream facilities that are a reasonably foreseeable consequence of approval of the project are analyzed from an engineering and environmental perspective but are not licensed by the Commission. (Ex. 30, p. 5.5-4.)

Staff and PG&E analyzed the transmission system under the following system conditions:

- 2008 Summer Peak Full Loop base case with 1-in-10 year peak load conditions for the South Bay Area (469 MW for SVP and 491 MW for PG&E's North San Jose area).

- 2008 Off-Peak Full Loop base case with loads approximately 50% of those used in the Summer Peak case.

- 2008 Summer Peak Full Loop base case with 1-in-10 year peak load conditions for the South Bay Area (469 MW for SVP and 491 MW for PG&E's North San Jose area) studying the existing (Phase 1) 180-MW simple cycle generator with the Phase 2 interconnection.

- 2008 Off-Peak Full Loop base case with loads approximately 50% of those used in the Summer Peak case studying the existing (Phase 1) 180-MW simple cycle generator with the Phase 2 interconnection.

The study included Load Flow analysis, PV analysis, Dynamic Stability Studies, and Short Circuit studies. (Ex. 30, p. 5.5-5.)

The Power Flow Study results indicate that interconnection of the Phase 2 and Phase 1 with the Phase 2 interconnection cause no normal overloads in either the Summer or Off Peak analysis. In all cases the impact of connecting the Phase 1, 180 MW simple-cycle with the Phase 2 SVP switching station interconnect configuration had impacts similar to or slightly less than the impacts of the interconnecting the 320 MW combined cycle facility. (Ex. 30, p. 5.5-5.)

Contingency studies of the 2008 Summer Peak case indicated an improvement in transmission system performance with the addition of the Phase 2. Before addition of the LECEF Phase 2, the single contingency analysis indicated two elements were overloaded. With the addition of the LECEF Phase 2, the overloading on these facilities was slightly reduced. There were no overloads identified in the off-peak study. (Ex. 30, p. 5.5-5.)

The overloaded elements for Phase 2 under N-1 contingencies include:

Overloaded Facilities Under N-1 Contingency Summer Case (worst loading)	Percentage Loading of the Facility		Percentage Increment in Loading	SELECTED MITIGATION
	Pre-LECEF Phase 2	Post-LECEF Phase 2		
Piercy-Metcalf 115 kV line	106	105	-1	None needed
Metcalf-Moss Landing 230 kV lines	100	98	-2	

The System Impact and Facilities Study identified many n-2 contingency overloads without the project and the loadings on these lines were generally reduced by one or two percent by the addition of the Phase 2 project. (Ex. 30, pp. 5.5-5 to 5.5-6.)

Dynamic stability studies for Phase 2 found no instabilities, all response plots were “well behaved” The short circuit studies were conducted to determine whether the Phase 2 project would result in overstressing the existing fault interruption rating of circuit breakers. The System Impact and Facilities Study showed that all of the existing circuit breakers are capable of handling the increase in fault level with the addition of the Phase 2 project. (Ex. 30, p. 5.5-6.)

The Phase 2 project slightly improves the reliability performance of the PG&E and SVP transmission systems and their ability to meet the NERC/WECC planning standards and Cal-ISO reliability criteria. Adding local generation such as the Phase 2 project would improve local area voltage support, provide real power locally, reduce pre existing overloads and reduce transmission system losses. The project thus provides a noteworthy public benefit[9] by improving reliability. (Ex. 30, p. 5.5-6.)

The Phase 2 project would connect to the SVP transmission network located near in the San Jose area of PG&E’s transmission network. Other projects that could cause cumulative impacts in conjunction with the LECEF would need to be located electrically near San Jose. Projects located near the LECEF include the permitted and under construction Metcalf Energy Center and the Russell Energy Center. The System Impact and Facilities Study for the Phase 2 Project indicates that system improvements in the area are needed (and currently planned) to mitigate existing n-1 and n-2 line overloads. The proposed project actually decreases these overloads, possibly indicating that more generation in the region could be beneficial, and provides a system benefit. (Ex. 30, pp. 5.5-6 to 5.5-7.)

One alternative transmission interconnection was considered by the applicant. This was two short 115 kV underground circuits that would have terminated on PG&E’s existing Los Esteros Substation. This alternative was not selected by the

[9] Public Resources Code 25523 (h) requires the Commission to make a finding on Public Benefits including but not limited to environmental, economic and reliability.

applicant due to increased cost. Staff found the proposal acceptable and we see no reason to disagree. (Ex. 30, p. 5.5-7.)

Planned closure occurs in a planned and orderly manner such as at the end of its useful economic or mechanical life or due to gradual obsolescence. Under such circumstances, the owner is required to provide a closure plan 12 months prior to closure, that, in conjunction with applicable LORS, is considered sufficient to provide adequate safety and reliability. For instance, a planned closure provides time for the owner to coordinate with the Transmission Owner (TO) to assure that the TO's system would not be closed into the outlet, thus energizing the project substation. Alternatively, the owner may coordinate with the transmission owner to maintain some power service via the outlet line to supply critical station service equipment or other loads.[10] (Ex. 30, p. 5.5-7.)

Unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly for a short term due to unforeseen circumstances such as a natural or other disaster or emergency. During such a closure the facility cannot insert power into the utility system. Closures of this sort can be accommodated by establishing an on-site contingency plan. (See **General Conditions** and the Compliance Monitoring and Closure Plan in this Decision.) (Ex. 30, p. 5.5-7.)

Unexpected permanent closure occurs when the project owner abandons the facility. This is considered to be a permanent closure. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. An on-site contingency plan, that is in place and approved by the Energy Commission's Compliance Project Manager (CPM) prior to the beginning of commercial operation of the facilities, would be developed to assure safety

[10] These are merely examples, many more exist.

and reliability. (See **General Conditions** and the Compliance Monitoring and Closure Plan in this Decision.) (Ex. 30, p. 5.5-7.)

FINDINGS AND CONCLUSION

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

1. Addition of the Phase 2 project does not cause any negative impacts on the PG&E or SVP transmission system.

2. The Phase 2 project does not cause any normal condition overloads to the transmission grid.

3. Under contingency conditions, the Phase 2 project reduces existing, pre-project overloads.

4. The Phase 2 project switchyard and interconnection facilities will be adequate and reliable.

5. The power plant switchyard, outlet lines, and termination are in accordance with good utility practices and are acceptable.

6. Adding local generation such as the Phase 2 project would improve local area voltage support, provides real power locally, reduces pre-existing overloads and reduces transmission system losses. The project thus provides “Public Benefits” by improving reliability.

7. The existing circuit breakers are capable of handling the increase in fault level with the addition of Phase 2.

8. The interconnection of the Phase 2 project would result in the need for new circuit breakers at the Los Esteros Substation and the expansion of the substation by 2,400 square feet. The substation expansion is considered a reasonably foreseeable downstream impact of the Phase 2 project.

9. The interconnection of the Phase 1 simple-cycle output to the new SVP Switching Station using the identical interconnection plan of the conversion project (Phase 2) has no negative impacts to the electrical system.

10. Conditions of Certification enumerated below will ensure that the transmission aspects of the LECEF, Phase 2 project will be designed, constructed, and operated to conform with applicable LORS, which are identified in Appendix A of this Decision.

We therefore conclude that interconnection of the project line is acceptable, and that it will not result in the violation of any regulatory criteria pertinent to transmission system 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 in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action. (1998 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

Verification: The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action required to obtain the CBO's approval.

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

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

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

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

TSE-5 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

a) The 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", Cal-ISO standards, 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 applicable SVP interconnection standards.

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

f) The project owner shall provide to the CPM:

   i) Any Facility Study, Detailed Facility Study (DFS) or System Impact Study completed after December 2, 2004, including, if applicable, a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing,

   ii) An executed project owner and Cal-ISO Facility Interconnection Agreement.

g) The project owner shall remove the overhead conductors of the existing tap line and remove the supporting poles.

Verification: At least 60 days prior to the start of construction of transmission facilities (or a lesser number of days mutually agree to by the project owner and CBO), the project owner shall submit to the CBO for approval:

a) Design drawings, specifications and calculations conforming with CPUC General Order 95 or 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.

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[11] 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

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

General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", NEC, applicable interconnection standards, and related industry standards.

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

d) The final DFS, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, shall be provided concurrently to the CPM and the CBO.

TSE-6 The project owner shall inform the CPM and CBO in writing of any impending changes, which may not conform to the requirements **TSE-5 a)** through **g)**, 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 in writing of any impending changes which may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-7 The project owner shall provide the following Notice to the California Independent System Operator (Cal-ISO) and SVP 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 (1) business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department.

Verification: The project owner shall provide copies of the Cal-ISO letter to the CPM and SVP when it is sent to the Cal-ISO one (1) week prior to initial synchronization with the grid. The project owner shall contact the Cal-ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the Cal-ISO shall be provided electronically to the CPM one (1) 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", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

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

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

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

CONDITIONS OF CERTIFICATION PER ENERGY COMMISSION ORDER 04-121-06

The Conditions of Certification TSE-A1 and TSE-A2 were required to certify continued use of the tap to the Los Esteros Substation-Nortech line for the original and the Phase 1 simple-cycle LECEF. These two conditions have been satisfied.

TSE-A1: The new temporary tap interconnection shall consist of an approximately 152 foot transmission line under-crossing of the two double circuit PG&E 115 kV steel pole lines (running generally North/South) immediately adjacent to the LECEF power plant switchyard to a hard wire tap of the Nortech-PG&E Los Esteros Substation circuit utilizing three wood poles. The cable size shall be 795 ACSS.

Verification: This configuration has been implemented and conforms to existing LORS.

TSE-A2: To provide adequate operational reliability and flexibility for the new temporary interconnection, a three-phase disconnect/selector switch shall be installed at the interconnection tap point with the Nortech-PG&E Los Esteros Substation 115 kV line to be coordinated between Calpine and PG&E. At the interconnection tap point the switch is required for the circuit to the Nortech Substation.

Verification: The three-phase disconnect/selector switch has been installed.

DEFINITION OF TERMS

AAC — All Aluminum conductor.

Ampacity — Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

Bus — Conductors that serve as a common connection for two or more circuits.

Conductor — The part of the transmission line (the wire) which carries the current.

Congestion Management — Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports), would not violate criteria.

Emergency Overload — See Single Contingency. This is also called an L-1.

Kcmil or kcm — Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.

Kilovolt (kV) — A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.

Loop — An electrical cul de sac. A transmission configuration which interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.

Megavar — One megavolt ampere reactive.

Megavars Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA)
A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW)
A unit of power equivalent to 1,341 horsepower.

Multiple Contingencies
A condition that occurs when more than one major transmission element (circuit, transformer, circuit breaker, etc.) or more than one generator is out of service

Normal Operation/ Normal Overload
When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.

N-1 Condition
See Single Contingency.

Outlet Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.

Power Flow Analysis
A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.

Reactive Power
Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.

Remedial Action Scheme (RAS) A remedial action scheme is an automatic control provision, which, for instance, would trip a selected generating unit upon a circuit overload.

SF6 Sulfur hexafluoride is an insulating medium.

Single Contingency
Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

Solid dielectric cable
Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

System Protection System
See Remedial Action Scheme.

Switchyard A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.

Thermal rating
See ampacity.

TSE Transmission System Engineering.

Undercrossing
A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

Underbuild
A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

E. TRANSMISSION LINE SAFETY AND NUISANCE

SUMMARY OF THE EVIDENCE

Typical high-voltage overhead transmission lines are composed of bare conductors connected to supporting structures by means of porcelain, glass, or plastic insulators. The air surrounding the energized conductor acts as the insulating medium. Maintaining sufficient clearances, or air space, around the conductors to protect the public and utility workers is paramount to safe operation of the line. The safety clearance required around the conductors is determined by normal operating voltages, conductor temperatures, short-term abnormal voltages, wind-blown swinging conductors, contamination of the insulators, clearances for workers, and clearances for public safety. Minimum clearances are specified in the National Electric Safety Code (NESC). Electric utilities, state regulators, and local ordinances may specify additional (more restrictive) clearances. Typically, clearances are specified for:

- Distance between the energized conductors themselves
- Distance between the energized conductors and the supporting structure
- Distance between the energized conductors and other power or communication wires on the same supporting structure, or between other power or communication wires above or below the conductors
- Distance from the energized conductors to the ground and features such as roadways, railroads, driveways, parking lots, navigable waterways, airports, etc.
- Distance from the energized conductors to buildings and signs
- Distance from the energized conductors to other parallel power lines

The existing Phase 1 LECEF transmission interconnection has been designed to meet all national, state, and local code clearance requirements regarding aviation safety, interference with radio-frequency communication, audible noise, fire hazards, hazardous shocks, nuisance shocks, and electric and magnetic field exposure. (2005 Decision, p. 93.)

The energy from the operating Los Esteros Critical Energy Facility (LECEF) is currently being delivered to the Pacific Gas and Electric (PG&E) power grid through a 150-ft, overhead, wood-pole 115 kV transmission line connecting the project's switchyard to PG&E's 115 kV Los Esteros-Nortec transmission line immediately to the west of the switchyard. Phase 1 of the present application re-certified the existing 180 megawatt (MW) simple-cycle gas-fired project and its 115 kV line. Phase 2 seeks a permit to convert the LECEF to a 320 MW combined-cycle project increasing power generation by 140 MW. The generated power would be transmitted at 230 kV through two new 200-ft overhead lines connecting the upgraded facility to a new Silicon Valley Power (SVP) Switching Station located immediately north of the existing LECEF power plant substation. (Ex. 1, pp. 2-1, 2-13, 5-1, and 5-7.) The new SVP Switching Station will connect PG&E's Los Esteros Substation to the SVP Northern Receiving Station. (Ex. 1, p. 5-1.) At the completion of the Phase 2 combined-cycle conversion and interconnection to the SVP Switching Station, the current Phase 1 115 kV connection to the Los Esteros-Nortech line will be removed. (Ex. 30, p. 4.11-1.)

The new Phase 2 230 kV, 200-ft line would lie within the boundaries of LECEF and the SVP Switching Station where there would be neither public access nor nearby residences. As with the existing 115 kV Phase 1 line, this lack of public access and nearby residences means that the long-term residential field exposures and other field impacts at the root of the present health and safety concerns would be insignificant during operations. Since electric power is the product of applied voltage and current level, transmitting the generated power at 230 kV would reduce the level of magnetic field that would have resulted from continued transmission at the 115 kV being applied to the Phase 1 line. The applicant proposes to design, build, and operate the proposed Phase 2 lines in compliance with the applicable safety Laws, Ordinances, Regulations, and Standards regarding aviation safety, interference with radio-frequency communication, audible noise, fire hazards, hazardous shocks, nuisance shocks, and electric and magnetic field exposure. (Ex. 1, p. 5-1.) These categories of

impacts and related mitigation measures were summarized in the Commission Decision for the original LECEF (2002 Decision). We also discussed these matters in the Decision recertifying the current simple-cycle facility (2005 Decision). Staff reviewed the applicable laws, ordinances, regulations and standards (LORS) for any changes that apply to the proposed Phase 2 combined-cycle application. Based upon these reviews and the information in the current Phase 2 AFC (Ex. 1), staff concluded that there would be no unmitigated environmental impacts resulting from permitting the new 230 kV Phase 2 lines as proposed by the Applicant. (Ex. 30, p. 4.11-1.)

The specific proposal to design, build and operate these new 230 kV lines according to the listed California Public Utilities Commission (CPUC) requirements and industry practices constitutes compliance with the health and safety LORS. Staff's line-related recommended Conditions of Certification are adopted below. (Ex. 30, p. 4.11-2.)

Staff's analysis assessed the proposed interconnection line's construction and operation plan for incorporation of the measures necessary to minimize the related field and non-field impacts whose reduction remains the focus of the current laws, ordinances, regulations, and standards (LORS). Staff's analysis focused on the following issues as related primarily to the physical presence of the lines, or secondarily, to the physical interactions of their electric and magnetic fields:

- aviation safety;
- interference with radio-frequency communication;
- audible noise;
- fire hazards;
- hazardous shocks;
- nuisance shocks; and
- electric and magnetic field (EMF) exposure.

There presently are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit the impacts noted above.

However, many local jurisdictions require such lines to be located underground in new housing developments because of the potential for visual impacts on the landscape. Such requirements are not related to the concern over health effects. (Ex. 30, p. 4.11-2.)

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge, but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. Electric fields are unable to penetrate most materials, including the soil, therefore, such interference and other electric field effects are not associated with underground lines. The level of any such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for perception could be assessed from considering the field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs. (Ex. 30, p. 4.11-3.)

There are no design-specific federal or state regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited through design, construction or maintenance practices established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All modern overhead high-voltage lines are

designed to assure compliance with such noise limits. As with radio-frequency noise, such audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum, especially in wet weather. Since the noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from those of less than 345 kV as proposed for LECEF Phase 2. Research has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way. (Ex. 30, p. 4.11-4.)

Fire hazards are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects. Hazardous shocks are those that could result from direct or indirect contact between an individual and the energized line whether overhead or underground. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines. No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry from compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line. (Ex. 30, pp. 4.11-4 to 4.11-5.)

Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric

charges are induced in different ways by the line electric and magnetic fields. There are no design-specific federal or state regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). As with the proposed overhead lines, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff recommends specific conditions of certification as necessary to ensure that such grounding is made along the proposed route. (Ex. 30, p. 4.11-5.)

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans. (Ex. 30, p. 4.11-5.)

Nevertheless, we have required a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability, efficiency, and maintainability. It is incumbent upon the applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by the ground-level field strengths as measured during operation. When estimated or measured for lines of similar voltage and current-carrying capacity, such field strength values can be used by staff and other regulatory agencies to assess the effectiveness of the applied reduction

measures. These field strengths can be estimated for any given design using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line. (Ex. 30, pp. 4.11-6 to 4.11-7.)

Since each new line in California is currently required to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, its fields are required to be similar to fields from similar lines in that service area. Designing the proposed LECEF Phase 2 connection line according to existing SVP field strength-reducing guidelines constitutes compliance with the requirements for line field management. A specific Condition of Certification (**TLSN-1**) will ensure implementation of the necessary design measures. (Ex. 30, p. 4.11-7.)

There are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF health issue. In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar to those from existing lines. Some states (Florida, Minnesota, New Jersey, New York, Montana) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines. (Ex. 30, p. 4.11-7.)

The LECEF is located within a 34-acre project site that includes the 21-acre fenced area of the LECEF and the facility's surrounding landscaping. The project site includes a vacant 13-acre site, adjacent to the south sound wall, proposed for use as the phase 2 construction lay-down area. South of the project parcel is State Route 237. To the east is agricultural land, and further east is Coyote Creek. To the north is agricultural land and open space buffer lands belonging to the Water Pollution Control Plant (WPCP). To the west is undeveloped WPCP buffer land and about 2,500 feet west of the LECEF Zanker Road runs north-south. The PG&E Los Esteros Substation, and the new Silicon Valley Power (SVP) 230 kV Switching Station, are immediately north of the LECEF. There is a single residence 450 feet from the project site to the southeast, and 0.6 miles to the south, and across SR 237, is a trailer park residential area. No residences are in the immediate vicinity of the proposed LECEF and point of interconnection because the 200 foot-long 230 kV transmission line is completely within the fence line of the LECEF and the newly-constructed SVP Switching Station. This insures that the residential magnetic field exposure at the root of the any health concerns are insignificant for this project. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in transit under the project's lines. These types of exposures are short term and well understood as not significantly related to the present health concerns. The same lack of nearby residences means that the previously noted electric field-related communication impacts would be unlikely from operations. (Ex. 30, p. 4.11-8.)

The proposed LECEF 2 interconnection will consist of :

- two new 115/230 kV step up transformers;
- two new overhead lines connecting the LECEF 115 kV switch yard to the new 115/230 kV transformers; and
- two new 200 foot-long overhead lines connecting the new transformers to the 230 kV SVP Switching Station.

The Phase 2 project would expand the existing LECEF switchyard to include two short 230 kV connecting lines and two 115/230 kV transformers. The expanded switchyard or substation would then connect to the SVP Switching Station through two 200-foot long three-phase single circuit 230 kV overhead transmission lines. Each of these transmission circuits would be sized to carry the output of the entire facility. The switchyard expansion and transmission lines would be built within the fenceline of the existing project and will not require new rights-of-way. When the interconnection of Phase 2 is completed the existing Phase 1 tap interconnection to PG&E's Los Esteros – Nortech 115 kV circuit would be removed. (Ex. 1, p. 5-2; Ex. 30, p. 4.11-8.)

In addition to connecting the Phase 2 combined-cycle output of the LECEF to SVP, the Updated Final System Impact Study by PG&E also analyzes the impacts of connecting the Phase 1 simple-cycle power output to the new SVP Switching Station. This interconnection of the Phase 1 output would involve adding the new LECEF transformers, and making the identical connections described above for Phase 2, converting the simple-cycle output to 230 kV from its current 115 kV. With this option the addition of the new 115/230 kV transformers and interconnecting LECEF to the SVP Switching Station could occur earlier and independently from the Phase 2 combined-cycle conversion. This would further reduce the potential magnetic field impacts by increasing the transmission of the 180 MW output to 230 kV from the current 115 kV transmission circuits. (Ex. 30, p. 4.11-9).

Since the proposed interconnection lines would be designed and operated according to standard SVP practices, its design-driven field strengths (and, therefore, potential contribution to existing area field levels) should be at the same level expected for SVP and PG&E lines of the same voltage and current-carrying capacity. Condition of Certification **TLSN-2** will ensure that data is provided to make the required compliance assessment. (Ex. 30, p. 4.11-9.)

The proposed interconnection line is unlikely to pose a significant obstruction-related aviation hazard to utilizing aircraft as defined using current FAA criteria. Therefore, no FAA “Notice of Construction or Alteration” would be required. (Ex. 30, p. 4.11-9.)

The previously noted corona-related communications interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other discontinuities around the conductor surface. The proposed lines would be built and maintained according to standard SVP practices, minimizing such surface irregularities and discontinuities. (Ex. 1, p. 5-7.) Moreover, the potential for such corona-related interference is usually of concern for lines of 345 kV and above, and not the proposed 230 kV, even in rainy weather when the presence of raindrops increases the strengths of the offending surface electric fields. The intended low-corona design would be the same as used for exiting SVP and adjacent PG&E lines of similar voltage rating. Since these existing lines do not currently produce the corona effects of specific concern, the evidence does not indicate any corona-related radio-frequency interference in the area around the line. Moreover, the line would be located within the LECEF property lines in an area without residences. (Ex. 30, p. 4.11-9.)

As happens with radio noise, the low-corona design to be used for the proposed LECEF lines would serve to minimize the potential for corona-related audible noise. This means, as noted by the applicant (Ex. 1, p. 5-7), that the proposed line operation would be unlikely to add significantly to current background noise levels in the project area. For an assessment of the noise from all phases of the proposed project and related facilities, see the section on **NOISE** in this Decision. (Ex. 30, p. 4.11-10.)

Standard fire prevention and suppression measures for all LECEF 2 lines will be implemented for the proposed interconnection line. (Ex. 1, p. 5-8.) The

applicant's intention to ensure compliance with the clearance-related aspects of GO-95 is an important part of this compliance approach. Moreover, the line would be located within LECEF's property lines without any trees that could pose a fire hazard from line contact. (Ex. 30, p. 4.11-10.)

The Applicant's stated intention to implement the GO-95- related measures against direct contact with the energized line (Ex. 1, pp. 5-5 and 5-8 to 5-11) serves to minimize the risk of hazardous shocks. Staff's recommended Condition of Certification **TLSN-1** that we adopt will be adequate to ensure implementation of the necessary mitigation measures. The potential for nuisance shocks around the proposed line would be minimized through standard industry grounding practices. (Ex. 1, pp. 5-8 to 5-11.) Condition of Certification **TLSN-2** will ensure such grounding. (Ex. 30, p. 4.11-10.)

As noted by the applicant (Ex. 1, p. 5-8, and Appendix 5-B), specific field strength-reducing measures would be incorporated into the proposed connecting line design to ensure the required field strength minimization in light of the concern over EMF exposure and health. The field reduction measures to be applied include:

- increasing the distance between the conductors and the ground;
- reducing the spacing between the conductors;
- minimizing the current in the line; and
- arranging current flow to maximize the cancellation effects from interacting of conductor fields. (Ex. 30, p. 4.11-10).

Connecting the proposed LECEF Phase 2 line to the SVP-related equipment of the same voltage would not change the existing voltages within the area transmission grid. Condition of Certification **TLSN-3** provides for specific field strength measurements to verify that the LECEF Phase 2-related voltage would not change the existing electric fields without significant changes to the applied voltage. These measurements will also allow for comparison with electric fields

from SVP lines of the same design and voltage. The magnetic field strength measurements will allow for comparison with magnetic fields from SVP lines of the same design and current-carrying capacity as well as those from similar lines in the few states with specific limits on line magnetic fields. These magnetic field strength limits vary from 150 to 250 mG established (depending on voltage level) for the edges of the rights-of-way. (Ex. 30, p. 4.11-11.)

Since optimum field-reducing measures have been incorporated into the proposed line design, further mitigation is unnecessary. Validation of this assumed reduction efficiency will be demonstrated by comparing the values from the recommended field strength measurements with field strengths typical of SVP lines of similar voltage and current-carrying capacity. (Ex. 30, p. 4.11-11.)

Since the proposed LECEF Phase 2-related transmission lines would be designed according to applicable field-reducing SVP guidelines, the resulting fields should be similar in intensity to fields from lines of the similar voltage and current-carrying capacity. Any contribution to cumulative area exposures would be at similar levels. It is this similarity in intensity that constitutes compliance with requirements on EMF management. The actual field strengths and contribution levels for the proposed line design can be assessed from the results of the field strength measurements specified in Condition of Certification **TLSN-3**. (Ex. 30, p. 4.11-11.)

Since electric or magnetic field health effects have neither been established nor ruled out for overhead and underground lines, the public health significance of any LECEF Phase 2-related field exposures cannot be characterized with certainty. The only conclusion to be reached with certainty is that the proposed line design and operational plan would be adequate to ensure that the generated electric and magnetic fields are managed to an appropriate extent in light of the available health effects information. Long-term, mostly residential magnetic exposure would be insignificant for the proposed interconnection lines given the

general absence of residences along the proposed route. On-site worker or public exposure would be short term and at levels expected for lines of similar designs and current-carrying capacity. Such exposure is well understood and has not been established as posing a significant human health hazard. (Ex. 30, p. 4.11-12.)

The existing 115 kV Phase 1 line, with a lack of public access and nearby residences, means that the long-term residential field exposures and other field impacts will be insignificant during operations. These potential impacts are at the root of the present health and safety concern associated with high voltage transmission lines. The categories of impacts discussed above and related mitigation measures were addressed and incorporated into the earlier Commission Decision (2002 Decision). A comprehensive discussion of these impacts in included in Exhibit 1 at pages 5-6 to 5-11.

FINDINGS AND CONCLUSION

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

1. The proposed transmission line constructed in conjunction with the proposed project is not likely to create fire hazards nor to cause safety hazards to aviation.

2. The electric and magnetic field strengths created by the project's transmission lines will be within acceptable limits, and will not create significant adverse human health impacts.

3. The project's transmission lines will not cause an unacceptable interference with radio frequency communications, nor create significant shock hazards to humans.

4. The Conditions of Certification below will ensure that the transmission lines are designed, constructed, and operated in compliance with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the transmission lines associated with this project will not create any significant safety or nuisance hazards.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall build the proposed and any future underground interconnection lines according to the requirements of CPUC's GO-128.

Verification: Thirty days before line-related ground disturbance, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the proposed line will be constructed according to the requirements of GO-128.

TLSN-2 The project owner shall engage a qualified consultant to measure the strengths of the magnetic fields from SVP to LECEF's switchyard. Measurements shall be made at the same points (identified as Points A, B, C, and D) for which calculated field strength measurements were provided by the applicant.

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-3 The project owner shall build the proposed overhead 230 kV interconnection lines according to the requirements of CPUC's GO-52, (and GO-128 if underground) 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: Thirty days before line-related ground disturbance, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the proposed line will be constructed according to the requirements noted above.

V. PUBLIC HEALTH AND SAFETY ASSESSMENT

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

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting both from project construction and operation. The construction of the project is complete as to Phase 1. Phase 2 involves conversion of the existing facility to combined-cycle operation.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Commission must examine whether the project complies with applicable laws, ordinances, regulations, and standards related to air quality. National (federal) ambient air quality standards (AAQS) have been established for six air contaminants identified as "criteria air pollutants." These include: (1) sulfur dioxide (SO_2); (2) carbon monoxide (CO); (3) ozone (O3); (4) nitrogen dioxide (NO_2); (5) lead (Pb); and (6) particulate matter less than 10 microns in diameter (PM_{10}). Also included in this review are the precursor pollutants for ozone, which are nitrogen oxides (NO_x) and volatile organic compounds (VOC) and the precursors for PM_{10}, which are NO_x, VOC, and sulfates (SO_x). (Ex. 35, pp. 9-10; Ex. 30, Table 1, p. 4.1-5.)

The federal Clean Air Act[12] requires **new** major stationary sources of air pollution to comply with federal requirements in order to obtain authority to construct permits. The U.S. Environmental Protection Agency (USEPA), which administers the Clean Air Act, has designated all areas of the United States as attainment (air quality better than the (AAQS) or non-attainment (worse than the AAQS) for criteria air pollutants. There are two major components of air pollution law: New Source Review (NSR) for evaluating

[12] 42 U.S.C. § 7401 et seq.

pollutants that violate federal standards; and Prevention of Significant Deterioration (PSD) to evaluate those pollutants that do not violate federal standards. Enforcement of NSR and PSD rules is typically delegated to local air districts that are established by federal and state law. Both USEPA and the California Air Resources Board (CARB) have established allowable maximum ambient concentrations for the six criteria pollutants listed above. The California standards are typically more stringent than federal standards. Federal and state ambient air quality standards are shown in Table 1 below. (Ex. 30, Table 1, p. 4.1-5.)

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)
	8 Hour	-	0.084 ppm
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.25 ppm (470 $\mu g/m^3$)	-
	Annual Average	-	0.053 ppm (100 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 $\mu g/m^3$)	-
	3 Hour	-	0.5 ppm (1300 $\mu g/m^3$)
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)
	Annual Average	-	0.03 ppm (80 $\mu g/m^3$)
Respirable Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$
	Annual Arithmetic Mean	20 $\mu g/m^3$	50 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	-	65 $\mu g/m^3$
	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$
Sulfates	24 Hour	25 $\mu g/m^3$	-
Lead	30 Day Average	1.5 $\mu g/m^3$	-
	Calendar Quarter		1.5 $\mu g/m^3$
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 $\mu g/m^3$)	-
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 $\mu g/m^3$)	-
Visibility Reducing Particulates	8 hours	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.	-

Source: Exhibit 30, p. 5.1-5

The Los Esteros Critical Energy Facility (LECEF) is located in the city of San Jose within the Bay Area Air Basin and is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD or District). Ambient air quality data has been collected extensively in the Bay Area Air Basin. The Bay Area Air Basin is designated attainment for the state and federal NO_2, CO, and SO_2 AAQS standards, and nonattainment for the state and federal ozone AAQS standards and the state Particulate or PM_{10} standard as well as the state standard for Fine Particulate Matter or $PM_{2.5}$ standard.

Project Compliance with Applicable Laws, Ordinances, Regulations and Standards

To address local air quality impacts, Applicant analyzed the appropriate emissions control technology and the "best available control technology" (BACT). (Ex. 1, pp. 8.1-71 to 8.1-73; Ex.1, App. 8.1-E2; Ex. 35, pp. 9-10; Ex. 33, pp. 16-22; 6/30 RT 63; 6/30 RT 81.) The Bay Area Air Quality Management District (BAAQMD) issued its Final Determination of Compliance (FDOC) on June 30, 2005 (Ex. 33). The FDOC confirms that LECEF 2 complies with BACT. (Ex. 33, pp. 16-22.) Staff questioned the District's BACT initial determination in the Preliminary Determination of Compliance (PDOC). (Ex. 30, pp. 4.1-31 to 4.1-32.) However, with one exception the Staff's concerns were addressed by issuance of the FDOC. (Ex. 30, p. 4.1-33; Ex. 31, AQ-SC11, pp. 11-12.)

The single area of dispute between Applicant and Staff is contained the Staff FSA's Condition of Certification AQ-SC11, which requires that the selective catalytic reduction (SCR) catalyst be replaced within one year after ammonia slip levels are determined to exceed 5 ppm. (Ex. 30, p. 4.1-31.) This dispute and the Commission's resolution of the issue is discussed in detail under the heading "Ammonia Slip".

With respect to carbon monoxide (CO), LECEF 2 will comply with the BAAQMD requirement through the use of an oxidation catalyst. (Ex. 1, p. 8.1-72.) The BAAQMD has determined in this case that BACT for CO is an emission limit of 9.0 ppmvd @ 15% O_2, averaged over three hours. (Ex. 33, pp. 19-21.) However, CARE disputed the acceptability of this emission limit, arguing that BACT for CO is actually 4 ppm. (CARE Opening Brief, p. 1.) This dispute and the Commission's resolution of the issue is discussed in detail under the heading "CO Emissions".

Nitrogen oxides (NO_x) for the project will be controlled through a combination of two technologies. One is the use of water injection in the combustors. The second is by use of SCR. Each combustion gas turbine/heat recovery steam generator (HRSG) train will be designed to meet a NO_x emission concentration limit of 2.0 ppmvd NO_x @ 15% O_2, averaged over 1 hour, during all operating modes except gas turbine start-ups and shutdowns and brief periods of excursions. (Ex. 1, p.8.1-29; Ex. 15, pp. 6-7; Ex. 33, p. 2.)

Reactive organic gases (ROGs) will also be controlled through the use of good combustion practices (Ex. 1, p. 8.1-73.) The ROGs will meet a limit of 2.0 ppmvd @ 15% O_2, averaged over three hours, as specified in the FDOC. (Ex. 33, p. 21.)

Emissions of sulfur dioxide (SO_2) and particulate matter (PM_{10}) will be controlled through the use of natural gas as a fuel. The project will use exclusively PUC-regulated natural gas, which satisfies the BACT requirement for SO_2. (Ex. 33, p. 22.)

To demonstrate that the LECEF 2 would have no significant <u>local</u> air quality impacts, Applicant submitted evidence of an air quality impact analysis using dispersion models required by United State Environmental Protection Agency (USEPA) and the BAAQMD and a number of worst-case assumptions. (Ex. 1, pp. 8.1-36 to 8.1-48; Ex. 35, p. 10; 6/30 RT 64-65.) The air quality impact analysis shows the location and levels of the greatest air quality impact. The analysis supports Applicant's position that the LECEF 2 will not cause any violations of any state or federal air quality standards. (Ex. 1, p. 8.1-46; Ex. 30, p. 4.1-25; 6/30 RT 64-65.) In addition, Applicant performed a Health Risk Assessment to establish that the LECEF 2 will not cause any adverse local air quality impacts. (Ex. 1, pp. 8.1-49 to 8.1-50; Ex. 35, p. 10; Ex. 30, pp. 4.7-12 to 4.7-13; Ex. 33, pp. 25-26; 6/30 RT 65.) No credible evidence contradicts Applicant's showing.

Applicant also provided evidence that the LECEF 2 will have no impacts on <u>regional</u> air quality. First, Calpine cited the use of BACT, as defined by the BAAQMD, to demonstate its efforts to minimize emissions. (Ex. 35, p. 9.) Next, Applicant offered several cumulative air quality impacts analyses that looked at the impacts of LECEF 2

and other reasonably foreseeable projects against the backdrop of existing background air quality levels. The first such analysis was included in the AFC. (Ex. 1, pp. 8.1-46 to 8.1-47.) It showed that LECEF 2 will not cause any new violations of any state or federal air quality standards. (Ex. 1, p. 8.1-46; Ex. 31, p. 4.1-25; Ex. 35, p. 10; 6/30 RT 64-65.) However, it also showed that the Project would contribute to *existing* violations of the state ozone standard, and of the state particulate matter (or PM_{10}) standard. (*Id.*) Applicant addressed these contributions by providing emission offsets.

Emission offsets are part of a regional mitigation program designed to ensure that new plants of any type can be constructed while still making sure that progress towards cleaner air is maintained. Emission offsets are a requirement of local regulations, state law and federal law. The witness from the BAAQMD confirmed that LECEF 2 will provide offsets for this project as required by the BAAQMD.

> The applicant agreed to fully mitigate the NOx and POC emission increases, as required by District rules. The applicant further agreed to mitigate the fall and winter quarter PM_{10} increases. The proposed emissions offsets (AIR QUALITY Table 21) will be sufficient to fully mitigate all emissions increases from the project. (Ex. 30, p. 4.1-32)

In response to Staff recommendations, Applicant agreed to provide an additional 14.25 tons per year of SO_2 emission reduction credits to address mitigation of PM_{10} air quality impacts. (Ex 35, p. 10-11.) With one exception, Staff and Applicant resolved areas of disagreement during workshops and conformed the Conditions of Certification contained in the FSA to those presented by the BAAQMD in the FDOC. (Ex. 30,pp. 34-58; Ex. 33.) The single disputed matter between Staff and Applicant remains that of ammonia slip[13], which is discussed below.

[13] CARE also argued that the LECEF 2 ammonia slip should be limited to 5 ppm. (CARE's Opening Brief, p. 7.)

COMMISSION DISCUSSION

Ammonia Slip

To control NO_x emissions from the combustion turbines, the LECEF 2 will inject ammonia into the flue gas stream as part of the SCR system. In the presence of the catalyst, the ammonia and NO_x react to form harmless elemental nitrogen and water vapor. However, not all of the ammonia reacts with the flue gases to reduce NO_x; a portion of the ammonia passes through the SCR and is emitted unaltered from the stacks. These ammonia emissions are known as ammonia slip. The rate of ammonia slip increases over time, after significant degradation of the SCR catalyst. (Ex.30, p. 4.1-20.)

The Staff FSA and supporting testimony expressed the concern that as the ammonia slip increases, it will generate additional ammonia nitrate leading to increased levels of fine particulates. Such particulates are recognized as a threat to public health. The Staff witness testified that clearly the LECEF 2 will emit ammonia and that "basic atmospheric chemistry dictates that ammonia will react with atmospheric compounds of nitrogen and sulfur to form particulates." (6/30/05 RT 75:23-76:1.) Staff acknowledges that while it "cannot specify the exact impact" of the ammonia slip it nevertheless seeks to minimize the ammonia emissions from the project. (Ex. 30, pp 4.1-20; 6/30/05 RT 75-76.)

In order to minimize the formation of secondary PM to the extent possible, Staff believes an ammonia emissions limit of five ppm @ 15% O_2 (3-hour rolling average) is technologically and economically feasible. In support of this Staff cites the California Air Resources Board's (ARB's) *"Guidance for Power Plant Siting and Best Available Control Technology As Approved by the Air Resources Board on July 22, 1999"*, as well as the 5 ppm ammonia slip requirement enforced in the South Coast Air Quality Management District (SCAQMD). The Staff witness referenced prior CEC decisions which required an ammonia slip of 5 ppm and specifically the recent Roseville Energy

Park case (03-AFC-1), which contained the condition Staff advocates in this case. (Ex. 30, p. 4.1-20.)

In Staff's view, its proposed condition of certification AQ-SC11 will substantially limit the facility emissions of ammonia to 5 ppm, without forcing the facility owner to replace or retrofit the SCR catalyst when the facility is emitting less than 5 ppm ammonia.[14] Staff believes that this limit is both technically and economically feasible, even in combination with the 2.0 ppm NO_x limit required by the BAAQMD. (*Id*.) CARE also advocated the 5 ppm ammonia slip level. (CARE's Op. Br. pp. 6-8.)

Applicant argues against imposing the 5 ppm ammonia slip requirement on grounds that 1) the BAAQMD has identified an ammonia slip level of 10 ppm in its FDOC as adequate to protect public health, 2) Staff has presented no technical evidence in support of its ammonia slip condition, 3) it is not appropriate for Staff to use CEQA as a basis for imposing a requirement in an area already addressed by the BAAQMD, 4) the proposed condition is not technically feasible, and 5) if imposed, the 5 ppm limit would trigger additional environmental impacts not analyzed by Staff. (Applicant's Op. Br. pp. 9-24.) We address these arguments below.

It is undisputed that there is no BACT requirement for ammonia slip in the BAAQMD. While some other air districts have chosen to adopt the 5 ppm standard, BAAQMD has not. In a letter responding to Staff comments on the revised PDOC for the LECEF 2, BAAQMD Executive Officer/APCO Jack P. Broadbent wrote:

> Based upon the atmospheric conditions in the Bay Area air basin, the District concluded that ammonia emission from the facility will not contribute to the formation of secondary particulate matter because the chemical reaction that forms ammonia nitrate - the type of secondary particulate matter of concern – is limited by the amount of nitric acid in the atmosphere, <u>not by the amount of ammonia</u>. <u>As a result, additional ammonia emissions will not cause additional ammonia nitrate to be generated. (*Emphasis added*)</u>
> (Letter from Jack P. Broadbent, BAAQMD to Paul Richins, CEC, dated July 29, 2005, docket file no. 34840; 6/30/05 RT 142-143.)

[14] Condition of certification AQ-SC11 basically requires that the SCR catalyst be replaced within one year after ammonia slip levels are determined to be in excess of 5 ppm. (Ex. 30, pp 4.1-41 to 4.1-42.)

This fact of fine particulate formation specific to the Bay Area was also stated in the testimony of BAAQMD witness Steve Hill at the June 30, 2005 evidentiary hearing. (6/30/05 RT 83-84.) Mr. Hill testified that the BAAQMD based its approach on a study done by the District using monitoring and modeling from San Jose and Livermore. The study showed that in both areas the nitrogen oxide to nitric acid conversion process, as opposed to ammonia emissions, was the rate-limiting step controlling the production of particulates. (*Id.*) He noted that the District is concerned about the formation of fine particulates, but the reduction of NOx emissions and sulfates are the likely focus of future efforts by the BAAQMD to further reduce fine particulates. (6/30/05 RT 86.)

Applicant also argues that Staff has presented no credible technical evidence in support of its proposed ammonia slip condition. According to Applicant, the Staff's argument with respect to the alleged need to reduce ammonia slip emissions is straightforward, but incomplete:

- Ammonia compounds contribute to the formation of fine particulate matter.
- Fine particulates of 2.5 microns and smaller are dangerous to public health.
- The BAAQMD is designated nonattainment for the state PM_{10} and $PM_{2.5}$ air quality standards.

Thus, Staff argues, *any* release of ammonia from the LECEF 2 will add to particulate formation which, due to the Bay Areas nonattainment status, amounts to a significant environmental impact justifying the imposition of Staff's ammonia slip condition pursuant to CEQA. (Ex. 31.)

However, Applicant points out that Staff's argument is missing a critical element in that Staff has not established a cause-and-effect relationship between additional emissions of ammonia and the secondary formation of increased PM_{10} or $PM_{2.5}$ levels in the San Francisco Bay Area Air Basin. Applicant's witness acknowledged that other air districts treat ammonia differently than does the Bay Area. (6/30/05 RT 70.) However, both Applicant's expert and the expert witness from the BAAQMD based their opinions on scientific monitoring and modeling studies, performed by the Bay Area District. (6/30/05 RT 69, 84.) These studies included data gathered in San Jose, the city where the proposed project is located. Such evidence in support of expert testimony is highly

relevant and reasonably specific to the location of this project. Staff, on the other hand, apparently relied upon "basic atmospheric chemistry" to determine that ammonia will combine with nitrogen and sulfur to form fine particulates *at the location of this specific project.* We have no doubt that in other air districts, such as SCAQMD, ammonia does contribute to particulate formation. SCAQMD has determined that to be the case and enforces 5 ppm ammonia slip as BACT. However, BAAQMD's expert witness was very specific in describing the Bay Area district. He testified that,

> …increased levels of ammonia do not result in increased levels of particulate. There is an atmospheric chemical reaction of nitrogen oxides going to nitric acid. And that appears to be the rate-limiting step in the Bay Area. And therefore that reducing nitrogen oxides might contribute to reduced particulate, secondary particulate concentrations. But that reducing ammonia emissions will not.
>
> This conclusion is based on a study that the District did about ten years ago. We did some monitoring and modeling in San Jose and in Livermore. And in both of those areas we determined that this nitrogen oxide to nitric acid conversion process was the rate-limiting step and controlled the production of particulates. (6/30 RT pp. 84:2-18)

As noted above, the BAAQMD Executive Director made virtually the same statement to the Staff in his July 29, 2005 letter. Applicant's witness also testified to this effect. (6/30/05 RT 68-69.)

Staff's position is thus at odds with the testimony from other air quality expert witnesses and with the only relevant scientifically based study in the record. While we will rely upon Staff expertise whenever reasonable, Staff's expert opinions must be adequately supported in order to constitute substantial evidence upon which the Commission may rely. "'Substantial evidence' is defined in the CEQA Guidelines to include 'expert opinion supported by facts.' It does not include '[a]rgument, speculation, unsubstantiated opinion or narrative.'" (*Magan v. County of Kings, 105 Cal. App. 4th 468, 477*.) As Staff itself reminds us in its opening brief, "[t]o the extent feasible, CEQA requires the determination to be based on scientific and factual data." [Staff's Op. Br. p. 6, citing *CEQA Guidelines, Cal Code Regs., tit. § 15864 (b)].*

Applicant and BAAQMD have offered relevant scientific evidence in support of their positions. Staff has not, except for its reliance on other documents and studies not specific to this project area nor to this air district. While Staff states that the District's reliance on a 10-year old study is "problematic", Staff offers no other rebuttal evidence concerning ammonia slip which is specific to this site or this air district. Thus, based on the evidence, we are not persuaded by Staff's assertion that ammonia slip from the project will lead to an increase in the formation of fine particulates. The logical corollary to this is that Staff's proposed Condition AQ-SC11, reducing ammonia slip to 5 ppm, would not lead to a reduction in particulate formation at this project in this air district.

Staff argues that the Commission has already imposed the 5 ppm ammonia slip in combination with a 2 ppm NOx limit in eight previous cases.[15] (Ex. 31, p. 1.) Applicant counters that the Commission has also approved twenty projects with ammonia slip levels of 10 ppm, four of them gaining approval within the last 24 months.[16] In addition, Applicant's witness demonstrated that the power plants permitted at the 5 ppm ammonia slip rate were either located in air districts which required that limit, or the 5 ppm limit was proposed by the applicant in the particular case. (Ex. 35, Table 1, p. 13; 6/30/05 RT 131.) Other projects offered by Staff for comparison simply did not use the same power plant technology as that used at the LECEF 2.[17]

There are recent examples of Commission decisions in which the Commission rejected the Staff's arguments that a 5 ppm ammonia slip level should be required, and sustained the opinions of the Applicant, Bay Area AQMD and San Joaquin Valley APCD. (East Altamont Energy Center Decision, 01-AFC-04, p. 142; Walnut Energy Center Decision, 02-AFC-04, pp. 101, 103.) In the case of the Turlock Irrigation District Walnut Energy Center, the Commission was not persuaded by Staff's position and

[15] Malburg-Vernon City (01-AFC-25), El Segundo (00-AFC-14), Inland Empire (01-AFC-17), Magnolia (01-AFC-6), Morro Bay (00-AFC-12), Palomar (01-AFC-24), Tesla (01-AFC-21), Roseville (01-AFC-1).

[16] Cosumnes (01-AFC-19), East Altamont (01-AFC-4), Pico (02-AFC-3), and San Joaquin Valley (01-AFC-22).

[17] In the case of the recently licensed Roseville project, Staff incorrectly stated that the project used the same type of turbine as the LECEF 2. (6/30/05 RT 99.) In fact, while licensed for two alternatives, the Roseville project is being built with GTX-100 combustion turbines equipped with dry low NOx combusters. By contrast, the LECEF 2 uses LM6000 combustion turbines with water injection.

made findings that, based on the evidence, reducing the ammonia slip level to 5 ppm would not reduce the formation of secondary particulates in the San Joaquin Valley. (Walnut Energy Center Decision, pp. 101,103 findings 7-9.)

Another of Applicant's arguments is that Staff should not rely on CEQA as a basis for imposing requirements in an area already addressed by the local air district. Applicant is correct that in this instance Staff has failed to 1) demonstrate that ammonia slip from the LECEF 2 at a 10 ppm level will cause a significant environmental impact and, 2) demonstrates that a condition essentially requiring a 5 ppm ammonia slip level would reduce or mitigate the impact. However, affirmatively establishing these elements could persuade us to implement Staff's condition. Thus, in other cases where Staff is able to present evidence of a significant environmental impact even after local district rules have been imposed, it may be appropriate, under CEQA, for Staff to propose additional mitigation measures, notwithstanding actions taken by the local responsible agency. [18]

Applicant also argues that a 5 ppm ammonia slip level is not technically feasible at the LECEF 2. Because Staff has failed to establish both the existence of a significant environmental impact and that Condition AQ-SC11 would mitigate the impact, we need not decide the technical feasibility of the proposed mitigation condition. We note, however, that Staff's assumption of the feasibility of its Condition AQ-SC11 appears to be based on a Staff belief, rather than upon analysis. Perhaps consistent with that approach, Staff did not analyze any potential environmental effects of its proposed condition. Concerning such potential effects, Applicant argues that a 5 ppm ammonia slip condition would lead to increased maintenance costs and plant outages, increased consumption of natural gas, and reduced plant efficiency. In the absence of a Staff analysis, Applicant's expert testimony is the only evidence of the deleterious environmental effects of proposed condition AQ SC-11.

CARE also argued that 5 ppm ammonia slip is technically feasible and should be imposed. CARE's primary concern appears to be the role ammonia may have in the formation of nitrogen deposition. Such deposition can impact sensitive species in the

[18] In this case the local air district acknowledged limitations in its current authority to control ammonia slip which is limited to regulating direct impacts to health risks and odors. (6/30/05 RT 83:11-15.)

local environment. We discuss nitrogen deposition in the section of this Decision which discusses Biological Resources.

CO Emissions

CO emission levels for the LECEF 2 will be reduced through the use of an oxidation catalyst system to treat all exhaust gasses. The proposed controls will limit short-term emissions of CO to 9.0 ppm, while annual emissions of CO will be limited to a 4.0 ppm average. The District has found these levels to be BACT for this type of facility, based on an analysis of emissions data from the Valero Cogeneration Unit, a combustion test conducted at LECEF late last year, and a request from Applicant to increase the CO limit from 4.0 to 9.0 due to the proposed 2.0 NO_x limit. (Ex. 33, pp. 19-21.)

CARE argues that BAAQMD's own BACT Guidelines show a limit for CO of 4 ppm, and that this level should be applied to the LECEF 2 instead of the 9 ppm for CO allowed in the FDOC. However, BAAQMD explained in its FDOC that for the type of equipment used at the LECEF 2, NOx and CO emissions are inversely related. As a result, Applicant requires the higher CO allowance for operating flexibility because of the BAAQMD requirement to keep NOx emissions down to 2 ppm. In other words, lowering NOx emissions will tend to increase peak CO emissions. (Ex. 33, p. 19.)

CARE is critical of the District's approach and points to examples of other power plants which CARE believes have achieved NOx emission levels of 2 ppm, while meeting a CO level of 4 ppm, rather than the 9 ppm level approved in the FDOC. However, in both the FDOC and in its subsequent letter responding to comments, BAAQMD distinguished the characteristics of other power plant projects from those of the LECEF 2 and stated, "… the District is not aware of any other facilities that are comparable to LECEF operating with a NOx limit of 2.0 ppm that could serve as a basis for an achieved-in-practice BACT determination." (Ex. 33, p. 20:¶ 1.) In its FDOC the District cites the fact that LECEF is an existing facility, with relevant equipment differences from other reference facilities, and that the CO limit of 9 ppm will provide a reasonable and appropriate margin of compliance to ensure that the facility does not violate its permit conditions. (Ex. 33, p. 20.)

The record contains no credible evidence which would lead the Commission to require a different CO emission limit for this particular project.

FINDINGS AND CONCLUSIONS

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

1. 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), Carbon Dioxide (CO_2), Ozone (O3), Nitrogen Dioxide (NO_2), and particulate matter less than 10 microns in diameter (PM_{10}).

2. The Bay Area Air Quality Management District (BAAQMD) is the air quality regulatory agency for the area where the project site is located.

3. The LECEF 2 project is not a major stationary source, subject to Prevention of Significant Determination (PSD) permitting, because emissions of all regulated air pollutants will remain less than 100 tons per year each. Therefore the project does not trigger the emission limits for a PSD review.

4. The Bay Area air basin is a non-attainment area for both the state and federal 1-hour ozone standards and the state 24-hour PM_{10} and $PM_{2.5}$ standards, as well as the state annual PM_{10} standard, but is in attainment for all other criteria pollutants.

5. In the present circumstance, the BAAQMD does not require offsets for PM_{10} emissions. However, Staff and Applicant have agreed and we have imposed additional mitigation measures for the monitoring and control of PM_{10} emissions at the project site.

6. Applicant will obtain, by direct transfers or legally enforceable option contracts, Emission Reduction Credits (ERCs) sufficient to fully offset the emissions of PM_{10} due to project operation.

7. The BAAQMD has determined that a CO emissions level of 9 ppm is appropriate for this project.

8. The evidence of record does not establish that a reduction in the project's CO emissions from 9 ppm to 4 ppm will eliminate a significant environmental impact nor does the evidence establish that 4 ppm for CO is feasible for this particular facility as permitted by BAAQMD.

9. The BAAQMD has determined that an ammonia slip level of 10 ppm is appropriate for this project.

10. The evidence of record does not persuasively establish that an ammonia slip level of 10 ppm will lead to the formation of secondary particulates in the area of this project, or result in significant adverse impacts.

11. The evidence of record does not establish that a reduction in the ammonia slip from 10 ppm to 5 ppm will lead to a reduction or elimination of a significant environmental impact.

12. Applicant has met its burden of proof to demonstrate that with implementation of the Conditions of Certification specified below, the LECEF will operate in compliance with all applicable laws, ordinances, regulations, and standards identified in the pertinent portion of Appendix A of this Decision.

We therefore conclude that with implementation of the Conditions of Certification below, the LECEF 2 project will not create any significant direct, indirect, or cumulative adverse air quality impacts, and will conform with all applicable LORS relating to air quality as set forth in the pertinent portions of Appendix A of this Decision.

PERMITTED EQUIPMENT DESIGNATIONS

S-1 Combustion Gas Turbine #1 with Water Injection, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM BTU/hr (HHV) maximum heat input rating; abated by A-1 Oxidation Catalyst and A-2 Selective Catalytic Reduction System

S-2 Combustion Gas Turbine #2 with Water Injection, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM BTU/hr (HHV) maximum heat input rating; abated by A-3 Oxidation Catalyst and A-4 Selective Catalytic Reduction System

S-3 Combustion Gas Turbine #3 with Water Injection, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM BTU/hr (HHV) maximum heat input rating; abated by A-5 Oxidation Catalyst and A-6 Selective Catalytic Reduction System.

S-4 Combustion Gas Turbine #4 with Water Injection, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM BTU/hr (HHV) maximum heat input rating; abated by A-7 Oxidation Catalyst and A-8 Selective Catalytic Reduction System

S-5 Fire Pump Diesel Engine, John Deere Model JDFP-06WR, 290 bhp, 13.5 gal/hr

S-7 Heat Recovery Steam Generator #1, equipped with low-NO_x Duct Burners, 139 MM BTU/hr abated by A-1 Oxidation Catalyst and A-2 Selective Catalytic Reduction System

S-8 Heat Recovery Steam Generator #2, equipped with low-NO_x Duct Burners, 139 MM BTU/hr abated by A-3 Oxidation Catalyst and A-4 Selective Catalytic Reduction System

S-9 Heat Recovery Steam Generator #3, equipped with low-NO_x Duct Burners, 139 MM BTU/hr abated by A-5 Oxidation Catalyst and A-6 Selective Catalytic Reduction System

S-10 Heat Recovery Steam Generator #4, equipped with low-NO_x Duct Burners, 139 MM BTU/hr abated by A-7 Oxidation Catalyst and A-8 Selective Catalytic Reduction System

S-11 Six-Cell Cooling Tower, 73,000 gallons per minute

CONDITIONS OF CERTIFICATION

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

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

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

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

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

a) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4** (the prevention of fugitive dust plumes). 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 construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

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

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

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

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

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

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

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

l) All vehicles that are used to transport solid bulk material on public roadways and that have 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/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of any complaints filed with

the air district in relation to project construction, and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

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

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

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

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or Delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

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

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

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

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

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

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

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

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

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

(1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure.

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

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

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

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

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

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of all diesel fuel purchase records, (3) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and (4) any other documentation deemed necessary by the

CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM for review any modification to any air permit for the project proposed by the District or any other agency.

Verification: The project owner shall submit any proposed air permit modification to the CPM within five business days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from any agency. The project owner shall submit a final copy of any modified air permit to the CPM within 15 business days after the issue date on the permit.

AQ-SC7 The project shall surrender the emission offset credits listed below or a modified list, as allowed by this condition, at the time that surrender is required by condition **AQ-35** (district permit Part 35). The project owner may request CPM approval for any substitutions or modification of credits listed in Appendix A. The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, the requested change(s) clearly will not cause the project to result in a significant environmental impact, and each requested change is consistent with applicable federal and state laws and regulations.

Emissions Reduction Credit requirement, based on Applicant comments on the District's Revised Preliminary Determination of Compliance.

Required Emission Reduction Credits

ERC Number	Source Location (City)	Date Banked	Source Type	NO_x (tpy)	POC (tpy)
724	Palo Alto	3/13/96	Cardinal Cogen.	7.100	0
856	San Pablo	4/23/02	Myers Container	0	26.522
#896	San Francisco	9/30/85	Potrero Power Plant	304.594	-
Total ERC Available				**311.694**	**26.522**
Los Esteros Phase 2 ERC Requirement				**27.945**	**7.500**

Source: Sierra 2005b, pg. 2

Verification: The project owner shall submit to the CPM a list of ERCs to be surrendered to the District at least 60 days prior to initial startup. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC8 The project owner shall comply with all staff (AQ-SC) and district (AQ) Conditions of Certification. The CPM, in consultation with the District, may approve any change to a Condition of Certification regarding air quality, as an insignificant change, provided that: (1) the project remains in compliance with

all applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

Verification: The project owner shall notify the CPM in writing of any proposed change to a condition of certification pursuant to this condition and shall provide the CPM with any additional information the CPM requests to substantiate the basis for approval.

AQ-SC9 The project owner/operator shall submit documentation proving the previous withdrawal of 34.11 tons of SO_x Emissions Reductions Credits (ERCs). The project owner/operator shall further surrender an additional 13.730 tons of SO_x ERCs.

Verification: The project owner/operator shall submit proof of previous withdrawal of 34.11 tons of SO_x ERCs prior to the start of construction on the Combined Cycle conversion of the project. The project owner/operator shall surrender the remaining 13.730 tons of SO_x ERCs to the district for permanent withdrawal from the bank prior to first fire of any gas turbine following the installation of the duct burners and associated equipment. The owner/operator shall submit all documentation of the surrender to the CPM by the same date. Copies of documentation from the district proving permanent withdrawal of any submitted ERCs from the district bank shall be submitted by the owner/operator to the CPM as soon as issued by the district.

AQ-SC10 The project owner shall report to the CPM the quantity of CO_2 emitted on an annual basis as a direct result of electricity generation.

Verification: CO_2 emissions shall be reported to the CPM once per calendar year, as part of the first quarterly compliance report submitted each year as required in Condition of Certification **AQ-34**.

AQ-SC11 condition deleted

AQ-1 The owner/operator of the Los Esteros Critical Energy Facility shall minimize the emissions of carbon monoxide and nitrogen oxides from S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators to the maximum extent possible during the commissioning period. **AQ-1** through **AQ-11** shall only apply during the commissioning period as defined above. Unless noted, **AQ-12** through **AQ-49** shall only apply after the commissioning period has ended. (Basis: cumulative increase)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by **AQ-5** and **AQ-10** respectively.

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune the S-1, S-2, S-3 and S-4 Gas Turbine combustors

to minimize the emissions of carbon monoxide and nitrogen oxides. (Basis: cumulative increase)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by **AQ-5** and **AQ-10** respectively.

AQ-3 At the earliest feasible opportunity and in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust and operate the SCR Systems (A-2, A-4, A-6 & A-8) and OC Systems (A-1, A-3, A-5 & A-7) to minimize the emissions of nitrogen oxides and carbon monoxide from S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators. (Basis: cumulative increase)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by **AQ-5** and **AQ-10** respectively.

AQ-4 Coincident with the steady-state operation of SCR Systems (A-2, A-4, A-6, & A-8) and OC Systems (A-1, A-3, A-5, & A-7) pursuant to **AQ-3**, the owner/operator shall operate the facility in such a manner that the Gas Turbines (S-1, S-2, S-3 and S-4) comply with the NO_x and CO emission limitations specified in **AQ-19a** and **AQ-19c**. (Basis: BACT, offsets)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by **AQ-5** and **AQ-10** respectively.

AQ-5 The owner/operator of the Los Esteros Critical Energy Facility shall submit a plan to the District Permit Services Division at least two weeks prior to first firing of S-1, S-2, S-3 & S-4 Gas Turbines and/or S-7, S-8, S-9, & S-10 HRSGs describing the procedures to be followed during the commissioning of the turbines in the combined-cycle configuration. 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 be limited to, the tuning of the water injection, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1, S-2, S-3 and S-4) without abatement by their respective SCR Systems. The Gas Turbines (S-1, S-2, S-3 and S-4) shall be fired in combined cycle mode no sooner than fourteen days after the District receives the commissioning plan. (Basis: cumulative increase)

Verification: The project owner/operator shall submit a Commissioning Plan to the District Permit Services Division and the CPM for approval at least two weeks prior to first fire of S-1, S-2, S-3 and S-4.

AQ-6 During the commissioning period, the owner/operator of the Los Esteros Critical Energy Facility shall demonstrate compliance with **AQ-8** through

AQ-10 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

a. firing hours
b. fuel flow rates
c. stack gas nitrogen oxide emission concentrations,
d. stack gas carbon monoxide emission concentrations
e. stack gas oxygen concentrations.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators. The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request. (Basis: cumulative increase)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by **AQ-5** and **AQ-10** respectively.

AQ-7 The owner/operator shall install, calibrate and make operational the District-approved continuous monitors specified in **AQ-6** prior to first firing of each turbine (S-1, S-2, S-3 and S-4 Gas Turbines) and HRSG (S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators). After first firing of the turbine, the owner/operator shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NOx emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: BAAQMD 9-9-501, BACT, offsets)

Verification: The project owner/operator shall notify the District and CPM of the date of expected first fire at least 30 days prior to first fire and shall make the project site available for inspection if desired by either the District or CPM.

AQ-8 The owner/operator shall not operate the facility such that the number of firing hours of S-1, S-2, S-3 and S-4 Gas Turbines and/or S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators without abatement by SCR or OC systems exceed 250 hours during the commissioning period. Such operation of the S-1, S-2, S-3 and S-4 Gas Turbines without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or OC system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 250 firing hours without abatement shall expire. (Basis: offsets)

Verification: The owner/operator shall provide written notice to the CPM and the District Permit Services & Enforcement Divisions within five business days of

completion of all commissioning activities, at which time the unused balance of the 250 firing hours without abatement shall expire.

AQ-9 The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10}, and sulfur dioxide that are emitted by the S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in **AQ-22**. (Basis: offsets)

Verification: The project owner/operator shall specifically demonstrate compliance with this Condition of Certification as part of each Monthly Commissioning Emissions Report required by **AQ-10** and as part of the first Quarterly Operations Report required by **AQ-34** after the completion of commissioning.

AQ-10 The owner/operator shall not operate the facility such that the pollutant mass emissions from each turbine (S-1, S-2, S-3, and S-4 Gas Turbines) and corresponding HRSG (S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators) exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the S-1, S-2, S-3, and S-4 Gas Turbines.

	Without Controls		**With Controls**	
a. NOx (as NO_2)	1464 lb/day	102 lb/hr	1464 lb/day	61 lb/hr
b. CO	1056 lb/day	88 lb/hr	984 lb/day	41 lb/hr
c. POC (as CH_4)	288 lb/day		288 lb/day	
d. PM_{10}	60 lb/day		60 lb/day	
e. SO_2	41.6 lb/day		41.6 lb/day	
(basis: cumulative increase)				

Verification: The project owner/operator shall submit to the CPM for approval, a Monthly Commissioning Emissions Report that includes fuel use, turbine operation, post combustion control operation, ammonia use and CEM readings on an hourly and daily basis.

AQ-11 Within sixty (60) days of startup, the owner/operator shall conduct a District approved source test using external continuous emission monitors to determine compliance with **AQ-10**. The source test shall determine NO_x, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty (30) days before the execution of the source tests, the owner/operator shall submit to the District a detailed source test plan designed to satisfy the requirements of this part. The owner/operator shall be notified of any necessary modifications to the plan within twenty (20) working days of receipt of the plan; otherwise, the plan shall

be deemed approved. The Owner/Operator shall incorporate the District comments into the test plan. The owner/operator shall notify the District within ten (10) days prior to the planned source testing date. Source test results shall be submitted to the District within sixty (60) days of the source testing date. These results can be used to satisfy applicable source testing requirements in **AQ-26** below. (Basis: offsets)

Verification: The project owner/operator shall submit the source test plan and results as required in the time frames indicated in this Condition of Certification.

OPERATIONS CONDITIONS OF CERTIFICATION

AQ-12 Consistency with Analyses: Operation of this equipment shall be conducted in accordance with all information submitted with the application (and supplements thereof) and the analyses under which this permit is issued unless otherwise noted below. (Basis: BAAQMD 2-1-403)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-13 Conflicts Between Conditions: In the event that any part herein is determined to be in conflict with any other part contained herein, then, if principles of law do not provide to the contrary, the part most protective of air quality and public health and safety shall prevail to the extent feasible. (Basis: BAAQMD 1-102)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-14 Reimbursement of Costs: All reasonable expenses, as set forth in the District's rules or regulations, incurred by the District for all activities that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the owner/operator as required by the District's rules or regulations. (Basis: BAAQMD 2-1-303)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-15 Access to Records and Facilities: As to any part that requires for its effective enforcement the inspection of records or facilities by representatives of the District, the Air Resources Board (ARB), the U.S. Environmental Protection Agency (U.S. EPA), or the California Energy Commission (CEC), the owner/operator shall make such records available or provide access to such facilities upon notice from representatives of the District, ARB, U.S. EPA, or CEC. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. (Basis: BAAQMD 1-440, 1-441)

Verification: The owner/operator shall maintain records for a minimum of five (5) years and provide access to records and facilities as requested by the ARB, EPA, District and CEC.

AQ-16 Notification of Commencement of Operation: The owner/operator shall notify the District of the date of anticipated commencement of turbine operation not less than 10 days prior to such date. Temporary operations under this permit are granted consistent with the District's rules and regulations. (Basis: BAAQMD 2-1-302)

Verification: The owner/operators shall notify the District and CPM of the date of anticipated commencement of turbine operation not less than 10 days prior to such date.

AQ-17 Operations: The owner/operator shall insure that the gas turbines, HRSGs, emissions controls, CEMS, and associated equipment are properly maintained and kept in good operating condition at all times. (Basis: BAAQMD 2-1-307)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-18 Visible Emissions: The owner/operator shall insure that no air contaminant is discharged from the LECEF into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is as dark or darker than Ringelmann 1 or equivalent 20% opacity. (Basis: BAAQMD 6-301)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-19 Emissions Limits: The owner/operator shall operate the facility such that none of the following limits are exceeded:

a. The emissions of oxides of nitrogen (as NO_2) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 2.0 ppmvd @ 15% O_2 (1-hour rolling average), except during periods of gas turbine startup and shutdown as defined in this permit. The NO_x emission concentration shall be verified by a District-approved continuous emission monitoring system (CEMS) and during any required source test. (Basis: BACT)

b. Emissions of ammonia from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 10 ppmvd @ 15% O_2 (3-hour rolling average), except during periods of start-up or shutdown as defined in this permit. The ammonia emission concentration shall be verified by the continuous recording of the ratio of the ammonia injection rate to the NO_x inlet rate into the SCR control system (molar ratio). The maximum allowable NH3/NO_x molar ratio shall be

determined during any required source test, and shall not be exceeded until reestablished through another valid source test. (Basis: BACT)

c. Emissions of carbon monoxide (CO) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 9.0 ppmvd @ 15 % O_2 (3-hour rolling average), except during periods of start-up or shutdown as defined in this permit. The CO emission concentration shall be verified by a District-approved CEMS and during any required source test. (Basis: BACT)

d. Emissions of precursor organic compounds (POC) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 2 ppmvd @ 15% O_2 (3-hour rolling average), except during periods of gas turbine start-up or shutdown as defined in this permit. The POC emission concentration shall be verified during any required source test. (Basis: BACT)

e. Emissions of particulate matter less than ten microns in diameter (PM_{10}) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 2.5 pounds per hour. The PM_{10} mass emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase)

f. Emissions of oxides of sulfur (as SO_2) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 1.8 pounds per hour. The SO_2 emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase)

g. Compliance with the hourly NO_x emission limitations specified in part 19(a), at emission points P-1, P-2, P-3, and P-4, shall not be required during short-term excursions, limited to a cumulative total of 320 hours per rolling 12 month period for all four sources combined. Short-term excursions are defined as 15-minute periods designated by the Owner/Operator that are the direct result of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.0 ppmv, dry @ 15% O_2. 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 water mist or steam injection for power augmentation
(3) Rapid combustion turbine load changes
(4) Initiation/shutdown of HRSG duct burners
(5) Provision of ancillary services and automatic generation control at the direction of the California Independent System Operator (Cal-ISO)

The maximum 1-hour average NO_x concentration for short-term excursions at emission points P-1, P-2, P-3, and P-4 each shall not exceed 5 ppmv, dry @ 15% O_2. All emissions during short-term excursions shall be included in all calculations of hourly, daily and annual mass emission rates as required by this permit.

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-20 Turbine Startup: The owner operator shall operate the gas turbines so that the duration of a startup is kept to a minimum, consistent with good engineering practice. The startup period begins with the turbine's initial firing and continues until the unit is in compliance with all applicable emission concentration limits. For purposes of this Part, a startup period of 240 minutes or less shall be considered kept to a minimum consistent with good engineering practice. Should it be determined that good engineering practice requires a different time period for a startup, the owner/operator may operate the gas turbines such that startups do not exceed that time period, as approved in writing by the APCO. (Basis: BACT.)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-21 Turbine Shutdown: The owner operator shall operate the gas turbines so that the duration of a shutdown is kept to a minimum, consistent with good engineering practice. Shutdown begins with the initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. For purposes of this Part, a shutdown period of 30 minutes or less shall be considered kept to a minimum consistent with good engineering practice. Should it be determined that good engineering practice requires a different time period for a shutdown, the owner/operator may operate the gas turbines such that shutdowns do not exceed that time period, as approved in writing by the APCO. (Basis: BACT.)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-22 **Mass Emission Limits**: The owner/operator shall operate the LECEF so that the mass emissions from the S-1, S-2, S-3 & S-4 Gas Turbines and S-7, S-8, S-9, & S-10 HRSGs do not exceed the daily and annual mass emission limits specified below. The owner/operator shall implement process computer data logging that includes running emission totals to demonstrate compliance with these limits so that no further calculations are required.

Mass Emission Limits (Including Gas Turbine Start-ups and Shutdowns)

Pollutant	Each Turbine/HRSG Power Train (lb/day)	All 4 Turbine/HRSG Power Trains (lb/day)	All 4 Turbine/HRSG Power Trains (ton/yr)
NOx (as NO_2)	252.4	1,009.4	99
POC	80.2	320.8	28.3
CO	417.2	1,668.8	98.5
SOx (as SO_2)	41.6	166.4	8.4
PM_{10}	60	240	43.8
NH_3	198	792	118

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-23 Sulfuric Acid Mist Limit: The owner/operator shall operate the LECEF so that the sulfuric acid mist emissions (SAM) from S-1, S-2, S-3, S-4, S-7, S-8, S-9, and S-10 combined do not exceed 7 tons totaled over any consecutive four quarters. (Basis: PSD)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-24 **Operational Limits**: In order to comply with the mass emission limits of this rule, the owner/operator shall operate the gas turbines and HRSGs so that they comply with the following operational limits:

a. Heat input limits (Higher Heating Value):

	Each Gas Turbine w/o Duct Burner	Each Gas Turbine w/Duct Burner	Four Turbine/HRSGs Power Trains combined
Hourly:	500 MMBtu/hr	639 MMBtu/hr	--
Daily:	12,000 MMBtu/day	15,336 MMBtu/day	--
Yearly:	--	--	18,215,000 MMBtu/year

b. Only PUC-Quality natural gas (General Order 58-a) shall be used to fire the gas turbines and HRSGs. The total sulfur content of the natural gas shall not exceed 1.0 gr/100 scf.

c. The owner/operator of the gas turbines and HRSGs shall demonstrate compliance with the daily and annual NO_x and CO emission limits listed in **AQ-22** by maintaining running mass emission totals based on CEM data. (Basis: Cumulative increase)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-25 Monitoring Requirements: The owner/operator shall ensure that each gas turbine/HRSG power train complies with the following monitoring requirements:

a. The gas turbine/HRSG exhaust stack shall be equipped with permanent fixtures to enable the collection of stack gas samples consistent with EPA test methods.
b. The ammonia injection system shall be equipped with an operational ammonia flowmeter and injection pressure indicator accurate to plus or minus five percent at full scale and shall be calibrated at least once every twelve months.
c. The gas turbine/HRSG exhaust stacks shall be equipped with continuously recording emissions monitor(s) for NOx, CO and O_2. Continuous emissions monitors shall comply with the requirements of 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, and shall be capable of monitoring concentrations and mass emissions during normal operating conditions and during gas turbine startups and shutdowns.
d. The fuel heat input rate shall be continuously recorded using District-approved fuel flow meters along with quarterly fuel compositional analyses for the fuel's higher heating value (wet basis).

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-26 Source Testing/RATA: Within ninety (90) days of the startup of the gas turbines and HRSGs, and at a minimum on an annual basis thereafter, the owner/operator shall perform a relative accuracy test audit (RATA) on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications and a source test shall be performed. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within thirty days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following: measurements of NOx, CO, POC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM_{10} shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and annual source tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

a. NO_x – ppmvd at 15% O_2 and lb/MMBtu (as NO_2)
b. Ammonia – ppmvd at 15% O_2 (Exhaust)
c. CO – ppmvd at 15% O_2 and lb/MMBtu (Exhaust)

d. POC – ppmvd at 15% O_2 and lb/MMBtu (Exhaust)
e. PM_{10} – lb/hr (Exhaust)
f. SO_x – lb/hr (Exhaust)
g. Natural gas consumption, fuel High Heating Value (HHV), and total fuel sulfur content
h. Turbine load in megawatts
i. Stack gas flow rate (DSCFM) calculated according to procedures in U.S. EPA Method 19
j. Exhaust gas temperature (°F)
k. Ammonia injection rate (lb/hr or moles/hr)
l. Water injection rate for each turbine at S-1, S-2, S-3, & S-4
(Basis: source test requirements & monitoring)

Verification: At least 30 days prior to the date of each source test, the owner/operator shall submit a source test protocol to the District and the CPM for approval. At least 10 days prior to the testing date, the owner/operator shall notify the District and the CPM of the date of the source test. No more than 30 days after the date of the source test, the owner/operator shall submit the results of the RATA and source test to the District and the CPM for approval.

AQ-27 Within 60 days of start-up of the LECEF in combined-cycle configuration and on a semi-annual basis thereafter, the owner/operator shall conduct a District approved source test on exhaust points P-1, P-2, P-3, and P-4 while each Gas Turbine/HRSG power train is operating at maximum load to demonstrate compliance with the SAM emission limit specified in **AQ-23**. The owner/operator shall test for (as a minimum) SO_2, SO_3 and SAM. After acquiring one year of source test data on these units, the owner/operator may petition the District to switch to annual source testing if test variability is acceptably low as determined by the District. (Basis: PSD Avoidance, SAM Periodic Monitoring)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-28 The owner/operator shall prepare a written quality assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60 Appendix F. (Basis: continuous emission monitoring)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-29 Deleted.

AQ-30 The owner/operator shall notify the District of any breakdown condition consistent with the District's breakdown regulations. (Basis: Regulation 1-208)

Verification: The project owner/operator shall provide duplicate notification to the CPM of all breakdown notifications provided to the District, as required by District breakdown regulations. The duplicate notification shall be submitted to the CPM at the same time it is submitted to the District. The project owner/operator shall also include all

breakdown reports for each quarter as part of the quarterly report required by Condition of Certification **AQ-34**.

AQ-31 The owner/operator shall notify the District in writing in a timeframe consistent with the District's breakdown regulations following the correction of any breakdown condition. The breakdown condition 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 actions taken to restore normal operations. (Basis: Regulation 1-208)

Verification: The project owner/operator shall provide duplicate notification to the CPM of all breakdown notifications provided to the District, as required by District breakdown regulations. The duplicate notification shall be submitted to the CPM at the same time it is submitted to the District. The project owner/operator shall also include all breakdown reports for each quarter as part of the quarterly report required by Condition of Certification **AQ-34**.

AQ-32 Recordkeeping: The owner/operator shall maintain the following records. The format of the records is subject to District review and approval:

a. hourly, daily, quarterly and annual quantity of fuel used and corresponding heat input rates
b. the date and time of each occurrence, duration, and type of any startup, shutdown, or malfunction along with the resulting mass emissions during such time period
c. emission measurements from all source testing, RATAs and fuel analyses
d. daily, quarterly and annual hours of operation
e. hourly records of NO_x and CO emission concentrations and hourly ammonia injection rates and ammonia/NO_x ratio
f. for the continuous emissions monitoring system; performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any continuous emissions monitor

(Basis: record keeping)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-33 The owner/operator shall maintain all records required by this permit for a minimum period of five years from the date of entry and shall make such records readily available for District inspection upon request. (Basis: record keeping)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-34 **Reporting:** The owner/operator shall submit to the District a written report for each calendar quarter, within 30 days of the end of the quarter, which shall include all of the following items:

a. Daily and quarterly fuel use and corresponding heat input rates

b. Daily and quarterly mass emission rates for all criteria pollutants during normal operations and during other periods (startup/shutdown, breakdowns)
c. Time intervals, date, and magnitude of excess emissions
d. Nature and cause of the excess emission, and corrective actions taken
e. Time and date of each period during which the CEM was inoperative, including zero and span checks, and the nature of system repairs and adjustments
f. A negative declaration when no excess emissions occurred
g. Results of quarterly fuel analyses for HHV.
(Basis: recordkeeping & reporting)

Verification: The owner/operator shall submit to the District and the CPM for approval, written reports for each calendar quarter, within thirty (30) days of the end of the quarter. Each quarterly report will also include, at a minimum, all required compliance documentation for the following conditions: AQ-12, 13, 19, 20, 21, 22, 23, 24, 27, 30, 31, 36, 37, 39, 40, 46, and 47. The report submitted in January of each year shall include an annual summary of the four quarterly reports of the preceding year.

AQ-35 **Emissions Offsets**: The owner/operator shall provide 7.5 tons of valid POC emissions reduction credits and 27.945 tons of valid NOx emission reduction credits prior to the issuance of the Authority to Construct. The owner/operator shall deliver the ERC certificates to the District Engineering Division at least ten days prior to the issuance of the Authority to Construct. (Basis: Offsets.)

Verification: At least 10 days prior to the issuance of the ATC, the project owner/operator shall submit all necessary ERC certificates to the District and provide copies of all documentation to the CPM at the same time.

AQ-36 District Operating Permit: The owner/operator shall apply for and obtain all required operating permits from the District in accordance with the requirements of the District's rules and regulations. (Basis: Regulations 2-2 & 2-6)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-37 Title IV and Title V Permits: The owner/operator must deliver applications for the Title IV and Title V permits to the District prior to first-fire of the turbines. The owner/operator must cause the acid rain monitors (Title IV) to be certified within 90 days of first-fire. (Basis: BAAQMD Regulation 2, Rules 6 & 7)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-38 **(Deleted)**

AQ-39 The owner/operator shall insure that the S-5 Fire Pump Diesel Engine is fired exclusively on diesel fuel with a maximum sulfur content of 0.05% by weight. (Basis: TRMP, cumulative increase)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-40 The owner/operator shall operate the S-5 Fire Pump Diesel Engine for no more than 100 hours per year or 45 minutes per day for the purpose of reliability testing and non-emergency operation. (Basis: cumulative increase, Regulation 9-8-231 & 9-8-330)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-41 The owner/operator shall equip the S-5 Fire Pump Diesel Engine with a non-resettable totalizing counter that records hours of operation. (Basis: BACT)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-42 The owner/operator shall maintain the following monthly records in a District-approved log for at least 5 years and shall make such records and logs available to the District upon request:

a. Total number of hours of operation for S-5
b. Fuel usage at S-5
(Basis: BACT)

Verification: The owner/operators shall make access available to the facility and records upon request as set forth in Condition of Certification **AQ-15**.

AQ-43 The owner/operator shall operate the facility such that maximum calculated annual toxic air contaminant emissions (pursuant to **AQ-44**) from the gas turbines and HRSGs combined (S-1, S-2, S-3, S-4, S-7, S-8, S-9, and S-10) do not exceed the following limits:

6490 pounds of formaldehyde per year
3000 pounds of acetaldehyde per year
3.2 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year
65.3 pounds of acrolein per year

unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This analysis shall be submitted to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: TRMP)

Verification: See Condition of Certification **AQ-44**.

AQ-44 To demonstrate compliance with **AQ-43**, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions for the compounds specified in **AQ-43** using the maximum heat input of 18,215,000 MMBtu/year and the highest emission factor (pound of pollutant per MMBtu) determined by any source test of the S-1, S-2, S-3 & S-4 Gas Turbines and S-7, S-8, S-9, and S-10 HRSGs. If this calculation method results in an unrealistic mass emission rate the applicant may use an alternate calculation, subject to District approval. (Basis: TRMP)

Verification: Within 60 days of the completion of any health risk assessment, the owner/operator shall submit a complete report to the District and the CPM for review.

AQ-45 Within 60 days of startup of the Los Esteros Critical Energy Facility and on a biennial (once every two years) thereafter, the owner/operator shall conduct a District-approved source test at exhaust point P-1, P-2, P-3, or P-4 while the Gas Turbines are at maximum allowable operating rates to demonstrate compliance with **AQ-44**. If three consecutive biennial source tests demonstrate that the annual emission rates for any of the compounds listed above calculated pursuant to **AQ-44** are less than the BAAQMD Toxic Risk Management Policy trigger levels shown below, then the owner/operator may discontinue future testing for that pollutant.

Formaldehyde	<	132 lb/yr
Acetaldehyde	<	288 lb/yr
Specified PAHs	<	0.18 lb/yr
Acrolein	<	15.6 lb/yr
(Basis: BAAQMD 2-1-316, TRMP)		

Verification: At least 20 days prior to the intended source test date, the owner/operator shall submit a source testing methodology to the District and CPM for review and approval. Within 30 days of the source testing date, all test results shall be submitted to the District and the CEC CPM.

AQ-46 The owner/operator shall properly install and maintain the cooling towers to minimize drift losses. The owner/operator shall equip the cooling towers with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than 10,000 ppmw (mg/l). The owner/operator shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. (Basis: BACT, cumulative increase)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification **AQ-34**.

AQ-47 The owner/operator shall perform a visual inspection of the cooling tower drift eliminators at least once per calendar year, and repair or replace any drift

eliminator components which are broken or missing. Prior to the initial operation of the combined-cycle Los Esteros Critical Energy Facility, the owner/operator shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminators and certify that the installation was performed in accordance with the manufacturer's design and specifications. Within 60 days of the initial operation of the cooling tower, the owner/operator shall perform an initial performance source test to determine the PM_{10} emission rate from the cooling tower to verify compliance with the vendor-guaranteed drift rate specified in **AQ-46**. The CPM may, in years 5 and 15 of cooling tower operation, require the owner/operator to perform source tests to verify continued compliance with the vendor-guaranteed drift rate specified in **AQ-46**. (Basis: BACT, cumulative increase)

Verification: The project owner/operator shall verify compliance with this Condition of Certification in the fourth quarter report of each year required by Condition of Certification **AQ-34**.

DEFINITIONS

Clock Hour:	Any continuous 60-minute period beginning on the hour.
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.
Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in Btu/scf.
Firing Hours:	Period of time, during which fuel is flowing to a unit, measured in fifteen-minute increments.
MMBtu:	million British thermal units
Gas Turbine Startup Mode:	The time beginning with the introduction of continuous fuel flow to the Gas Turbine until the requirements listed in AQ-19 are satisfied. In no case shall the duration of a startup exceed 240 minutes.
Gas Turbine Shutdown Mode:	The time from non-compliance with any requirement listed in AQ-19 until termination of fuel flow to the Gas Turbine, but not to exceed 30 minutes.
Corrected Concentration:	The concentration of any pollutant (generally NO_x, CO or NH_3) corrected to a standard stack gas oxygen concentration. For an emission point (exhaust of a Gas Turbine) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems.
Commissioning Period:	The 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 following the installation of the duct burners and associated equipment, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange. The Commissioning Period shall not exceed 180 days under any circumstances.
Alternate Calculation:	A District approved calculation used to calculate mass emission data during a period when the CEM or other monitoring system is not capable of calculating mass emissions.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate

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.[19]

The purpose of the Public Health analysis is to determine if toxic emissions from the Los Esteros Critical Energy Facility Phase 2 (LECEF 2) would have the potential to cause significant adverse public health impacts or violate standards for public health protection in the project's impact area. If potentially significant health impacts are identified, staff evaluates mitigation measures to reduce such impacts to insignificant levels.

SUMMARY AND DISCUSSION OF THE EVIDENCE

At the evidentiary hearing Applicant and Staff each introduced their respective testimony on the potential of the project to impact public health. The testimony of each party was admitted into evidence without objection. The evidence established that the project will not have a significant risk to public health, nor contribute to a significant cumulative impact. (6/30/05 RT 13-14; Ex. 30, pp. 4.7-1 through 4.7-23; Ex. 35, pp. 41-42.)

Construction

Construction of LECEF Phase 2 is anticipated to take place over a period of approximately 19 months. The assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from eight to seventy years. (Ex. 30, p. 4.7-9.)

[19] This Decision addresses other potential public health concerns in the following sections. The accidental release of hazardous materials is discussed in Hazardous Materials Management and Worker Safety and Fire Protection section. Electromagnetic fields are discussed in the section on Transmission Line Safety and Nuisance. Potential impacts to soils and surface water sources are discussed in the Soils and Water Resources section. Hazardous and nonhazardous wastes are described in the Waste Management section.

Potential risks to public health during construction may be associated with exposure to toxic substances in contaminated soil disturbed during site preparation, as well as from heavy equipment operation. Criteria pollutant impacts from the operation of heavy equipment and particulate matter from earth moving are examined in the Commission's air quality analysis.

Soils at the proposed project site contain elevated levels of residual pesticides, including total DDT, dieldrin, endrin, lead and arsenic. Construction workers and the public could be exposed to known and unknown residual contamination during earth moving during construction. Control, monitoring and reporting measures will be in place to reduce the potential for generation of contaminated dust and also the transport of contaminated materials. (Ex. 30, p. 4.7-8.)

To mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, Condition AQ-SC5 calls for the use of ultra low sulfur diesel fuel and the installation of soot filters on stationary diesel equipment. 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 is in the range of approximately 85-92 percent. Such filters will reduce diesel emissions during construction and reduce any potential for significant health impacts. (Ex. 30, p. 4.7-9.)

Operation

Once the plant begins operations, the new emissions sources at the proposed LECEF Phase 2 project will include a six cell cooling tower, four heat recovery steam generators equipped with duct burners and a condensing heat turbine. During operation, potential public health risks are related to natural gas combustion emissions from the turbines and duct burners, and noncombustion emissions from the cooling tower.[20]

[20] Table 8.1-41 of the AFC (Ex. 1.) lists noncriteria pollutants that may be emitted from LECEF Phase 2 turbines and steam generators as combustion byproducts, along with their anticipated amounts (emission factors).

Applicant and Staff conducted their analysis of potential public health impacts by first identifying potential emissions. The next step was to quantify the emissions by conducting a "worst case" analysis. In the FSA, Staff set forth the types of health impacts and exposure routes attributable to plant emissions. (Ex. 30, p. 4.7-11, Table 1.) Staff next applied an estimate of the ambient concentration of toxic substances through the use of a screening air dispersion model. The ambient concentrations were used in conjunction with reference exposure levels (RELs)[21] and cancer risk factors to determine potential health effects from the project. (*Id.*)

The analysis contained in the evidence of record confirmed that both acute and chronic hazard indices for the LECEF 2 are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected from the project. Total worst-case individual cancer risk is estimated to be 0.093-in-one million. (Ex. 30.4.7-12, Table 3.)

<u>Cooling Tower</u>

In addition to being a source of potential toxic air contaminants, the possibility exists for bacterial growth to occur in the cooling tower, including Legionella. Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. It is the principal cause of Legionnaires' disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems, have been correlated with outbreaks of Legionnaires ' disease. (Ex. 30, p. 4.7-13.)

To minimize the risk from Legionella, best practices include minimization of water stagnation, minimization of process leads into the cooling system that provide nutrients for bacteria, maintenance of overall system cleanliness, the application of scale and corrosion inhibitors as appropriate, the use of high-efficiency mist eliminators on cooling

[21] 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. (Ex. 30, p. 4.7-2.)

towers, and the overall general control of microbiological populations. (Ex. 30, p. 4.7-14.) Condition of Certification **PH-1** will require the project owner to prepare and implement a biocide and bacterial control program. The use of an aggressive antibacterial program coupled with routine monitoring and bacteria removal will reduce the chances of Legionella growth and dispersion to insignificant levels (*Id.*).

FINDINGS AND CONCLUSIONS

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

1. Normal operation of the proposed project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.
2. Emissions of criteria pollutants, which are discussed in the Air Quality section of this Decision, will be mitigated to levels consistent with applicable standards.
3. There is no evidence of cumulative public health impacts from project emissions.

The Commission therefore concludes that project emissions of non-criteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk. With the Condition of Certification set forth below, the project will comply with all applicable federal, state and local laws, ordinances, regulations and standards, and remaining potential impacts, if any, are mitigated to a level that is less than significant. Other Conditions of Certification that control project emissions are specified in the **Air Quality** section of this Decision.

CONDITIONS OF CERTIFICATION

PH-1: The project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is controlled. The Plan shall be consistent with either Staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines.

Verification: At least 30 days prior to the start of commissioning of LECEF Phase 2, the project owner shall provide the Cooling Water Management Plan to the CPM for review and approval.

C. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of Phase 2 will cause significant impacts to public health and safety resulting from the use, handling, or storage of hazardous materials at the facility.[22] A description of the hazardous materials associated with the project and a summary of special handling precautions are shown in Appendix B (AFC, Tables 8.5-2 and 8.5-5) attached to the Conditions of Certification, below.

SUMMARY OF THE EVIDENCE

The findings and conclusions and Conditions of Certification in the previous LECEF Decisions related to the handling of hazardous materials are incorporated herein.

Phase 2 requires the use of acutely hazardous materials, which include sodium hypochlorite, sodium hydroxide, sulfuric acid, and aqueous ammonia. None of these materials will be used or stored in excess of regulated threshold quantities under the California Accidental Release Prevention Program[23] (Cal-ARP) except for aqueous ammonia. The other substance of concern, natural gas, will be used in large quantities, but not stored on-site.

Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts, including local meteorological conditions, terrain characteristics, and the proximity of population centers and sensitive receptors. (Ex. 30, p. 4.4-4.)

During the construction phase of the project, the only hazardous materials proposed for use include gasoline, fuel oil, hydraulic fluid, lubricants, solvents, cleaners, sealants,

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[22] Related issues are addressed in the Waste Management, Worker Safety, and Traffic and Transportation portions of this Decision.

[23] The CalARP Program includes both federal and state programs established to prevent accidental release of regulated toxic and flammable substances. (CA Health & Safety Code, §25531 et seq; Cal Code of Regs., tit. 19, § 2720 et seq.) Regulated substances are those stored or used in amounts exceeding threshold planning quantities (TPQs) that would require the filing of a Risk Management Plan under the CalARP Program. RMPs must be submitted to the U.S. EPA and appropriate state and local agencies for review and approval. (Ex. 30, p. 4.4-2.)

welding flux, paint, and paint thinner. Any impact of spills or other releases of these materials would be limited to the site due to the small quantities involved. Since these chemicals would be present in very small quantities – some in solid form, these materials pose an insignificant risk of off-site impacts. (Ex. 30, pp. 4.4-5 and 4.4-6.)

The potential effects and management of large quantities of hazardous materials used during operation are described below:

Hydrochloric acid

Hydrochloric acid is used in large quantities once every four years for the cleaning of the Heat Recovery Steam Generators (HRSG) but does not pose a significant risk of off-site impacts because of the infrequent use and the safety measures employed by the licensed HRSG cleaning company, including the use of temporary berms. (Ex. 30, p. 4.4-6.)

Sodium Hypochlorite

Applicant estimates that a total of 13,000 gallons of sodium hypochlorite would be stored at the site, which is below the Reportable Quantity defined by Cal-ARP regulations. Sodium hypochlorite, used in the cooling tower to control biological growth and fouling, has a low potential to affect the off-site public because its vapor pressure is low and it is in aqueous solution. Sodium hypochlorite is used as a substitute for the more toxic chlorine gas, which is stored under pressure and more likely to migrate off-site. To reduce the potential for accidental spills during transfer of sodium hypochlorite from delivery vehicles to the on-site storage tanks, Condition of Certification **HAZ-3** requires the project owner to prepare and implement a Safety Management Plan for delivery of sodium hypochlorite. (Ex. 30, p. 4.4-6.)

Sodium Hydroxide

Sodium hydroxide would be stored on-site but would not pose a risk of off-site impacts because it has relatively low vapor pressure and spills would be confined to the site. (Ex. 30, p. 4.4-6.)

Sulfuric Acid

Sulfuric acid is used for water pH control in the cooling tower and other processes. The evidence indicates that sulfuric acid would not pose a risk of off-site impacts because it has a relatively low vapor pressure and emissions from spills would be confined to the site. 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. To protect against the risk of fire causing an accidental release, Condition **HAZ-6** requires the project owner to ensure that no combustible or flammable materials would be stored within 100 feet of the sulfuric acid tank. (Ex. 30, p. 4.4-7.)

Natural Gas

Natural gas poses a fire and/or explosion risk as a result of its flammability. The risk of fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The natural gas pipeline for Phase 2 was completed as part of the original LECEF, which began operation in March 2003. No additional pipeline modifications are planned for Phase 2. (Ex. 30, p. 4.4-7.) The Conditions of Certification in the previous LECEF Decisions regarding the construction and operation of the gas pipeline are re-adopted here.

Aqueous Ammonia

Aqueous ammonia is used in the Selective Catalytic Reduction (SCR) process to control NOx emissions from combustion of natural gas in the facility. The accidental release of aqueous ammonia without proper mitigation can result in hazardous down-wind concentrations of ammonia gas.[24] Two 10,000-gallon tanks will be used to store a maximum amount of 17,000 gallons of 19 percent aqueous ammonia solution. One of these tanks is already in use at the current LECEF. Phase 2 would add the second tank. (Ex. 30, p. 4.4-7.)

[24] The choice of aqueous ammonia significantly reduces the risk associated with the more hazardous anhydrous form, which is stored as a liquid gas. (Ex. 30, p. 4.4-8.)

Applicant conducted an Off-Site Consequences Analysis (OCA) to evaluate potential public health impacts in a "worst-case scenario," which would result from an accidental release during truck unloading.[25] Staff considers the threshold significance level to be a one-time exposure of 75 ppm of ammonia gas. The results of the OCA indicated that concentrations exceeding 198 ppm in the worst-case scenario would be present at 45 feet, which is entirely limited to the project site. The nearest site fence line is 110 feet from the ammonia storage tanks. Staff's independent modeling indicates that concentrations of 75 ppm would be limited to areas inside the site's fence line so that no off-site areas would be impacted. Staff also modeled the scenario that involves loss of ammonia containment from the delivery truck. The alternative scenario assumes a smaller volume of spill and meteorological conditions that increase dispersion of the vapor cloud but the maximum distance for the 75 ppm concentration for that scenario would also be entirely within the site's fence line.[26] (Ex. 30, p. 4.4-7.)

The project will incorporate engineering controls and administrative procedures for the storage and transfer of aqueous ammonia to ensure that any accidental release would not cause a significant impact. (Ex. 30, p. 4.4-13.)

Condition **HAZ-2** requires the project owner to provide a Risk Management Plan (RMP) and a Hazardous Materials Business Plan (HMBP), which includes the chemical inventory at the site. To address the issue of spill response, the project owner will prepare and implement an Emergency Response Plan as part of the RMP to include information on: hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, prevention equipment and capabilities, etc. Emergency procedures will be established for evacuation; spill cleanup, hazard prevention, and emergency response. (Ex. 30, p. 4.4-14.)

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[25] The worst-case release is associated with a failure of one of the ammonia storage tanks releasing all of its content into the secondary containment area, and the alternative scenario is a failure of a supply truck loading hose spilling aqueous ammonia onto the truck unloading area. (Ex. 30, p. 4.4-8.)

[26] There are no sensitive receptors (schools, hospitals, day care centers, etc.) in a one mile radius of the project site. The nearest residences are located approximately 0.6 mile southwest, 0.8 mile east, and 1.4 miles southeast of the center of the site. (Ex. 30, p. 4.4-9.)

Condition **HAZ-3** requires development of an updated Safety Management Plan for the delivery of aqueous ammonia (as well as aqueous hypochlorite solution). The Safety Management Plan would include regular inspection and maintenance of equipment, valves, piping, and appurtenances. Additionally, the Plan would require that only trained facility personnel be assigned to the transfer and handling of hazardous chemicals.

Condition **HAZ-4** requires that the aqueous ammonia storage tank be designed to certain rigid specifications, and Condition **HAZ-5** addresses the transportation of aqueous ammonia.

Seismic Issues

An earthquake could cause the failure of a hazardous materials storage tank as well as the failure of the secondary containment system (berms and dikes) and electrically controlled valves, pumps, and neutralization systems. The failure of these preventive control measures could result in a vapor cloud of hazardous materials moving off-site and impacting residents and workers in the surrounding community. Phase 2 will be designed and constructed to the applicable standards of the current California Building Code for Seismic Zone 4. The evidence indicates that recent seismic events affecting power plants constructed with modern tank designs have not caused failure of preventive control measures. The parties are therefore confident that compliance with Zone 4 standards will reduce any public health risk to insignificant levels. (Ex. 30, p. 4.4-9.) *See also* the discussion of seismic issues in the **Geologic Hazards** and **Facility Design** sections of this Decision.

The 2002 LECEF Decision includes Conditions of Certification **HAZ-1** through **HAZ-10**. Though construction of Phase 1 is complete and the plant is operational, these Conditions were retained in the 2005 LECEF Decision to ensure that the engineering requirements and safety procedures remain in place. Conditions **HAZ-1**, **HAZ-8**, and **HAZ-9** focus on ongoing operational requirements of inspections or reporting and

continue to apply to Phase 2. Condition **HAZ-10** addresses the construction and operation of the gas pipeline and continues to apply throughout the life of the project.

The LECEF uses hazardous materials that have been identified by the U.S. EPA as materials where special site security measures should be implemented to prevent unauthorized access. Security measures must include perimeter fencing, guards, alarms law enforcement contact and fire detection systems as well as site personnel background checks and strict control of site access to vendors. General Condition of Certification on Construction and Operations Security Plan **COM-8** requires the preparation of a Vulnerability Assessment and the implementation of Site Security measures consistent with the above-referenced features. (Ex. 30, pp. 4.4-11 and 4.4-12.)

FINDINGS AND CONCLUSIONS

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

1. Phase 2 will use hazardous materials during construction and operation, including the acutely hazardous sodium hypochlorite, sodium hydroxide, sulfuric acid, aqueous ammonia, and natural gas.

2. The major public health and safety hazards associated with these hazardous materials include the accidental release of aqueous ammonia and fire and explosion from natural gas.

3. The Off-Site Consequences Analysis indicated that no significant off-site public health consequences would result from an accidental ammonia release.

4. Continued compliance with appropriate engineering and regulatory requirements for safe transportation, delivery, and storage of ammonia and sodium hypochlorite will reduce potential risks of accidental release to insignificant levels.

5. The project owner will provide an updated Safety Management Plan, an updated Hazardous Materials Business Plan, an updated Risk Management Plan and an updated Vulnerability Assessment prior to delivery of any hazardous substances for Phase 2.

6. The risk of fire and explosion from natural gas will be reduced to insignificant levels by continued adherence to applicable codes and the implementation of effective safety management practices.

7. Potential impacts from the other hazardous substances used on-site are not considered significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

8. Implementation of the mitigation measures described in the evidentiary record and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of handling hazardous materials.

9. The Conditions of Certification ensure the project will comply with all applicable LORS related to hazardous materials management as identified in the pertinent portions of Appendix A in this Decision.

We therefore conclude that the LECEF'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 any quantity or strength not listed in Appendix B (AFC Tables 8.5-2 and 8.5.5) appended to the end of these Conditions unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM in the Annual Compliance Report, a list of all hazardous materials used and stored at the facility.

HAZ-2 The project owner shall provide an updated Risk Management Plan (RMP), if required by regulation, and an updated Hazardous Materials Business Plan (HMBP), which shall include the building chemical inventory as per the AFC, to Santa Clara County and the CPM for review at the time the RMP plan is first submitted to the U.S. Environmental Protection Agency (EPA), if required. The project owner shall include all recommendations of Santa Clara County and the CPM in the final documents. A copy of the final plans, including all comments, shall be provided to the City of San Jose and the CPM.

Verification: At least 30 days prior to the commencement of construction of Phase 2, the project owner shall provide the final RMP and HMBP plans described above to the CPM for approval.

HAZ-3 The project owner shall update the Safety Management Plan for delivery of aqueous ammonia and sodium hypochlorite associated with Phase 2 and shall submit this plan to the CPM for approval. The plan shall include procedures, protective equipment requirements, training, and a checklist. It

shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least 60 days prior to the delivery to the facility of aqueous ammonia and sodium hypochlorite, which are specified for use in Phase 2 operations, the project owner shall provide the Safety Management Plan to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to both the ASME Pressure Vessel Code and ANSI K61.6, or to API 620. In either case, the storage tank(s) shall be protected by a secondary containment basin capable of holding 110% of the primary container if a single container is used, or in the case of multiple containers, 150% of the volume of the largest container. In addition, the secondary containment, if open to rainfall, must accommodate the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank(s) and secondary containment basin shall be submitted to the CPM.

Verification: At least 60 days prior to delivery of aqueous ammonia to the facility that is specified for use in Phase 2 operations, 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 direct all vendors delivering aqueous ammonia to the site to use only 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-6 The project owner shall ensure that no combustible or flammable material is stored within 100 feet of the sulfuric acid tank.

Verification: At least 30 days prior to receipt of sulfuric acid on-site, the Project Owner shall provide to the CPM for review and approval copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any combustible or flammable material and the route by which such materials will be transported through the facility.

HAZ-7 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM (SR237 to Zanker Road to the facility) consistent with Condition **TRANS-3.**

Verification: At least 60 days prior to receipt of any hazardous materials on-site, the project owner shall submit to the CPM for review and approval, a copy of the letter to be mailed to the vendors. The letter shall state the required transportation route limitation.

HAZ-8 The project owner shall require that the gas pipeline undergo a complete design review and detailed inspection 30 years after initial startup and each 5 years thereafter.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the project owner shall provide an outline of the plan to accomplish a full and comprehensive pipeline design review to the CPM for review and approval. The full and complete plan shall be amended, as appropriate, and submitted to the CPM for review and approval, not later than one year before the plan is implemented by the project owner. For subsequent inspections, the project owner shall provide to the CPM for review and approval any plan amendments, or a letter indicating there are none, at least one year before implementing the subsequent inspections.

HAZ-9 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 30 days prior to the initial flow of gas in the pipeline, the project owner shall provide to the CPM a detailed plan to accomplish a full and comprehensive pipeline inspection in the event of an earthquake 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-10 The natural gas pipeline shall be designed to meet CPUC General Order 112-D&E and 58 A standards, or any successor standards, and will be designed to meet Class III service. The pipeline will be designed to withstand seismic stresses and will be leak surveyed annually for leakage. The project owner shall incorporate the following safety features into the design and operation of the natural gas pipeline: (1) butt welds will be x-rayed and the pipeline will be pressure tested prior to the introduction of natural gas into the line; (2) the pipeline will be surveyed for leakage annually; (3) the pipeline route will be marked to prevent rupture by heavy equipment excavating in the area; and (4) valves will be installed to isolate the line if a leak occurs.

Verification: Prior to the introduction of natural gas into the pipeline, the project owner shall submit design and operation specifications of the pipelines to the CPM for review and approval.

Appendix A

HAZARDOUS MATERIAL MANAGEMENT

BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a health-based airborne concentration of 75 ppm to evaluate the significance of impacts associated with potential accidental releases of ammonia. While this level is not consistent with the 200-ppm level used by U.S. EPA and Cal/EPA in evaluating such releases pursuant the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in staff's CEQA analysis. The Federal Risk Management Program and the State Accidental Release Program are administrative programs designed to address emergency planning and ensure that appropriate safety management practices and actions are implemented in response to accidental releases. However, the regulations implementing these programs do not provide clear authority to require design changes or other major changes to a proposed facility. The preface to the Emergency Response Planning Guidelines (ERPGs) states that "these values have been derived as planning and emergency response guidelines, **not** exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead they are estimates, by the committee, of the thresholds above which there would be an unacceptable likelihood of observing the defined effects." It is staff's contention that these values apply to healthy adult individuals and are levels that should not be used to evaluate the acceptability of avoidable exposures for the entire population. While these guidelines are useful in decision making in the event that a release has already occurred (for example, prioritizing evacuations), they are not appropriate for and are not binding on discretionary decisions involving proposed facilities where many options for mitigation are feasible. CEQA requires permitting agencies making discretionary decisions to identify and mitigate potentially significant impacts through changes to the proposed project.

Staff has chosen to use the National Research Council's 30 minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. Table 1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75-ppm STPEL. Appendix B provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

HAZARDOUS MATERIAL MANAGEMENT
APPENDIX A TABLE 1
Acute Ammonia Exposure Guidelines

Guideline	Responsible Authority	Applicable Exposed Group	Allowable Exposure Level	Allowable* Duration of Exposures	Potential Toxicity at Guideline Level/Intended Purpose of Guideline
IDLH[2]	NIOSH	Workplace standard used to identify appropriate respiratory protection.	300 ppm	30 min.	Exposure above this level requires the use of "highly reliable" respiratory protection and poses the risk of death, serious irreversible injury or impairment of the ability to escape.
IDLH/10[1]	EPA, NIOSH	Work place standard adjusted for general population factor of 10 for variation in sensitivity	30 ppm	30 min.	Protects nearly all segments of general population from irreversible effects
STEL[2]	NIOSH	Adult healthy male workers	35 ppm	15 min. 4 times per 8 hr day	No toxicity, including avoidance of irritation
EEGL[3]	NRC	Adult healthy workers, military personnel	100 ppm	Generally less than 60 min.	Significant irritation but no impact on personnel in performance of emergency work; no irreversible health effects in healthy adults. Emergency conditions one time exposure
STPEL[4]	NRC	Most members of general population	50 ppm 75 ppm 100 ppm	60 min. 30 min. 10 min.	Significant irritation but protects nearly all segments of general population from irreversible acute or late effects. One time accidental exposure
TWA[2]	NIOSH	Adult healthy male workers	25 ppm	8 hr.	No toxicity or irritation on continuous exposure for repeated 8 hr. work shifts
ERPG-2[5]	AIHA	Applicable only to emergency response planning for the general population (evacuation) (not intended as exposure criteria) (see preface attached)	200 ppm	60 min.	Exposures above this level entail** unacceptable risk of irreversible effects in healthy adult members of the general population (no safety margin)

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)
* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.
** The (NRC 1979) describes a study involving young animals, which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

References for Appendix A, Table 1

AIHA. 1989. American Industrial Hygienists Association, Emergency Response Planning Guideline, Ammonia, (and Preface) AIHA, Akron, OH.

EPA. 1987. U.S. Environmental Protection Agency, Technical Guidance for Hazards Analysis, EPA, Washington, D.C.

NRC. 1985. National Research Council, Criteria and Methods for Preparing Emergency Exposure Guidance Levels (EEGL), short-term Public Emergency Guidance Level (SPEGL), and Continuous Exposure Guidance Level (CEGL) Documents, NRC, Washington, D.C.

NRC. 1972. Guideline for short-term Exposure of The Public To Air Pollutants. IV. Guide for Ammonia, NRC, Washington, D.C.

NIOSH. 1994. National Institute of Occupational Safety and Health, Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Washington D.C., Publication numbers 94-116.

WHO. 1986. World health Organization, Environmental Health Criteria 54, Ammonia, WHO, Geneva, Switzerland.

Abbreviations for Appendix A, Table 1

ACGIH, American Conference of Governmental and Industrial Hygienists
AIHA, American Industrial Hygienists Association
EEGL, Emergency Exposure Guidance Level
EPA, Environmental Protection Agency
ERPG, Emergency Response Planning Guidelines
IDLH, Immediately Dangerous to Life and Health Level
NIOSH, National Institute of Occupational Safety and Health
NRC, National Research Council
STEL, Short Term Exposure Limit
STPEL, Short Term Public Emergency Limit
TLV, Threshold Limit Value
WHO, World Health Organization

Appendix B

AFC Table 8.5-2. **Chemical inventory, Phase 1 simple-cycle operation.**

Trade Name	Chemical Name	CAS Number	Maximum Quantity On-site	CERCLA SARA RQ[a]	RQ of Material as Used On-site[b]	LaFollette Bill TPQ[c]	Prop 65
Aqueous Ammonia (19% solution)	Ammonium Hydroxide	1336-21-6 (for NH_4-OH)	10,000-gal.	1,000 lb.	5,000 lb.	[d]	No
Cleaning Chemicals/Detergents	Various	None	20 gal.	[d]	[d]	[d]	No
SUVA 123	Dichlorotrifluoroethane	306-83-2	9,360 lb.	[d]	[d]	[d]	No
Dielectric Insulating Oil (Hyvolt II, Diala Oil AX)	Severely hydrotreated light napthenic distallate	64742-53-6	35,262 gal.	42 gal.[e]	[f]	[d]	No
Diesel Fuel	Oil	None	320 gal.	42 gal.[e]	[f]	[d]	Yes
Laboratory Reagents (liquid)	Various	None	20 gal.	[d]	[d]	[d]	No
Laboratory Reagents (solid)	Various	None	100 lb.	[d]	[d]	[d]	No
Lubrication Oil	Oil	None	6,500 gal.	42 gal.[e]	[f]	[d]	Yes
Lubricating Oil, Synthetic (Royco)	Pentaerythritol Esters	68424-31-7	710 gal.	42 gal.[e]	[f]	[d]	No
NALCO 2584	Sulfurous Acid, Monosodium Salt	7631-90-5	40 gal	[d]	[d]	[d]	No
	Sodium Hydroxide	1310-73-2					
	Potassium Hydroxide	1310-58-3					
	Potassium Bisulfite	7773-03-7					
NALCO 7396	Tetrapotassium Pyrophosphate (60 to 100%)	7320-34-5	400 gal.	[d]	[d]	[d]	No
NALCO 8338	Sodium nitrite	7632-00-0	20 gal.	410 lb.	130 gal.	[d]	No
	Sodium tolyltriazole	64665-57-2		[d]	[d]	[d]	
	Sodium hydroxide	1310-73-2		[d]	[d]	[d]	
NALCO TRASAR 23263	Non-hazardous	None	400 gal.	[d]	[d]	[d]	No
Phosphonate (e.g. VITEC 3000)	Phosphonic Acids (45-50%)	Various	70 gal.	[d]	[d]	[d]	No

AFC Table 8.5-2. **Chemical inventory, Phase 1 simple-cycle operation.**

Trade Name	Chemical Name	CAS Number	Maximum Quantity On-site	CERCLA SARA RQ[a]	RQ of Material as Used On-site[b]	LaFollette Bill TPQ[c]	Prop 65
Sodium Bisulfite (e.g. NALCO 7408)	Sodium Bisulfite (40 to 70%)	7631-90-5	60 gal.	5,000 lb.	7,143 lb.	[d]	No
Sodium Hypochlorite (Bleach)	Sodium Hypochlorite (12%)	7681-52-9	5,000 gal.	100 lb.	1,000 lb.	[d]	No
Sulfuric Acid	Sulfuric Acid (93 to 98%)	7664-93-9	5,000 gal.	1,000 lb.	1,075 lb.	[d]	No
	Battery Acid (<30%)	7664-93-9	2,200 gal.	1,000 lb.	3,333 lb.	[d]	No

[a]Reportable quantity for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [Ref. 40 CFR 302, Table 302.4]. Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.
[b] Reportable quantity for materials as used on-site. Since some of the hazardous materials are mixtures that contain only a percentage of a reportable chemical, the reportable quantity of the mixture can be different than for a pure chemical. For example, if a material only contains 10 percent of a reportable chemical and the RQ is 100 lbs., the reportable quantity for that material would be (100 lbs.)/(10%) = 1,000 lbs.
[c] Threshold Planning Quantity [Ref. 40 CFR Part 355, Appendix A]. If quantities of extremely hazardous materials equal to or greater than TPQ are handled or stored, they must be registered with the local Administering Agency.
[d] No reporting requirement. Chemical has no listed RQ or TPQ.
[e] State reportable quantity for oil spills that will reach California state waters [Ref. CA Water Code Section 13272(f)]
[f] Per the California Water Quality Control Board Region 2, they would like all oil spills to surface water reported, even for less than the state reportable quantity of 42 gal.
[g] Some of the chemicals have alternatives (See Table 8.5-1), thus the maximum quantity stored on-site can be zero if an alternative chemical is being used.

AFC Table 8.5-5. **Phase 2 chemical inventory (in addition to Phase 1).**

Trade Name	Chemical Name	CAS Number	Maximum Quantity On-site	CERCLA SARA RQ[a]	RQ of Material as Used On-site[b]	LaFollette Bill TPQ[c]	Prop 65
Acutely Hazardous Materials							
NALCO 356	Cyclohexylamine (10 to 30%) Morpholine (5 to 10%)	108-91-8 110-91-8	400gal.	10,000 lb.	33,333 lb.	10,000 lb.	No
Hazardous Materials							
Aqueous Ammonia (19% solution)	Ammonium Hydroxide	1336-21-6 (for NH_4-OH)	10,000-gal.[e]	1,000 lb.	5,000 lb.	[d]	No
Fyrquel 550	Triphenyl Phosphate	115-86-6	250 gal.	[d]	[d]	[d]	No
ISO VG-32 (hydraulic fluid)	Non-hazardous	None	3,600 gal.	[d]	[d]	[d]	No
NALCO 2833	Sodium Hydroxide (1 to 5%) Sodium Nitrite (10 to 30%) Sodium Molybdate (1 to 5%)	1310-73-2 7632-00-0 7631-95-0	55 gal.	[d] 410 lb. [d]	1367 lb.	[d]	No
NALCO 7342	Sodium bromide	7647-15-6	1,500 gal.	[d]	[d]	[d]	No
NALCO 7346	1,3-Dichloro-5,5-Dimethylhydantoin 1-Bromo-3-Chloro-5,5-Dimethyl-Hydantoin 1,3-Dichloro-5-Ethyl-5-Methylhydantoin	118-52-5 16079-88-2 89415-87-2	5 pails	[d]	[d]	[d]	Yes
NALCO 7396	Tetrapotassium Pyrophosphate (60 to 100%)	7320-34-5	400 gal.[e]	[d]	[d]	[d]	No
NALCO 8305+	Sodium tolyltriazole (1 to 5%)	64665-57-2	1,500 gal.	[d]	[d]	[d]	No
NALCO BT-3000	Sodium Hydroxide (1 to 5%) Sodium Tripolyphosphate (1 to 5%)	1310-73-2 7758-29-4	400 gal.	1000 lb. [d]	20,000 lb	[d]	No
NALCO ELIMIN-OX	Carbohydrazide	497-18-7	400 gal.	[d]	[d]	[d]	No
NALCO TRASAR 23263	Non-hazardous	None	1,500 gal.[e]	[d]	[d]	[d]	No
Sodium Hydroxide	Sodium Hydroxide (50%)	1310-73-2	800 gal.	1,000 lb.	2,000 lb.	[d]	No
Sodium Hypochlorite (Bleach)	Sodium Hypochlorite (12.5%)	7681-52-9	8,000 gal.	100 lb.	800 lb.	[d]	No
Sulfuric Acid	Sulfuric Acid (93 to 98%)	7664-93-0	6,000 gal.	1,000 lb.	1,020 lb.	[d]	No

AFC Table 8.5-5. **Phase 2 chemical inventory (in addition to Phase 1).**

Trade Name	Chemical Name	CAS Number	Maximum Quantity On-site	CERCLA SARA RQ[a]	RQ of Material as Used On-site[b]	LaFollette Bill TPQ[c]	Prop 65

[a]Reportable quantity for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [Ref. 40 CFR 302, Table 302.4]. Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

[b] Reportable quantity for materials as used on-site. Since some of the hazardous materials are mixtures containing only a percentage of a reportable chemical, the reportable quantity of the mixture can be different than for a pure chemical. For example, if a material contains 10 percent of a reportable chemical and the RQ is 100 lbs., the reportable quantity would be (100 lbs.)/(10%) = 1,000 lbs.

[c] Threshold Planning Quantity [Ref. 40 CFR Part 355, Appendix A]. If quantities of extremely hazardous materials equal to or greater than TPQ are handled or stored, they must be registered with the local Administering Agency.

[d] No reporting requirement. Chemical has no listed RQ or TPQ.

hese materials are currently used for Phase 1. The quantities shown represent an on-site increase for Phase 2.

D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential safety and health hazards on a daily basis, including exposure to chemical spills, hazardous materials, fires, gas explosions, moving equipment, live electric conductors, and confined space entry and egress problems. This analysis reviews whether Applicant's safety and health plans provide adequate protection and emergency response in the event of accidents and whether the plans comply with applicable laws, ordinances, regulations, and standards.

SUMMARY OF THE EVIDENCE

The findings and conclusions and Conditions of Certification on worker safety and fire protection adopted in the previous LECEF Decisions are incorporated herein. This analysis focuses on the additional evidence concerning Phase 2.

Worker safety and fire protection measures are currently being implemented at the Phase 1 facility. The Conditions of Certification require verification that the measures adequately assure worker safety and fire protection and comply with applicable LORS. To reduce and/or eliminate the occurrence of safety hazards identified by Staff audits at certified power plant sites, Staff determined that an on-site professional safety monitor should be designated to ensure that safety procedures and practices are fully implemented at all power plants certified by the Energy Commission. (Ex. 30, pp. 4.14-11 and 4.14-12.) We concur. Based on Staff's recommendations, we have adopted new Conditions of Certification **WORKER SAFETY-4** and **5** that require the project owner to employ a qualified Construction Safety Supervisor and an on-site Safety Monitor to verify that the LECEF Safety and Health Plans are properly implemented.

Conditions **WORKER SAFETY-1** and **2** require the project owner to develop an updated "Construction Safety and Health Program" and an updated "Operation Safety and Health Program" to identify the measures that will be implemented to comply with applicable LORS.[27] Both programs must be reviewed by the appropriate regulatory

[27] California Occupational Health and Safety Administration (Cal/OSHA) regulations (Cal. Code of Regs., tit. 8, § 337 et seq. and § 1500 et seq.) and other applicable federal, state, and local laws affecting industrial workers. (*See* Ex. 30, p. 4.14-1 et seq. and Appendix A in this Decision.)

agencies prior to project construction and operation. Separate Injury and Illness Prevention Programs, Personal Protective Equipment Programs, Exposure Monitoring Programs, Emergency Action Plans, Fire Protection and Prevention Plans, and other general safety procedures must also be prepared and implemented for both the construction and operation phases of the project. These comprehensive programs will contain more specific plans designed to comply with the General Industry Safety Orders, Electrical Safety Orders, and Unfired Pressure Vessel Safety Orders. In addition, the project owner must implement an Operations and Maintenance Written Safety Program, which would incorporate "safe work practices" under a variety of programs designed to protect workers from specific injuries. (Ex. 30, p. 4.4-5 et seq.)

During construction and operation of Phase 2, there is potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires may develop from uncontrolled fires or large explosions of natural gas or other flammable gasses or liquids. Compliance with applicable LORS would be adequate to assure protection from all fire hazards. The evidentiary record indicates that the San Jose Fire Department is adequately equipped and staffed to respond to an on-site fire. (Ex. 30, p. 4.14-5.)

The nearest fire station is Fire Station #25, located at 1590 Gold Street in Alviso, approximately 2.5 miles away, with a response time of 3 to 4 minutes. Backup fire support, if needed, would come from Fire Station #29, located at 199 Innovation Drive, in San Jose, which is approximately 3 miles away, with an estimated response time of 6 to 7 minutes. The San Jose Hazardous Materials Team is assigned as the off-site hazardous materials first responder for LECEF Phase 2. Hazmat response would come from Fire Station #29 with a response time of 6 to 7 minutes. (Ex. 30, p. 4.14-4.).

Condition **WORKER SAFETY-3** requires the project owner to provide an updated Fire Protection and Prevention Program to the San Jose Fire Department for review prior to construction and operation of the project.

Staff analyzed the potential for cumulative impacts on fire and emergency service capabilities due to Phase 2 project activities combined with existing industrial facilities in

the vicinity and found that any Phase 2 contribution to cumulative impacts would be insignificant. (Ex. 30, p. 4.14-10.)

FINDINGS AND CONCLUSIONS

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

1. The project owner will develop and implement comprehensive Safety and Health Programs for both the construction and operation phases of the project; each of the programs will include an Injury/Illness Prevention Program, a Personal Protective Equipment Program, an Exposure Monitoring Program, an Emergency Action Plan, a Fire Protection and Prevention Plan, and other general safety procedures to comply with applicable LORS.

2. Compliance with applicable LORS will adequately ensure protection of worker health and safety during construction and operation of the project.

3. To verify compliance with the Safety and Health Programs, the project owner will employ a qualified Construction Safety Supervisor and an on-site Safety Monitor to conduct safety inspections and to ensure that appropriate engineering and safety requirements are implemented.

4. Existing fire and emergency services provided by the City of San Jose Fire Department are adequate to meet project needs.

5. LECEF Phase 2 will not result in direct or cumulative impacts on the Fire Department's emergency response capabilities.

6. Assuming compliance with the Conditions of Certification listed below, the LECEF will comply with all applicable LORS on worker health and safety identified in the pertinent portions of Appendix A in this Decision.

We therefore conclude that the LECEF will adequately ensure worker safety and fire protection during the construction and operation phases.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) an updated Project Construction Safety and Health Program containing:

- Construction Injury and Illness Prevention Program;
- Construction Safety Program;
- Construction Personal Protective Equipment Program;

- Construction Exposure Monitoring Program;
- Construction Emergency Action Plan; and
- Construction Fire Protection and Prevention Plan.

The Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and comment 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 City of San Jose Fire Department for review and comment prior to submittal to the CPM. The Project Construction Safety and Health Program shall be consistent with and implemented in accordance with all requirements of Title 8, California Code of Regulations.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the updated Project Construction Safety and Health Program. The project owner shall provide a letter from the City of San Jose Fire Department stating that they have reviewed and commented on the Construction Fire Protection and Prevention Plan and Emergency Action Plan.

WORKER SAFETY-2 The project owner shall submit to the CPM an updated Project Operations and Maintenance Safety and Health Program containing the following:

- Operation Injury and Illness Prevention Plan;
- Emergency Action Plan;
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (Cal. Code Regs., tit. 8, § 3221); and;
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, to be available for their review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Protection Plan and the Emergency Action Plan shall also be submitted to the City of San Jose Fire Department for review and comment. The Operations and Maintenance Safety and Health Program shall be consistent with and implemented in accordance with all requirements of Title 8, California Code of Regulations.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM for review and approval a copy of the updated Project Operations and Maintenance Safety & Health Program.

WORKER SAFETY-3: The project owner shall prepare and submit to the CPM an updated Operations Fire Prevention Plan describing the onsite fire protection system that will be provided in this project. Specifically, information must be included on employee alarm/communication system, portable fire extinguisher placement and operation, fixed fire fighting equipment placement and operation, fire control methods and techniques, flammable and combustible liquid storage methods, methods for servicing and refueling vehicles and fire prevention training programs and requirements. Additionally, information should be provided regarding the source of the onsite firewater, including storage if applicable and fire department hook-ups.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the City of San Jose Fire Department a copy of the final version of the Operations Fire Prevention Plan for review and comment and to the CPM for review and approval.

WORKER SAFETY-4 The project owner shall employ a CPM-approved Safety Monitor, who will report directly to the Chief Building Official (CB0), and who will be responsible for verifying that the Construction Safety Supervisor, as required in **Worker Safety-5**, implement all appropriate Cal/OSHA and Commission safety requirements specified in the evidentiary record and in Conditions **Worker Safety 1**, **2**, and **3** of this Decision.

The CPM approved Safety Monitor shall conduct a site safety inspection at least once a week during construction of permanent structures, and commissioning, of the power plant unless a lesser number of inspections are approved by the CPM. The CPM may also require similar inspections concerning linear facilities.

The Safety Monitor shall keep the Chief Building Official (CBO) fully informed regarding safety-related matters and coordinate with the CBO concerning on-site safety inspections, and a final safety inspection prior to issuance of the Certificate of Occupancy by the CBO. The Safety Monitor will be retained until cessation of construction and commissioning activities, and issuance of the Certificate of Occupancy, unless otherwise approved by the CPM.

The Safety Monitor(s) shall also:

- Inform the site Construction Safety Supervisor and CBO of any construction or commissioning problems that could pose a future danger to life or health.
- After consultation with the CBO, have the authority to temporarily stop construction or commissioning activities involving possible safety violations or unsafe conditions that may pose an immediate or future danger to life or health, until the problem is resolved to the satisfaction of the Safety Monitor and CBO.

- Consult with the CBO and Construction Safety Supervisor to determine when construction may resume unless the problem is corrected immediately, and to the satisfaction of the Safety Monitor and/or CBO.
- Inform the CPM within 24 hours of any temporary halt in construction or commissioning activities.
- Be available to inspect the site whenever necessary in addition to the minimum weekly basis during construction and commissioning as determined in consultation with the CBO and CPM.
- Verify that the safety program for the project complies with Cal/OSHA & federal regulations related to power plant projects.
- Verify that all federal and Cal/OSHA requirements are practiced during the construction and installation of all permanent structures (including safety aspects of electrical installations).
- Verify that all construction and commissioning workers and supervisors receive adequate safety training.
- Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents.
- Verify that all the plans identified in **Worker Safety-1** are implemented.

The Safety Monitor shall be qualified regarding the following:

- Safety issues related to pipeline construction, construction equipment, and procedures, etc,
- LORS applicable to workplace safety and worker protection
- Workplace hazards typically associated with power production
- Lock-out / tag-out and confined spaces control systems

Verification: The project owner shall submit the Safety Monitor(s) resume(s) to the CPM for approval at least 30 days prior to site mobilization. One or more individuals may hold this position.

The Safety Monitor shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- Summary report of safety management actions that occurred during the month;
- Report of any continuing or unresolved situations and incidents that may pose danger to life or health;

- Report of accidents and injuries that occurred during the month.

WORKER SAFETY-5 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the specific operations, and has authority to take appropriate action. This CSS shall have over-all authority for coordination and implementation of all occupational safety and health practices, policies, and programs.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and qualifications of the CSS for review and approval.

VI. ENVIRONMENTAL ASSESSMENT

As part of its statutory mandate, the Commission must analyze a project's potential effect upon various elements of the human and natural environments.

A. BIOLOGICAL RESOURCES

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 due to the project and its related facilities, and address the adequacy of mitigation measures necessary to reduce any identified impacts to less than significant levels.

SUMMARY OF THE EVIDENCE

We have reviewed the Commission Decision of July 2, 2002 (2002 Decision) and the Commission Decision of March 16, 2005 (2005 Decision), for LECEF and compared it to the evidence presented in this proceeding. We are persuaded that, except where the contrary is set forth herein, those prior Decisions are valid and relevant. Accordingly, we incorporate them herein.

The Project Site

LECEF is approximately 1 to 1.5 miles south of the Don Edwards (formally San Francisco Bay) National Wildlife Refuge (NWR). This area is a highly productive, diverse and sensitive marsh habitat devoted to the preservation of the salt marsh harvest mouse, nesting and migratory shorebirds, upland birds and mammals, and tidal invertebrates. Several bird species that are found in Don Edwards NWR, such as mallard and American coot, may use adjacent properties as part of their foraging grounds. (Ex. 30, p. 4.2-16.)

Common native bird species observed on the LECEF 2 site and linear routes include the American kestrel, Anna's hummingbird, black phoebe, black-chinned

hummingbird, Brewer's blackbird, California towhee, common yellowthroat, lesser goldfinch, mourning dove, northern mockingbird, prairie falcon, red-shouldered hawk, red-tailed hawk, song sparrow, turkey vulture, woodpecker species, western meadowlark, western scrub jay, white-crowned sparrow, and the yellow-rumped warbler. Common native mammals observed include the California ground squirrel and the Yuma myotis bat. A summary of the species most likely to be observed is provided in **BIOLOGICAL RESOURCES Table 1**. (Ex. 30, p. 4.2-6.)

Several plant and animal species considered as sensitive or listed under state and/or federal Endangered Species Acts are identified as endemic (restricted) to serpentine soils in Santa Clara County (refer to **BIOLOGICAL RESOURCES Table 2**).

BIOLOGICAL RESOURCES TABLE 1

Special Status Species With Potential to be Observed on the LECEF Site or on Contiguous Parcels (Table 8.2-1, LECEF LLC. 2003)

Species Name	Regulatory Status[#]	Suitable Habitat for the Species	Occurrences In Project Area
LECEF Site or Contiguous Parcels			
Loggerhead shrike *Lanius ludovicianus*	SC, CSC	Annual grassland, Riparian habitat along Coyote Creek	Species observed in 2002 near Zanker Road. Potential suitable foraging and nesting habitat in landscape area (outside of fence).
Northern harrier *Circus cyanus*	CSC	Wetland habitat; fresh and/or brackish, Cropland, Annual grassland	Species observed foraging over project site. Suitable foraging and potential nesting habitat in landscape area (outside of fence) and adjacent parcels.
White-tailed kite *Elanus leucurus*	SC, FP	Annual grassland; Riparian habitat along Coyote Creek	Species observed perching, foraging and nesting adjacent to project site. Potential for nesting in trees adjacent to site and within the Coyote Creek riparian corridor.
Western burrowing owl *Athene cunicularia*	SC, CSC	Annual grassland, Oak Woodland	Species known to occur in the vicinity of project site. Potential suitable foraging and nesting habitat in landscape area (outside of fence) and on adjacent lands.
Yuma myotis bat *Myotis yumanensis*	SC, CSC	Riparian habitat along Coyote Creek, Chaparral	Species observed foraging and roosting adjacent to project site. Potential suitable foraging habitat on site and potential for foraging and roosting within the Coyote Creek riparian corridor.
Coyote Creek (700 feet east of proposed project)			
Fall-run Chinook salmon *Oncorhynchus tshawytscha*	PE	Ocean, Freshwater streams	Migrate from the ocean to spawning sites in Coyote Creek, about 700 feet from the project site.
Steelhead trout *Oncorhynchus mykiss*	FT	Ocean, Freshwater streams	Migrate from the ocean to spawning sites in Coyote Creek, about 700 feet from the project site.

[#] Federal-, state-, and California Native Plant Society (CNPS)-listed species:
FE: Federally Endangered.
FT: Federally Threatened.
SC: Federal Species of Concern.
PE: Federal Proposed Endangered.
PT: Federal Proposed Threatened.
C: Candidate Species for Listing
SE: California Endangered.
ST: California Threatened.
CPE: California Proposed Endangered.
CSC: California Species of Special Concern.
FP: California Fully-Protected species.
CR: California Rare.
CNPS List 1A: Extinct.
CNPS List 1B: Rare or endangered in California and elsewhere.
CNPS List 2: Rare or endangered in California, more common elsewhere.

BIOLOGICAL RESOURCES Table 2
Special Status Species found on Serpentine Soils
In Santa Clara County
(USFWS 1998)

Species	Regulatory Status[#]	Distribution and Life History
Plants		
Santa Clara Valley dudleya *Dudleya setchellii*	FE, CNPS 1B	Several occurrences from San Jose south to the City of San Martin (20 km along Hwy. 101); restricted to rocky outcrops within serpentine grasslands.
Smooth lessingia *Lessingia micradenia var. glabrata*	SC, CNPS 1B	Endemic to the east side of the Santa Cruz Mountains in Santa Clara County; grows on serpentine soils or outcrops.
Coyote ceanothus *Ceanothus ferrisae*	FE, CNPS 1B	Suitable habitat at Anderson Dam, Kirby Canyon, and City of Morgan Hill; grows on dry slopes in serpentine chaparral and valley and foothill grasslands below 300 meters.
Metcalf Canyon jewel-flower *Streptanthus albidus ssp. albidus*	FE, CNPS 1B	Occurrences from San Jose south to Anderson Lake (30 km); endemic to serpentine outcrops.
Mt. Hamilton thistle *Cirsium fontinale var. campylon*	SC, CNPS 1B	Several occurrences in Santa Clara County and other counties; found in serpentine seeps.
Tiburon paintbrush *Castilleja affinis* ssp. *neglecta*	FE, ST, CNPS 1B	Occurs in serpentine bunchgrass communities in Marin, Napa, and Santa Clara counties. Less than 20 plants are in Santa Clara County.
Most beautiful jewel-flower *Streptanthus albidus ssp. peramoenus*	SC, CNPS 1B	On the ridges of Santa Clara County and elsewhere; grows between 140 and 700 meters in elevation on serpentine outcrops or ridges and slopes in chaparral and valley foothill grassland.
Invertebrates		
Opler's longhorn moth *Adela oplerella*	SC	Nine populations in Santa Clara County, but also occurs throughout the greater San Francisco Bay area. Habitat restricted to its exclusive host plant, California cream cups (*Platystemon californicus*).
Bay checkerspot butterfly *Occidryas editha ssp. bayensis*	FT	Habitat now limited and patchily distributed in several counties; the four core areas on Coyote Ridge provide a reservoir critical to the survival of the Santa Clara County metapopulation; all habitat is on shallow, serpentine-derived or similar soils which support the butterfly's larval food plants.

[#] See footnote for BIOLOGICAL RESOURCES Table 1.

In conducting their analyses of potential impacts on biological resources, the parties examined the potential for impacts related to the following plant facilities and operations:

- cooling tower drift
- stormwater discharge
- noise
- weeds
- nitrogen deposition

Because the site contains an existing power plant, the LECEF 2 project would add few additional biological impacts. Applicant took the position that the project as proposed would cause no significant direct or indirect biological impacts. (Ex. 35, pp. 21-23.) In its own independent review, Staff concluded that potential biological impacts could occur due to nitrogen deposition. Staff therefore suggested, and Applicant agreed, to purchase additional ERCs to reduce nitrogen deposition. This matter is discussed in greater detail below.

Staff determined that direct impacts could occur to the borrowing owl and to other species during construction activities around the worker parking and laydown area. These potential impacts would be fully mitigated by implementing conditions of certification **BIO- 10, BIO-11,** and **BIO-19**. (Ex. 30, p. 4.2-12.)

Cooling Tower Drift

The LECEF 2 may have less of an impact on sensitive biological resources because of the lack of suitable habitat on site. However, the project was also evaluated for the *indirect* impacts it could have on any surrounding areas that remain in natural conditions and support biological resources.

LECEF's project site is 21 acres in size, enclosed by eight-foot tall cinder-block walls, and the site has been developed into a simple-cycle power plant. The 21-acre site contains power plant equipment and related facilities. The combined cycle elements would be installed within the fence line on areas that are currently graded and compacted, and generally devoid of vegetation.

While the presently existing simple-cycle facility uses a cooling tower, LECEF 2 in combined cycle configuration will build and operate a second six-cell cooling tower. The two cooling towers would be built to eliminate nearly all cooling tower drift off-site and will be inspected annually to ensure compliance (see Air Quality, Conditions of Certification **AQ- 46** and **AQ-47**). Overall, the amounts of salt that could accumulate on the nearby agricultural areas are below the threshold which could cause vegetative harm. (Ex. 1, Section 8.2.3.)

The cooling and process water supply for the project will be reclaimed water provided by the WPCP plant and wastewater disposal will be conveyed to the City of San Jose sewer system for treatment at the WPCP. (Ex. 30, p. 4.2-10.)

Storm Water Discharge

The LECEF site is located approximately 700 feet west of the Coyote Creek Flood Control Project. The Flood Control Project, completed in 1997, consists of a levee wall, approximately 10 feet high and approximately 60 feet wide with an access road on top. Stormwater runoff from the site is pumped to a temporary outfall structure via a 24-inch pipe placed in the levee. Within the next two years, the applicant will construct a permanent outfall inside of the levee. The temporary and permanent outfalls were analyzed under the simple-cycle proceeding and are part of the existing license. The site implements Best Management Practices to reduce pollutants in the stormwater. (Ex. 30, p. 4.2-15.)

Runoff from the project site will be collected and discharged into the Coyote Creek by-pass channel. Stormwater from paved areas has the potential to carry a variety of pollutants including grease, oil, and trace amounts of heavy metals and particulates. Stormwater from landscaped areas can carry pesticides, herbicides, and fertilizers. Restrictions on herbicides and pesticides within the Landscaping Plan and at the Burrowing Owl Management Area would reduce this impact to less than significant levels (Conditions of Certification **BIO-17** and **BIO-19**). The impact to resources in

Coyote Creek would be further minimized after implementation of the City of San Jose Grading Ordinance and specific measures proposed by the applicant (see Soil and Water Resources analysis).

Noise and Light

Noise can impact biological resources by causing the abandonment of critical activities such as nest attendance and feeding. Sound attenuates with every doubling of distance, so at 200 feet, the sound level would be less than 80 dBA. Because Coyote Creek is nearly 700 feet away from the steam blow required at the completion of construction, and sound levels would be attenuated to less than a threshold of 85 dBA, birds are not expected to abandon critical activities during the steam blow phase of construction. (Ex. 30, p. 4.2-16.)

During operations, the noise levels at Coyote Creek would be nearly the same levels that are produced from traffic on nearby SR 237. Therefore, because there is no measurable change in the ambient environment, the operation of the combined cycle plant is unlikely to impact bird species utilizing Coyote Creek.

The applicant has designed the facility so that all lights would be non-glare to reduce light reaching off-site receptors. (Condition of Certification **BIO-10**). Thus the project is not expected to have significant impacts from light after implementation of the proposed mitigation. (*Id*.)

Due to the distance from the project site, noise and light generated at LECEF 2 will not directly interfere with the movement of any native fish or wildlife species (resident or migratory) or with established native (resident or migratory) wildlife corridors, or limit or impede the use of native wildlife nursery sites. (*Id*.)

Based on the evidence we conclude that noise and light related impacts will be less than significant, and no mitigation is required.

Spread of Weeds

There will be a temporary disturbance of approximately 13 acres for the worker parking and laydown area. Following construction of the simple-cycle facility, the applicant was required to re-vegetate this 13-acre site. By following the Biological Resources Condition of Certification **BIO-17**, the introduction and spread of weedy plant species will likely be avoided. (Ex. 30, p. 4.2-16, 17.)

Nitrogen Deposition

The operation of the proposed combined cycle facility will emit several air pollutants, including nitrogen dioxide and ammonia, into the atmosphere. These chemical components often react with the atmosphere to form fertilizing agents (HNO_3). Nitrogen deposition is the amount of nitrogen that converts to particulates and accumulates on soil or other surfaces. The applicant's modeling of nitrogen deposition from the proposed combined cycle project estimates that nitrogen deposition would concentrate at the north end of the serpentine range in Santa Clara County (near Silver Creek) and that deposition levels decline in a northwest to southeast direction in relation to distance away from the site and intervening topography. (Ex. 30, p. 4.2-17.)

During consultation between the applicant and the USFWS in the fall of 2004, the USFWS suggested pro-active conservation measures be proposed in addition to the mitigation land. Such measures could include fencing populations to prevent grazing damage, weeding the area by hand, or otherwise creating favorable conditions for plant growth. Conservation measures together with mitigation land could result in a higher level of protection for these plants. Any such conservation measures would be incorporated into the BRMIMP (Conditions of Certification **BIO-8** and **BIO-18**).

The Staff witness testified that a nitrogen deposition rate considered sufficient to affect ecosystem structure and diversity are 3 to 10 kg-N/ha-yr depending on vegetation type. Recent air pollution research on Coyote Ridge (which includes the

Silver Creek and Kirby Critical Habitat Units) found nitrogen deposition levels are already adversely affecting native serpentine plant communities, with negative effects on the bay checkerspot butterfly. Staff testified that any additional increases in emissions from the combined cycle plant would cause additional impacts to the butterfly. Staff testimony revealed the project's nitrogen output in Table 3 of its testimony. (Ex. 30, p. 4.2-18.) However, Staff also concluded that, while the project may have minor effects on the soils that support the serpentine endemic, establishing evidence of an indirect impact to the soils (and thus to the butterfly) would be difficult for several reasons:

- The large distance between the power plant source and the area of impact;
- The number of intervening sources of nitrogen in between the source and the area of impact;
- The level of impact when modeled conservatively would be even smaller when typical conditions were assumed; and,
- The trends and changes in ozone pollution from mobile and stationary sources continually alter the expected amount of nitrogen deposition. (Ex. 30, p. 4.2-11.)

LECEF (simple-cycle facility) and the other two nearby energy facilities proposed the preservation and management of mitigation land to benefit the serpentine endemics. This resulted in an endowment for the purchase and maintenance of 40 acres of critical serpentine bunchgrass ecosystem. (6/30/05 RT 29-31; Ex. 35, p. 23.) The BAAQMD's lower NOx emission limit of 2.0 ppm will, in everyday operations, also decrease the likelihood of impacts to serpentine endemics In addition, the LECEF 2 will reduce overall nitrogen in the vicinity of serpentine habitat with the purchase of additional Emission Reduction Credits (ERCs) as recommended by Staff. In fact, Applicant, has identified a new set of ERC certificates which are all NOx-based. The surrender of these certificates is sufficient to reduce impacts to serpentine plants to less than significant levels. Because 27.945 tons per year of NOx offsets are required to reduce the cumulative impacts in biological resources to less than significant levels, we have required the purchase of these nitrogen-based ERC's as condition of certification **BIO-22**. (6/30/05 RT 32-34.)

Intervenor CARE disputed the adequacy of the mitigation for nitrogen deposition. (CARE's Op. Br. p. 8.) However, CARE offered no direct testimony on the matter. Instead, its representative cross examined the Staff witness. (6/30/05 RT 2034.) During cross examination, the Staff witness made clear that the mitigation was carefully developed in consultation with the Staff's air quality experts. (6/30/05 RT 26.) We are not persuaded that CARE's concerns are valid. On the contrary, the evidence supports the mitigation measures proposed by the applicant and the Commission staff.

After implementation of these mitigation measures, impacts to the butterfly and other serpentine endemics will be less than significant. With the incorporation of the conditions of certification, there will be no unmitigated Biological Resources impacts resulting from the certification of the LECEF 2 combined-cycle power plant and the project will comply with all LORS related to biological impacts. (Ex. 30, p. 4.2-23.)

FINDINGS AND CONCLUSIONS

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

1. Applicant's compliance with the mitigation measures set forth in this Decision will ensure that cumulative impacts are mitigated to less than significant levels.

2. The mitigation measures contained in the Conditions of Certification set forth below were developed in cooperation and consultation with the United States Fish & Wildlife Service and with the California Department of Fish and Game.

3. The Conditions of Certification assure that the LECEF 2 Project will cause no significant unmitigated adverse impacts to biological resources in the project area.

4. The Conditions of Certification, if properly implemented, ensure that the LECEF 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 LECEF 2 Project will not create any significant direct, indirect, or cumulative adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST

BIO-1 Site and related facilities (including any access roads, transmission lines, water and gas lines, storage areas, staging areas, pulling sites, substations, wells, etc) mobilization activities for the combined cycle facility shall not begin until an Energy Commission CPM approved Designated Biologist or approved Biological Monitor(s) are 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. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No habitat disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new Designated Biologist or approved Biological Monitor(s) is on-site.

Verification: At least 35 days prior to the start of any site and related facilities mobilization activities for the combined cycle facility, the project owner shall submit to the CPM for approval the name, qualifications, address, and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement as specified in the Condition must be submitted in writing at least 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 and related facilities mobilization, construction, and operation activities for the combined cycle facility:

1. Advise the project owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;
2. Supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species; and
3. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification.
4. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, WEAP training and all permits
5. The Designated Biologist may be assisted by the approved Biological Monitor(s), but remains the contact for the project owner and CPM.

Verification: During site and related facilities mobilization and construction the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During site and related facilities mobilization and construction for the combined cycle facility, the Designated Biologist shall submit reports when warranted along with the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR(S) AUTHORITY

BIO-3 The project owner's Construction/Operation Manager for the combined cycle facility shall act on the advice of the Designated Biologist and Biological Monitor(s) 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 and Biological Monitor(s) as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist and Biological Monitor(s) shall:

1. Inform the project owner and the Construction/Operation Manager when to resume construction or operation, and

2. Advise the Energy Commission CPM if any corrective actions are needed or have to be instituted.

Verification: Within 2 working days of a Designated Biologist or Biological Monitor(s) notification of non-compliance with a Biological Resources Condition of Certification or a halt of construction or operation, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five 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 in which each of its employees, as well as employees of contractors and subcontractors who work on the project or related facilities during site mobilization, construction and operation of the combined cycle facility, are informed about sensitive biological resources associated with the project. The training may be presented in the form of a videotape or digital video disk presentation so long as the Protocol is met.

Protocol: The Worker Environmental Awareness Program must:

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

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

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 30 days prior to the start of any site and related facilities mobilization, the project owner shall provide two copies of the Worker Environmental Awareness Program and all supporting written materials and electronic media reviewed or prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the mobilization and construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six 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.

STREAMBED ALTERATION AGREEMENT

BIO-5 Prior to start of any site or related facilities mobilization activities of the interior side of the levee, the project owner shall acquire a Streambed Alteration Agreement from the CDFG if required, or show CDFG correspondence that indicates no permit is required. The project owner will implement the agreement terms and conditions.

Protocol: Provisions in the CDFG Streambed Alteration Agreement include (typical measures are):

1. Completion of all work in the streams when the work sites are dry;
2. Not removing or damaging woody perennial stream bank vegetation outside of the work area;
3. Not removing soil, vegetation, and vegetative debris from the streambed or stream banks;
4. Not exceeding the amount of fill placed within stream channels above that which naturally occurred in the stream channel prior to the start of work;
5. Not creating silty or turbid water when water returns to the stream, and not discharging silty water into the stream, nor creating turbid water within the stream;
6. Stabilizing slopes toward the stream to reduce erosion potential;
7. Locating equipment, material, fuel, lubricant and solvent staging and storage areas outside the stream, and using drip pans with motors, pumps, generators, compressors, and welders that are located within or adjacent to a stream;
8. Moving all vehicles away from the stream prior to refueling and lubricating;

9. Preventing any substance that could be hazardous to aquatic life from contaminating the soil and/or entering the waters of the area;
10. Cleaning up all spills immediately; and
11. Returning stream low flow channel, bed, or banks to as nearly as possible to their original configuration and width.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities on the interior side of the levee the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement or applicable CDFG correspondence. Agreement terms and conditions will be incorporated into the BRMIMP.

REGIONAL WATER QUALITY CONTROL BOARD CERTIFICATION

BIO-6 The project owner will acquire and implement the terms and conditions of the Regional Water Quality Control Board Section 401 State Clean Water Act certification, if required.

Verification: No less than 30 days prior to the start of any site or related facilities mobilization activities on the interior side of the levee, the project owner will provide the CPM with a copy of the final Regional Water Quality Control Board (RWQCB) certification. The terms and conditions of the certification will be incorporated into the project's BRMIMP.

U. S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT

BIO-7 The project owner shall provide a final copy of the Section 404 permit, if required. The project owner will implement the terms and conditions contained in the permit.

Verification: No less than 30 days prior to the start of any site and related facilities mobilization of the interior side of the levee, the project owner shall submit to the CPM a copy of the permit required to fill on-site wetlands. Permit terms and conditions will be incorporated into the BRMIMP.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-8 The project owner shall submit to the CPM for review and approval a copy of the final BRMIMP and shall implement the measures identified in the plan. Any changes to the adopted BRMIMP must be made by the Energy Commission staff, in consultation with the USFWS and CDFG.

Protocol: The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance measures recommended by the Applicant, as well as those contained in the BIO-Condition of Certification (and other mitigation requirements);

2. All provisions specified in a CDFG Streambed Alteration Agreement;
3. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
4. All required mitigation measures for each sensitive biological resource;
5. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
6. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
7. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;
8. Aerial photographs of all areas to be disturbed during project construction activities - one set prior to any site mobilization disturbance and one set after completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;
9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
11. All performance standards and remedial measures to be implemented if performance standards are not met;
12. A discussion of biological resources related facility closure measures;
13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
14. A detailed plan of the management of top soil (from onsite, laydown, and linear areas) during the construction phase.
15. All provisions from the USFWS Permit.

Verification: At least 30 days prior to start of any site or related facility mobilization activities for the combined cycle facility, the project owner shall provide the CPM with 2 copies of the draft final version of the BRMIMP for this project, and provide copies to the USFWS and CDFG. The CPM, in consultation with the USFWS and CDFG, will determine the plan's acceptability within 15 days of receipt. If some construction has been authorized by the CPM to start, and if there are any permits that had not yet been received when the BRMIMP was first submitted, then these permits shall be submitted to the CPM, the CDFG and USFWS within five (5)

days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. The project owner shall notify the CPM no less than 5 working days before implementing any modifications to the BRMIMP to obtain CPM approval. Two copies of the CPM approved BRMIMP must be provided to the CPM and copies provided to the USFWS and CDFG.

Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's–construction phase, and which mitigation and monitoring plan items are still outstanding.

CLOSURE PLAN MEASURES

BIO-9 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources.

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

1. Removal of transmission conductors when they are no longer used or 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 12 months (or a mutually agreed upon time) prior to the commencement of closure activities construction, the project owner shall address all biological resources related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures. The biological resources facility closure measures will also be incorporated into the BRMIMP.

MITIGATION MEASURES

BIO-10 The project owner will implement the mitigation measures identified below.

Protocol: The project owner will:

1. Site transmission line poles, access roads, pulling sites, and storage and parking areas to avoid sensitive resources whenever possible;
2. Avoid all wetlands;
3. Design and construct transmission lines and poles to reduce the likelihood of electrocutions of large birds;
4. Implement the terms and conditions of a current CDFG Streambed Alteration Agreement (if required);
5. Implement a Worker Environmental Awareness Program;
6. Clearly mark construction area boundaries with stakes, flagging, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization. All equipment storage will be restricted to designated construction zones or areas that are currently not considered sensitive species habitat. Parking will not be allowed below the canopy of trees;
7. Provide a Designated Biologist to monitor all activities that may result in incidental take of listed species or their habitat;
8. Fence and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches outside of the facility fence. Fence will be hardware cloth or similar materials that are approved for use by the USFWS and CDFG;
9. Inspect trenches outside of the facility fence every 12 hours for entrapped animals and prior to the beginning of construction in an area that has been unattended for over 3 hours during the night. Inspections will be made by someone specially trained by the Designated Biologist in the proper handling of wildlife. Construction will be allowed to begin only after trapped animals are able to escape voluntarily or in a safe and humane manner.
10. Inspect all construction pipes, culverts, or similar structures with diameter of 4-inches or greater outside the facility fence for sensitive species (such as foxes) prior to pipe burial. Pipes to be left in trenches for more than eight 8 hours will be capped.
11. Provide a post-construction compliance report, within 45 calendar days of completion of the project, to the Energy Commission CPM;

12. Make certain that all food-related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited;
13. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals will be reported to the CDFG, and the project owner will follow instructions that are provided by the CDFG;
14. Limit the use of biocides in project areas (see **BIO-17** for more detail);
15. Implement erosion control in the temporary impact areas, especially near wetlands and waterways;
16. Any fixed lighting used during construction activities must be designed to be directed downward and away from riparian areas;
17. No construction activity shall be allowed within 500 feet of the levee wall from one (1) hour before sunset until one (1) hour after sunrise (as defined by a California solar timetable);
18. Contact the San Francisco Bird Observatory (Sherry Hudson at 408-946-6548 or shudson@sfbbo.org) two weeks prior to beginning construction of the stormwater outfall at the levee wall to arrange alternative access to the Observatory's long-term bird banding site; and
19. Follow the management plan for the burrowing owl mitigation area (see **BIO-19** for more detail).

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP. Two copies of the CPM approved BRMIMP must be provided to the CPM five days prior to site mobilization and copies provided to the USFWS and CDFG.

SURVEY AND PROVIDE HABITAT COMPENSATION FOR BURROWING OWLS

BIO-11 The applicant shall survey for burrowing owl activities on the 34 acre parcel and along all new ancillary linear facilities prior to site mobilization to assess owl presence and need for further mitigation. All survey results shall be submitted to the CDFG. If owls are present, and nesting is not occurring, owls are to be removed per CDFG-approved passive relocation. Passive relocation is recommended from September 1 to January 31, to avoid disruption of breeding activities. If owls are nesting, nest(s) should be avoided by a minimum of a 250-foot buffer until fledging has occurred (February 1 through August 31). Following fledging, owls may be passively relocated.

If burrowing owls are found on the site or along all new ancillary linear~~s~~ corridors on-site or off-site compensation for losses will be required, whichever is feasible. CDFG recommends 6.5 acres of protected lands for

each pair of owls or unpaired resident bird. Foraging habitat should be replaced at 0.5:1 (mitigation: impacts). Mitigation lands bought outside of Santa Clara County shall be purchased at a 0.75:1 (mitigation: impacts) for contiguous counties and 1.5:1 for all other California counties. In addition, existing unsuitable burrows on the protected lands should be enhanced (e.g., cleared of debris or enlarged) or new burrows installed at a ratio of 2:1. If off-site compensation is the only option, the mitigation ratios will increase depending on the distance from the site and burrowing presence on or near the mitigation parcel.

Verification: Burrowing owl surveys shall be conducted 20 days prior to any project-related ground disturbance activities. At least 15 days prior to project related ground disturbance the project owner shall provide the CPM and CDFG with the burrowing owl survey results and identify any lands proposed for mitigation (if applicable). The land purchase shall be approved by the CPM and reviewed by CDFG. The project owner shall notify the CPM five working days before implementing any modifications to the BRMIMP.

REPLACEMENT OF ORDINANCE AND NATIVE MATURE TREES

BIO-12 Prior to the start of any site mobilization for the simple-cycle facility, the project owner shall develop the Ordinance and Native Mature Tree Replacement Plan for inclusion into the BRMIMP. The protocol shall include a thorough discussion of methods, species, and location for plantings, criteria for success, a monitoring program for 5 years, and a reporting requirement. If the CPM determines that the plan requires modification, the project owner shall modify the report based on the CPM's comments.

Verification: At least 30 day prior to the start of any site and related facilities mobilization, the project owner shall provide to the CPM for review and approval, and to CDFG for review, a Ordinance and Native Mature Tree Replacement Plan as part of the BRMIMP.

CITY OF SAN JOSE ORDINANCE TREE

BIO-13 The project owner will acquire a City of San Jose permit to remove any remaining ordinance trees from the simple-cycle facility site. The number of trees removed will be minimized and construction equipment and linear~~s~~ corridors in the drip line of these trees will be avoided. The applicant will be required to replace any trees removed at a ratio of 4:1 (mitigation: impact) per the U.S. DataPort EIR.

Verification: The terms and conditions of the City of San Jose permit(s) will be incorporated into the project's BRMIMP and submitted at least 90 days prior to removal of any remaining ordnance trees (or those not covered by the City of San Jose Planned Development Permit). A copy of the permit(s) should be included as an appendix to the BRMIMP.

REVEGETATION OF TEMPORARY DISTURBANCE

BIO-14 After construction, the laydown area will be stripped of any armoring material, the surface scarified, and topsoil restored. Barley seed will be sowed as a temporary cover crop, but native seeds from the topsoil will be allowed to sprout and grow.

Verification: The applicant shall provide the revegetation plan in the BRMIMP and submit it within 60 days after the start of any site and related facilities mobilization.

AVOID IMPACTS TO RIPARIAN COMMUNITIES

BIO-15 Construction of the permanent outfall to Coyote Creek shall be scheduled to avoid critical seasons. Surveys by a qualified biologist will be conducted prior to any construction activities on the interior side of the levee to locate nests and other resources in/or adjacent to the stormwater right-of-way. Designated existing roads will be used, and if such roads are not present, flagged routes that have been surveyed by a biologist will be used. If nests are observed, an avoidance period and buffer area shall be followed by all construction personnel. Construction plans will be submitted with a photo alignment sheet to the Energy Commission CPM for approval and to CDFG for review.

Verification: The applicant shall provide this measure as an amendment to the BRMIMP and as part of the roles for the Designated Biologist. Submittals of construction plans must occur 30 days prior to site mobilization on the interior side of the levee wall, but does not preclude the start of construction on the facility site. In lieu of CDFG review, the applicant may submit a copy of their final Streambed Alteration Agreement permit.

HABITAT COMPENSATION FOR SERPENTINE ENDEMICS

BIO-16 To compensate for impacts to serpentine soils and associated endemic species, the project owner shall provide a minimum of 40 acres of land within a high priority (as defined by USFWS) or occupied USFWS Critical Habitat Unit, the name of the entity that will be managing the land in perpetuity, and the endowment funds in the amount determined suitable from the Center for Natural Lands PAR analysis to administer and manage in perpetuity. Each of these must have been pre-approved by Energy Commission staff.

Verification: Within one month of project certification of the simple-cycle facility, the project owner must provide to the CPM for approval, the name of the management entity, written verification that the compensation lands have been purchased and written verification that the appropriate endowment fund (determined by the PAR analysis) has been received by the approved management entity.

LANDSCAPING PLAN

BIO-17 The applicant will complete a Landscaping Plan for review by the CPM. The project owner shall follow the approved Landscaping Plan during the lifetime of the power plant.

Protocol: The Landscaping Plan must include measures which:

1. Direct landscaping lights away form the riparian area;
2. Limit the amounts of biocides used on the project site;
3. Remove invasive, non-native plants (e.g., yellow star thistle) whenever possible to avoid the spread of weeds to the riparian corridor buffer zone. Employ the most effective aspects of the following control methods: 1) manual removal and, 2) mechanical control through soil disturbance. If the previous two methods are unsuccessful in controlling the problem, the following method could be used: 3) herbicides with low environmental persistence, applied from ground-based equipment. These products should only be used within the parameters presented on the label;
4. Avoid plant species that are not already found within the Coyote Creek watershed to avoid potentially new hybrids from cross-pollination;
5. Select a drought-tolerant mix of native species for ground cover;
6. Select a drought-tolerant mix of native tree species to the extent possible, particularly along the eastern edges of the landscaped areas (facing Coyote Creek);
7. Avoid long-term irrigation and limit short-term irrigation;
8. Avoid landscaping species/design(s) which would require initial and/or future maintenance equipment that contribute to noise and/or air pollution; and
9. Avoid the use of non-native ground cover (e.g., bark, rocks, soils).

Verification: At least 45 days prior to LECEF landscape installation, a Landscaping Plan will be sent to the CPM. All mitigation measures and their implementation methods will be included in the BRMIMP. Two copies of the BRMIMP must be provided to the CPM and one copy each provided to both the USFWS and CDFG five days prior to landscape installation.

U. S. FISH AND WILDLIFE SERVICE PERMIT

BIO-18 The project owner shall provide a final copy of the Section 10 permit from the U.S. Fish and Wildlife Service (if required) to the CPM. The project owner will implement the terms and conditions contained in the permit and incorporate these into the BRMIMP.

Verification: The applicant shall provide the CPM with a status report of the Section 10 permit every six months beginning January 2006 until the permit is obtained or is no longer necessary. The status report shall include a table of milestones and the dates milestones were completed or are expected to be completed. No less than 30 days after receiving the permit (if required), the project owner shall provide two unbound copies of the Section 10 permit to the CPM.

BURROWING OWL MANAGEMENT PLAN

BIO-19 The project owner shall create a Burrowing Owl Management Plan (Plan) and incorporate the provisions from the Plan into the BRMIMP for review by the CPM. The project owner shall be responsible for ensuring the power plant employees and contractors (most notably the landscape maintenance crew) are aware of the special provisions within the Plan, and shall make reasonable efforts to ensure these provisions are being followed during the operational lifetime of the power plant. Limit the use of biocides in the burrowing owl management area (see **BIO-17** for more detail).

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP. The annual compliance report shall provide the CPM with the name and phone number of the landscape maintenance crew supervisor. The CPM reserves the right to inspect the burrowing owl management area and to contact the landscape maintenance crew supervisor to correct problems

WORKER EDUCATION AND SPEED LIMITS ON PRIMARY ACCESS ROAD

BIO-20 During construction of the combined cycle facility, the project owner shall distribute flyers to project-construction employees informing them of the possible presence of burrowing owls near Thomas Foon Chew Way. The project owner shall highlight that the posted speed limit is 15 miles-per-hour along the primary access road, Thomas Foon Chew Way, and take actions to correct repeat violations by project-construction drivers.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP. The monthly compliance report shall include the number of possible speed limit violations. The CPM reserves the right to inspect the primary access road for signs and to contact the construction manager to correct problems.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-21 The project owner shall submit the resume and contact information of the proposed Biological Monitor(s) to the CPM for review. Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification, the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), the Worker Environmental Awareness Program (WEAP), and all permits.

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

PURCHASE OF NITROGEN-BASED EMISSION REDUCTION CREDITS

BIO-22 The project owner must surrender to the Bay Area Air Quality Management District a package of emission offsets which contain at least 27.945 tons per year nitrogen oxide. The substitution of precursor organic compound emission offsets is prohibited. The preferred set of certificates to be surrendered is as follows:

Current Owner	Cert. No.	POC (tons per year)	NOx (tons per year)	Origin, Location	Date Banked
LECEF	724	0	7.100	Cardinal Cogen, Palo Alto	3/13/96
Calpine	896	0	304.594	PG&E Potrero Power Plant, San Francisco	9/30/85
		TOTAL	311.694		
		Balance (to be refunded)	283.749		

Verification: At least 60 days prior to construction, the project owner/operator must surrender the ERC certificates and provide copies to the CPM. The total emission offsets that are nitrogen based must be clearly identified in the cover letter.

B. CULTURAL RESOURCES

This section discusses cultural resources, defined as including the structural and cultural evidence of the history of human development and life on earth. These resources assist in the understanding of our culture, our history, and our heritage. Information that can be used to determine the sequence of past human occupation and use of an area is provided by the spatial relationships between an undisturbed resource site and the surface environmental resources and features, and an analysis of the locational context of the resource materials within the site and beneath the surface.

The first category refers to those resources relating to the prehistoric human occupation and use of an area; they typically include sites, deposits, structures, artifacts, rock art, trails, and other traces of prehistoric human behavior. Historic archaeological resources are those materials usually associated with non-Native-American exploration and settlement of an area, and correlates with the beginning of a written historical record. Such resources include deposits, sites, structures, traveled ways, artifacts, documents, or other indicia of human activity. Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group such as Native Americans, or African, European, or Asian immigrants. These materials include:

- traditional collecting areas,
- ceremonial sites,
- topographic features,
- cemeteries,
- shrines, or
- ethnic neighborhoods and structures.

SUMMARY OF THE EVIDENCE

The LECEF project, including all linear facilities, and access routes, is located within the Alviso area of the City of San Jose, California. The project is situated in an area that is highly sensitive for cultural resources due to its location near coyote creek to the east. The potential to discover buried archaeological deposits throughout the adjacent floodplain of Coyote Creek is very high.[28] (2005 Decision, p. 163.)

Ethnographically, the project site is located within the Tamyen territory of the Costanoan, or Ohlone. Based on Spanish mission records and archaeological data, researchers estimated the Tamyen to be about 1,000 to 2,000 individuals in 1770. Within the Tamyen territory the population was further sub-divided into Tribelet territories, which were defined by physiographic features and usually had one or more permanent villages surrounded by a number of temporary camps. (2005 Decision, p. 163.)

The Port of Alviso was founded in the late 1840's and is not only one of the oldest ports on the West Coast, but was one of the first cities to be incorporated into California after it became a state. (2005 Decision, p. 163.)

In 1876 an early farmer-settler named William Boots owned over 650 acres in the area, including the easternmost portion of the project site. His residence was located off the site, just south of State Route 237. However, a former structure of this era was, at one time, located on the site. Thus, buried historical remains such as privies, trash dumps, and wells associated with this structure could potentially exist on site. (2005 Decision, p. 163.)

[28] The area in prehistoric times was floodplain grassland, perhaps characterized by scattered oak, sycamore, and willow trees, especially along the Coyote Creek corridor. Watercourses were favored locations for pre-historic occupation in the Santa Clara Valley. From such spots, Native Americans could exploit a variety of ecological niches on the alluvial plain, the nearby foothills, and the productive marshes of Southern San Francisco Bay. Over time, however, pre-historic settlements were forced to relocate in response to flooding and changes in the course of the river.

In total there are three unoccupied residences located within the project site. They include (1) the Cilker residence, built in 1923, at 1657 Alviso-Milpitas Road (2) 1591 Alviso-Milpitas Road, built in the 1940's which is located in the Cilker Orchard warehouse complex, and (3) 1515A Alviso-Milpitas Road, built in the 1940's, located in the southwestern corner of the project site. (2005 Decision, p. 164.)

During previous surveys, both prehistoric and historic cultural resources were identified. However, the cultural analysis of impacts from the proposed Los Esteros Critical Energy Facility (LECEF) and the proposed U.S. Dataport (USDP) Facility did not identify any significant cultural resources. Subsurface presence/absence testing was recommended in the City of San Jose's USDP EIR, and was conducted by LECEF prior to ground disturbance. (2005 Decision, p. 164; see also Ex. 30, pp. 4.3-3 to 4.3-6.) For a more complete historical discussion, see Ex. 1, pp.8.3-1 to 8.3-9.

The subsurface testing included the project footprint, linear facilities and access road. No significant cultural resources were identified. Despite the absence of discoveries during presence/absence testing, a potential still existed for discovering subsurface cultural resources. A variety of historic debris was identified during construction. Although a formal evaluation was not conducted, the Cultural Resource Specialist determined that the discoveries were not significant. Conditions of Certification were applied to the project to ensure that any potential adverse impacts would be mitigated to below a level of significance. (2005 Decision, p. 164.)

There do not appear to be any changes to the cultural resources analysis resulting from final design and current operations. (2005 Decision, p. 164.)

For cultural resources, the preferred method of mitigation is for project construction to avoid areas where cultural resources are known to exist, wherever possible. Often however, avoidance cannot be achieved and other measures such as surface collection, subsurface testing, and data recovery must be implemented for archaeological resources and documentation must be implemented for historical

structures. Mitigation measures are developed to reduce the potential for adverse project impacts on cultural resources to a less than significant level. The US DataPort Draft and Final EIR in 2001 required the implementation of proposed mitigation measures to avoid or reduce impact to cultural resources. These measures were implemented prior to ground disturbance associated with the LECEF Phase 1 and must continue to be implemented prior to ground disturbance associated with Phase 2. Conditions of Certification **CUL-7** and **CUL-8** were designed to assure appropriate mitigation. (Ex. 30, p. 4.3-10.)

CUL-7 requires that prior to any ground disturbance, a subsurface mechanical testing program for archaeological materials be conducted over the entire site. Subsurface testing looks for buried or obscured prehistoric deposits. Backhoe trenches were to be excavated systematically at 30-meter intervals, and samples of excavated soils to be regularly screened. Soil logs and/or stratigraphic profiles for each trench are maintained. Condition of certification **CUL-5** continues to mitigate for any cultural resource discoveries. (Ex. 30, p. 4.3-10.)

CUL-8 requires that in the event of the discovery of any archaeological remains, either during preconstruction testing, or during construction, all construction within 50-feet of the find will be halted, the Compliance Project Manager and Director of Planning, Building and Code Enforcement will be notified, and the archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and appropriate mitigation. Recommendations may include collection, recordation, and analysis. (Ex. 30, p. 4.3-10.)

The best mitigation strategy is to avoid impact to cultural resources that may be located in the project area. Avoidance can be accomplished by having the archaeologist and project engineer demarcate cultural resource site boundaries or by monitoring any construction activity on the ground to ensure that proposed project improvements do not impinge on the resource(s). Where a tower, road, or pipeline must be placed within 100-feet of a known resource, the site can be temporarily

fenced as an Environmentally Sensitive Area, or the cultural resource monitor can be present to be sure that no impacts occur to that resource. (Ex. 30, pp. 4.3-10 to 4.3-11.)

Applicant recommends that a Cultural Resources Specialist (CRS) and Cultural Resources Monitor (CRM) be retained. The CRS would conduct a worker education session for construction supervisory personnel covering the importance and legal protection of significant archeological resources and the education session would be videotaped. (Ex. 1, p. 8.3-11; Ex. 30, p. 4.3-11.)

The cultural resources monitor would observe mechanical excavation in high sensitivity areas such as areas on or near stream terraces. If archeological resources are identified during construction the CRM, CRS and construction superintendent will be notified and construction in that area will be halted, if necessary. The CRS will delineate the area where construction is halted. Construction will remain halted until the CRS, in consultation with the Energy Commission staff, inspects and evaluates the discovery. If human remains are found, project officials will follow state law. The CRS and CRM will record all discoveries on Department of Parks and Recreation Form 523. (Ex. 1, pp. 8.3-8 to 8.3-13; Ex. 30, p. 4.3-11.)

The USDP EIR recommended regarding mitigation for cultural resources that could be discovered by the project and impacted. Our Conditions of Certification, proposed by Staff, expand the applicant's proposed mitigation measures and incorporate recommendations from the USDP EIR to ensure compliance with law and mitigation of all impacts to below a significant level. (Ex. 30, p. 4.3-11.)

CUL-1 requires that a qualified cultural resources specialist (CRS) manage cultural resources activities for the project. It also ensures that additional qualified specialists or cultural resources monitors would be retained as needed for the project. To ensure that cultural resources are adequately protected, **CUL-1** requires that the

CRS have three years of experience in California. In addition to other relevant types of experience, the condition requires that the CRS have some background in data recovery.

CUL-2 requires the project owner to provide the CRS with maps and construction schedule information necessary to schedule monitors and cultural resources activity at the project site.

CUL-3 requires that a Cultural Resources Monitoring and Mitigation Plan (CRMMP) be developed that details all required activities that must be completed to reduce impacts to a level that is less than significant. The CRMMP defines the roles and responsibilities of cultural resources personnel and provides timelines for the completion of the required mitigation. The CRS would also obtain Native American monitors to observe work in areas where Native American artifacts are found. The CRMMP requires a discussion of curation specifications, materials to be transferred to a curation facility, and the responsibility of the owner to pay all curation fees. A CRMMP was written and approved for LECEF Phase 1. Changes that are specific to LECEF Phase 2 will be reflected in an amendment to the CRMMP that is submitted to the CPM for approval. The amendment is required by **CUL-3**.

CUL-4 provides for worker environmental training. The training serves to instruct workers that halting construction is necessary if a potential cultural resource is discovered. It also provides them with instruction regarding applicable laws, penalties and reporting requirements in the event something is discovered. Workers are also instructed that the CRS and other cultural resources personnel have the authority to halt construction in the event of a discovery.

CUL-5 requires monitoring, including by Native American monitors where appropriate, of the ground disturbance for the project, linear facilities, and ancillary areas and a process for reducing monitoring to a level below full time. It also requires monitoring logs and weekly summaries of the monitoring activities. All non-

compliance issues have to be reported to the CPM, and a reporting process is required. **CUL-6** ensures that unanticipated impacts to cultural resources are identified.

CUL-6 requires notification of staff within 24 hours of a cultural resources find. Timely notification enables staff participation in determinations of significance and the selection of appropriate mitigation to lessen impacts on cultural resources to a level that is less than significant.

The CRS, alternate CRS and the CRMs have the authority to halt work so that the Applicant has flexibility in construction scheduling. The CRS does not have to be at all active areas of construction at the same time.

CUL-7, as originally adopted required an archeological testing program prior to earth disturbing activities or project site preparation. The program was required by the DataPort EIR. This condition is not required for LECEF Phase 2 because the applicant has provided documentation demonstrating that if any ground disturbance occurs in the laydown area it will be minimal and condition of certification **CUL-5** will apply. Accordingly, **CUL-7** has been omitted below.

CUL-8 directs the project owner to ensure that the CRS conducts all the necessary cultural resources activities.

CUL-9 requires that the project owner provide a Cultural Resources Report (CRR) in Archaeological Resource Management Report format. This report would provide information on all field activities and the findings. The CRR would include all Department of Parks and Recreation 523 forms and cultural resource reports not previously provided to the California Historic Resource Information System (CHRIS). Copies of the CRR would be provided to the State Historic Preservation Officer, the CHRIS and the curating institution (if archaeological materials were collected).

CUL-10 ensures that artifacts and documents generated as a result of the project are appropriately curated.

CUL-11 requires that any necessary cultural resources surveys are completed prior to ground disturbance.

FINDINGS AND CONCLUSIONS

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

1. Cultural resources exist in the general project area.

2. The evidence establishes the likelihood that significant historical resources are in present in surrounding areas that may be disturbed by project construction.

3. Construction-related disturbance to historical resources would likely have a significant impact if not mitigated.

4. Adverse impacts may be satisfactorily mitigated by implementation of appropriate mitigation measures.

5. The Conditions of Certification contain measures that will ensure that construction of the proposed project and its related facilities will not create significant direct, indirect, or cumulative adverse impacts to cultural resources.

6. Implementation of the Conditions of Certification below will assure that the proposed project will comply with all applicable LORS pertaining to Cultural Resources set forth in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the proposed project will not create any significant direct, indirect, or cumulative adverse impacts to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of 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 an alternate CRS, if an alternate is proposed, who will be responsible for

implementation of all cultural resources conditions of certification. No ground disturbance shall occur prior to CPM approval of the CRS, unless specifically approved by the CPM.

1) The resume for the CRS and alternate, if an alternate is proposed, shall include information that demonstrates that the CRS meets the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61.

2) 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.

3) The background of the CRS shall include at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California;

1. The resume shall include the names and phone numbers of contacts familiar with the CRS's work on referenced projects.
2. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during project ground disturbance, construction and operation.
3. The CRS may obtain qualified cultural resource monitors to monitor as necessary on the project. Cultural resource monitors shall meet the following qualifications.
   - A BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or
   - An AS or AA in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or
   - 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.

4. 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 monitors, if needed, for this project. The project owner shall also ensure that the CRS evaluates any cultural resources that are newly

discovered or that may be effected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

Verification:

1) At least 45 days prior to the start of ground disturbance, the project owner shall submit the name and statement of qualifications of its CRS and alternate CRS, if an alternate 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 monitors for the project and stating that the identified monitors meet the minimum qualifications for cultural resource monitoring required by this condition. If additional monitors are obtained during the project, the CRS shall provide additional letters to the CPM, identifying the monitor and attesting to the monitor's qualifications. The letter shall be provided one week prior to the monitor beginning on-site duties. At least 10 days prior to beginning tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

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.

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 them with copies to the CPM. 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.

2) If construction of this project will proceed in phases, maps and drawings may be submitted in phases. A letter identifying the proposed schedule of each project phase shall be provided to the CPM and the CRS.

3) Prior to implementation of additional phases of the project, current maps and drawings shall be submitted to the CPM and the CRS.

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. A current schedule of anticipated project activity shall be provide to the CRS on a weekly basis during ground disturbance and provided to the CPM in each Monthly Compliance Report (MCR).

Verification:

1) At least forty days prior to the start of ground disturbance, the project owner shall provide the designated cultural resources specialist and the CPM with the maps and drawings.

2) If this is to be a phased project, a letter identifying the proposed schedule of the ground disturbance or construction phases of the project shall also be submitted.

3) At least 30 days prior to the start of ground disturbance on each phase of the project, following initial ground disturbance, copies of maps and drawings reflecting additional phases of the project, shall be provided to the CPM for review and approval.

4) If there are changes to the scheduling of the construction phases of the project, a letter shall be submitted to the CPM within 5 days of identifying the changes.

5) A copy of the current schedule of anticipated project activity.

CUL- 3 Prior to the start of project construction-related vegetation clearance or earth disturbing activities or project site preparation; the designated cultural resources specialist shall prepare, and the project owner shall submit to the CPM for review and approval a Cultural Resources Monitoring and Mitigation Plan (CRMMP) identifying general and specific measures to minimize potential impacts to sensitive cultural resources has been approved by the CPM. Since changes and additions to the project, would make it necessary to amend the CRMMP, the amendment shall be submitted to the CPM for review and approval. The amendment shall identify cultural resources that may be treated programmatically. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground disturbance shall occur prior to CPM approval of the amended CRMMP, unless specifically approved by the CPM.

The CRMMP shall be submitted to the CPM for review, and the CPM must approve the CRMMP, prior to any construction-related vegetation

clearance or earth disturbing activities or project site preparation. After CPM approval of the plan, the project owner shall make the designated cultural resource specialist and designated cultural resource team available to implement the CRMMP as needed throughout project construction.

The Cultural Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

1. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials. Data sources shall be specified.
2. Discussion of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.
3. 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.
4. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.
5. Incorporation of the Applicant's mitigation measures, as mandated by the USDP Draft EIR (2001).
6. A discussion of any measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and 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 and mapped (may include photos) and that all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the U.S. Secretary of Interior standards requirements for the curation of cultural resources.
8. A description of the set of reporting procedures prepared in concert with the project owner, to be used by all project personnel to notify

the designated cultural resource specialist of any unexpected cultural resource discoveries during project construction.

9. A description of the work curtailment procedures prepared in concert with the project owner, to be used by all project personnel in the event of unexpected cultural resource discoveries during project construction.

10. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

Verification: At least 10 days prior to the start of project construction changes, related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall provide to the CPM for review and approval an amendment to the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist. The amendment may be submitted as an appendix to the CRMMP.

CUL-4 Worker Environmental Awareness Training for all new employees shall be conducted prior to and during periods of ground disturbance. New employees shall receive training prior to starting work at the project site or linears. The training may be presented in the form of a video. The training shall include a discussion of applicable laws and penalties under the law. Training shall also include samples or visuals of artifacts that might be found in the project vicinity. The training should inform workers that the CRS, alternate CRS or monitor has the authority to halt construction in the event of a discovery or unanticipated impact to a cultural resource. The training shall also instruct employees to halt or redirect work in the vicinity of a find and to contact their supervisor and the CRS or monitor. An informational brochure shall be provided that identifies reporting procedures in the event of a discovery. Workers shall sign an acknowledgement form that they have received training and a sticker shall be placed on hard hats indicating that environmental training has been completed.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a letter to the CPM stating that employees will not begin work until they have completed environmental training and that a sticker on hard hats will identify workers who have received training. Copies of acknowledgement forms signed by trainees shall be provided in the MCR.

CUL-5 1) The project owner shall ensure that the CRS, alternate CRS, or monitors shall monitor ground disturbance full time in the vicinity of the project site, linears and ground disturbance at laydown areas to ensure there are no impacts to undiscovered resources. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter providing a detailed justification for that decision to reduce the level

of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring.

2) Those individuals conducting cultural resources monitoring shall keep a daily log describing the construction activities, areas monitored, soils observed, and any cultural materials observed. 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, by telephone or e-mail, of any incidents of non-compliance with any cultural resources conditions of certification within 24 hours of becoming aware of the situation. 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 activities if Native American archeological materials are 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.

Verification:

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 or e-mail 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 the ground disturbance phases of the project, the project owner shall include in the MCR to the CPM copies of the daily cultural resource monitoring reports. Copies of daily logs shall be retained.

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. The telephone call shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance with conditions of certification. In the event of a non-compliance issue, a report written no sooner than two weeks after resolution of the issue that describes the issue, resolution of the issue and the effectiveness or the resolution measures, shall be provided in the next MCR.

4) When Native American archeological materials are discovered, 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.

CUL-6 The designated cultural resource specialist or the specialist's delegated monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered during project construction-related vegetation clearance or earth disturbing activities or project site preparation or if known cultural resources will be affected in an unanticipated manner.

If any cultural resources are encountered, the project owner shall notify the CPM within 24 hours. Construction will not resume at the discovery site until all of the following have occurred:

1. The specialist has notified the CPM of the find and the work stoppage;
2. The CRS, and the project owner, have consulted with the CPM and the CPM has concurred with the recommended eligibility of the discovery and proposed, data recovery or other mitigation, and;
3. Any needed data recovery and mitigation has been completed.

The specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the specialist and team members shall monitor construction activities and implement data recovery and mitigation measures as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: At least 30 days prior to the start of project construction-related vegetation clearance or earth disturbing activities and site preparation; the project owner shall provide the CPM with a letter confirming that the designated cultural resources specialist and delegated monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find. The project owner shall also provide to the CPM, for review and written approval, a set of work curtailment procedures to be followed in the event that previously unknown cultural resources are discovered during construction.

CUL-7 Deleted

CUL-8 The project owner shall ensure that the designated cultural resource specialist performs the testing, recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of cultural resource materials encountered and collected during pre-construction surveys, testing and during the monitoring, data recovery, mapping, and mitigation activities related to the project. Cultural resources materials

shall be curated in accordance with the California State Historical Resources Commission "Guidelines for the Curation of Archaeological Collections" and the CRMMP including data sources identified in the research design.

Verification: If archeological materials are found, the project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate research specialists. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource site shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-9 After completion of the project, the project owner shall ensure that the CRS prepares a Cultural Resources Report (CRR) according to the Archaeological Resource Management Reports Guidelines as recommended by the California Office of Historic Preservation. The project owner shall submit the report to the CPM for review and approval. The report shall be considered final upon approval by the CPM.

Protocol: The CRR shall include (but not be limited to) the following:

A. For all projects:

1. Description of pre-project literature search, surveys, and any testing activities;
2. Maps showing areas surveyed or tested;
3. Description of any monitoring activities;
4. Maps of any areas monitored; and
5. Conclusions and recommendations.

B. For projects in which cultural resources were encountered, include the items specified under "a" and also provide:

1. Site and isolated artifact records and maps;
2. Description of testing for, and determinations of, significance and potential eligibility; and
3. Research questions answered or raised by the data from the project.

C. For projects in which cultural resources were recovered, include the items specified under "a" and "b" and also provide:

1. Descriptions (including drawings and/or photos) of recovered cultural materials;
2. Results and findings of any special analyses conducted on recovered cultural resource materials;

3. An inventory list of recovered cultural resource materials; and
4. The name and location of the public repository receiving the recovered cultural resources for curation.

Verification: After completion of the project, the project owner shall ensure that the CRS completes the CRR within ninety days following completion of the analysis of the recovered cultural materials. Within seven days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval. Within 30 days after receiving approval of the CRR, the project owner shall provide to the CPM documentation that the report has been sent to the State Historic Preservation Officer and the appropriate archaeological information center(s).

CUL-10 If significant cultural resource deposits are encountered through testing or project monitoring, the project owner shall ensure that all cultural resource materials, maps, and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources following the filing of the CPM-approved CRR with the appropriate entities. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all significant recovered cultural resource materials and a copy of the CRR are delivered for curation. Significance will be determined after consultation with the CPM. The project owner shall provide a copy of the transmittal letter received from the curation facility and provide a copy to the CPM within thirty days after receipt.

For the life of the project, the project owner shall maintain in its compliance files copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during testing, data recovery and mitigation for the project.

CUL-11 Prior to any additional project-related activities which may result in ground disturbance, the project owner must ensure that the area(s) to be impacted have been subject to a cultural resource survey~~s~~ for this project, if current (within 5 years) surveys for those areas do not already exist.

The responsibility for the evaluation must be taken by persons meeting the Secretary of the Interior's Professional Qualification Standards in a discipline appropriate to the historic context within which the resource is being considered (OHP 1995).

If significant cultural resources will be affected, then mitigation measures will be determined in consultation with the CPM.

Verification: The project owner shall provide the results of any additional cultural resource surveys and evaluations in the form of a technical report (with request for confidentiality if needed), along with any associated maps, to the CPM at least thirty

(30) before any project-related construction is to take place. All required mitigation will be completed prior to construction of the project-related activities.

C. GEOLOGY AND PALEONTOLOGY

This section addresses potential impacts from geological hazards, and on geological and paleontological resources. Paleontological resources include the fossilized remains or trace evidence of prehistoric plants or animals, which are preserved in soil or rock. These fossils are scientifically important because they help document the evolution of particular groups of organisms and the environment in which they lived.

The purpose of the geological and paleontological analysis is to verify that: applicable laws, ordinances, regulations, and standards (LORS) have been identified, and the project can be designed and constructed in accordance with all applicable LORS in a manner that protects environmental quality and assures public health and safety.

SUMMARY OF THE EVIDENCE

The LECEF site, located within the City of San Jose, is at the northern end of the Santa Clara Valley at the south end of the San Francisco Bay. The Santa Cruz Mountains to the west and the Coast Ranges to the east border the valley. The facility site is flat and is underlain by thick alluvial sediments. The site has historically been affected by regional seismicity. Liquefaction is also a potential hazard that may affect the site. (2005 Decision, p. 176.)

Liquefaction is a nearly complete loss of soil shear strength that can occur during a seismic event. During the seismic event, cyclic shear stresses cause the development of excessive pore water pressure between the soil grains, effectively reducing the internal strength of the soil. This phenomenon is generally limited to unconsolidated, clean to silty sand (up to 35 percent non-plastic fines) and very soft silts lying below the ground water table. The higher the ground acceleration caused by a seismic event, the more likely liquefaction is to occur. Severe liquefaction can result in catastrophic settlements of overlying structural improvements and lateral spreading of the liquefied layer when confined vertically but not horizontally. Soil

borings contained in the AFC indicate ground water is most likely present at depths between 7 and 10-1/2 feet below existing grade. The borings also indicate the site is underlain by sandy to silty clay soils to the depths explored (60 feet). Applicant has identified a potentially liquefiable sand layer at approximately 23 feet from the ground surface. Staff verified that this layer is likely susceptible to liquefaction; however, impacts to the surface and proposed structures is considered low due to the presence of over 20 feet of overlying, non-liquefiable clay soils. Based on the depth of this layer in relation to any free-face exposure in the area, the potential for lateral spreading is considered low. (2005 Decision, pp. 176-177.)

Surficial sedimentary units of predominately Pleistocene and Holocene age underlie the entire project area. These sediments include deposits that range from continental alluvial and fluvial fan-derived sediments, to subaerial flood plain (tule and cattail swamp) and near-shore bay deposits (mudflat, channel fill, tidal marsh, and estuary). Lithologies include sand, gravel, silt, and clay; all of which are potentially favorable to the preservation of paleontological resources. Two known paleontological sites exist within one-mile of the project area. Several other fossil assemblages have been collected from quaternary sediments bordering southern San Francisco Bay. These fossiliferous Quaternary sediments are the same age and are lithologically similar to those present at the LECEF site. (2005 Decision, p.177.)

There have not been any appreciable changes in the environment, final design, and current operations of Phase 1 as recertified earlier this year that require any significant adjustment to the existing Conditions of Certification. There have been, however, changes in LORS since our 2002 Decision that were reflected in our 2005 Decision.

The 2001 California Building Code (CBC) has been adopted and supersedes the 1998 CBC. The project was originally permitted under the 1998 CBC, whereas the 2001 CBC is now in effect; however, there are no significant changes to the 1998

CBC with respect to geologic hazards that will affect the Phase I facility. (2005 Decision, p.178.)

The site has recently (1998) been identified by the California Geological Survey (CGS, 2004) as being located in an area of possible liquefaction as defined by the Seismic Hazards Mapping Act. This delineation requires that a site-specific investigation be performed to determine whether a significant hazard exists and, if so, recommendations to mitigate its effect on a structure before a permit can be issued. Since a site-specific geotechnical investigation that includes a liquefaction analysis of the site was and is required by the 1998 and 2001 CBC, respectively, the CBC standards satisfy the requirements of the Seismic Hazards Mapping Act. (2005 Decision, p.178.)

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase in soil density). The decrease in volume can result in settlement of overlying structural improvements. Since the site is underlain by clay and silt soils, the potential for dynamic compaction is negligible. (Ex. 30, p. 5.2-4.)

Partially saturated soils can possess bonds that are a result of chemical precipitates that accumulate under semi-arid conditions. Such soluble compound bonds provide the soils with cohesion and rigidity; however, these bonds can be destroyed upon prolonged submergence. When destroyed, a substantial decrease in the material's void ratio is experienced even though the vertical pressure does not change. Materials that exhibit this decrease in void ratio and corresponding decrease in volume with the addition of water are defined as collapsible soils. Collapsible soils are typically limited to true loess, clayey loose sands, loose sands cemented by soluble salts, and windblown silts. Based on the nature and density of the existing native soils, hydrocompaction is not considered significant at the proposed LECEF site. (Ex. 30, p. 5.2-4.)

Ground subsidence is typically caused when ground water is drawn down by irrigation activities such that the effective unit weight of the soil mass is increased, which in turn increases the effective stress on underlying soils, resulting in consolidation/settlement of the underlying soils. Since ground water is generally present at a depth equivalent to sea level, and since LECEF Phase 2 will obtain water from the San Jose/Santa Clara Water Pollution Control Plant via a water pipeline to the site, significant draw down of the water table is not anticipated. As a result, the potential for ground subsidence is considered low. (Ex. 30, p. 5.2-4.)

Soil expansion occurs when clay-rich soils, with an affinity for water, exist in-place at a moisture content below their plastic limit. The addition of moisture from irrigation, capillary tension, water line breaks, etc. causes the clay soils to collect water molecules in their structure which, in turn, causes an increase in the overall volume of the soil. This increase in volume can correspond to movement of overlying structural improvements. The sandy to silty clay soils exhibit a low to moderate potential to expand with an increase in moisture content. As a result, mitigation of clay soils will be necessary and will include overexcavation of these soils below medium to light-weight structures, and possibly the use of deep foundations for heavy structures. (Ex. 30, p. 5.2-5.)

Landslides typically involve rotational slump failures within surficial soils/colluvium and/or weakened bedrock that are usually implemented by an increase of the material's moisture content above a layer which exhibits a relatively low strength. Debris-flows are shallow landslides that travel downslope very rapidly as muddy slurry. The site topography and geology as presented in the evidence indicates the potential for landslides and debris-flows at the site is low. (Ex. 30, p. 5.2-5.)

Tsunamis and seiches are earthquake-induced waves that inundate low-lying areas adjacent to large bodies of water. The proposed site is situated approximately 15 feet above mean sea level and approximately 6 miles inland from the San Francisco

Bay. For a locally derived tsunami to occur, significant vertical fault movement beneath the San Francisco Bay would be required. A fault of this type has not been documented beneath the San Francisco Bay. Because of the site's location at the southern end of San Francisco Bay, far from the bay's entrance to the Pacific Ocean, a tsunami generated by a distant earthquake has an insignificant potential to impact the project site. Therefore, the potential for tsunamis and seiches to affect the site is considered negligible. (Ex. 30, p. 5.2-5.)

There are no known geological or mineralogical resources located at or immediately adjacent to the proposed LECEF site. A paleontological resources field survey and sensitivity analysis was conducted by the applicant's consultant for the proposed Phase 2 project and the proposed linear facility improvements to support the project. No significant fossil fragments were identified. However, several paleontological localities are present near the site in the same geologic formation present at the site. As a result, the proposed Phase 2 project site may contain significant paleontological resources such that mitigation procedures will be necessary. (Ex. 1, p.8.8-2; Ex. 30, p. 5.2-5.)

Conditions of Certification found in the Facility Design section of this Decision address CBC requirements concerning engineering geology and site specific geological hazards. No geologic or mineralogic resources are known to exist in the area. Although no paleontological resources have been documented in the area, the (confidential) Paleontologic Resources Report assigns a sensitivity rating of high for geologic units that underlie the proposed facility. Since the proposed project will include significant amounts of grading and utility trenching, staff considers the probability that paleontologic resources will be encountered during mass grading of the LECEF site to be high based on SVP assessment criteria. Conditions of Certification PAL-1 to PAL-6 are designed to mitigate any paleontological resource impacts, as discussed above, to a less than significant level.

FINDINGS AND CONCLUSIONS

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

1. Paleontological resources may exist in the area of the project.

2. Construction and ground disturbance activities associated with the construction of the proposed project can potentially impose direct, indirect, and cumulative impacts to paleontological resources.

3. Mitigation measures required by the Conditions of Certification will assure that the activities associated with the proposed project will cause no direct, indirect, or cumulative adverse impacts to paleontological resources.

4. The proposed project will have no significant adverse impact on geological or paleontological resources.

5. Implementation of the Conditions of Certification will ensure that the project is constructed and operated in compliance with applicable laws, ordinances, regulations, and standards identified in the appropriate portion of **Appendix A** of this Decision.

We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological or paleontological resources.

CONDITIONS OF CERTIFICATION

PAL-1 Prior to ground disturbance, the project owner shall ensure that the designated paleontological resource specialist approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The designated paleontological resources specialist shall be responsible for implementing all the paleontological conditions of certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resource specialist.

The statement of qualifications for the designated paleontological resources specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management and at least three years of paleontological resource mitigation and field experience in California, including at least one year's experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

If the CPM determines that the qualifications of the proposed paleontological resource specialist do not satisfy the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

If the approved, designated paleontological resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least 10 days prior to the termination or release of the preceding designated paleontological resource specialist.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

The PRS shall obtain qualified paleontological resource monitors to monitor as necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

1) BS or BA degree in geology or paleontology and one year experience monitoring in California; or

2) AS or AA in geology, paleontology or biology and four years experience monitoring in California; or

3) Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: 1) At least sixty (60) days prior to the start of construction (or a lesser number of days mutually agreed to by the project owner and the CPM), the project owner shall submit the name, statement of qualifications, and the availability for its designated paleontological resource specialist, to the CPM for review and approval. The CPM shall approve or disapprove of the proposed paleontological resource specialist.

(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 for approval. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.

(3) At least ten (10) days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to site mobilization, the designated paleontological resource specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner's designated paleontological resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout project construction.

Protocol: The project owner shall develop a Paleontological Resources Monitoring and Mitigation Plan in accordance with the guidelines of the Society of Vertebrate Paleontologists (SVP, 1994) that shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence and procedures for~~of~~ project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;
- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;
- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;
- An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in

the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined.

- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
- A discussion of the inventory, preparation, and delivery of fossils for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and,
- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least forty-five (45) days prior to the start of construction, the project owner shall provide the CPM with a copy of the Paleontological Resources Monitoring and Mitigation Plan prepared by the designated paleontological resource specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the ground disturbance, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontological resource specialist shall prepare, and the owner shall conduct, CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter paleontological resources in the field, provide good quality photographs or physical examples of vertebrate fossils, explain the sensitivity and importance of these resources, the legal penalties and obligations to preserve and protect such resources and the ability of the PRS or PRM to halt construction.

The training shall also include the set of reporting procedures in a brochure that workers are to follow if paleontological resources are encountered during project activities.

The training program shall be presented by the designated paleontological resource specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern. Each worker shall sign a Certification of Completion WEAP form indicating that they have received the training. A sticker that shall be placed on hard hats indicating that environmental training has been completed shall be provided to each worker that has completed the training.

Verification: At least thirty (30) days prior to site mobilization, the project owner shall submit to the CPM for review and approval the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee-training program and set of procedures are not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as provided in the Certification of Completion WEAP form at the end of these conditions.

PAL-4 The PRS and PRM(s) shall 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 PRS shall notify and seek the concurrence of the CPM.

1. The PRS and PRM(s) shall 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:

2. Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter from the PRS and the project owner to the CPM prior to the change in monitoring. The letter shall include the justification for the change in monitoring and submitted to the CPM for review and approval.

3. PRM(s) shall keep 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.

4. The PRS shall immediately notify the project owner and the CPM 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.

5. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM immediately (no later than the following morning after the find, or Monday morning in the case of a weekend) of any halt of construction activities.

The PRS shall prepare 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 monitor(s) active during the month; general descriptions of training and 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 fossils identified in the field. 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 report shall include a justification in summary as to why monitoring was not conducted.

Verification: The PRS shall submit the summary of monitoring and paleontological activities in the Monthly Compliance Report.

PAL-5 The project owner, through the designated paleontological resource specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM. A signed contract or agreement with the PRS shall be provided to the CPM upon request. The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the

letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resource specialist. The Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

Protocol: The report filed under confidential cover shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resource specialist that project impacts to paleontological resources have been mitigated.

Verification: Within ninety (90) days following completion of the analysis of the recovered fossil materials, the project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document.

Certification of Completion of Worker
Environmental Awareness Program
LOS ESTEROS CRITICAL ENERGY FACILITY 2
(03-AFC-2)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on Cultural, Paleontology and Biological Resources for all personnel (i.e. construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand and shall abide by the guidelines set forth in the Program materials. Please include this completed form in the Monthly Compliance Report.

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Cul Trainer: _____ Signature:_____Date: ___/___/____
PaleoTrainer: _____Signature:_____Date: ___/___/____
Bio Trainer: _____ Signature:_____Date: ___/___/____

D. SOIL AND WATER RESOURCES

This portion of the Decision concentrates on the project's potential to induce or accelerate erosion and sedimentation, adversely affect surface and groundwater supplies, degrade surface and groundwater quality, and increase the potential for flooding. We have analyzed potential effects on soil and water resources by the LECEF Phase 2 expansion from a simple cycle powerplant to a combined cycle generating plant.

SUMMARY OF THE EVIDENCE

Since the LECEF simple-cycle facility (Phase 1) is built and operating, this Phase 2 analysis uses with our Phase 1 Decision as a basis (2005 Decision). Insofar as it is not inconsistent with this Decision, we incorporate that prior Decision herein. The Phase 2 analysis specifically focuses on the potential for the project to:

- accelerate wind or water erosion and sedimentation;
- exacerbate flood conditions in the vicinity of the project;
- adversely affect surface or groundwater supplies;
- degrade surface or groundwater quality; and
- comply with all applicable laws, ordinances, regulations and standards (LORS).

With the Conditions of Certification contained herein, there will not be any significant adverse impacts to soil and water resources as a result of the proposed LECEF Phase 2 Project.

LECEF, a simple-cycle power plant originally licensed by the Energy Commission on July 2, 2002 (01-AFC-12, 2002 Decision) and re-licensed on March 15, 2005 as Phase 1 of this Application (2005 Decision), uses recycled water supplied by the South Bay Water Recycling (SBWR) Program for the project's various water processes (emissions control, power augmentation, equipment and inlet air cooling and other miscellaneous plant processes). Potable water for drinking is trucked to the site and no municipal potable supply is used. LECEF's effluent collection system combines process wastewater streams and discharges this waste to the City of San

Jose (City) sewer system. A system of drains, swales and other drainage features collect surface runoff, which is then pumped to nearby Coyote Creek. (2005 Decision, p. 186.)

The existing LECEF power plant occupies 21 acres of a 34-acre site in the Alviso area of northern San Jose, situated northwest of the intersection of Highways 880 and 237 in Santa Clara County. As part of the Phase 2 expansion, the applicant will construct and operate a steam turbine generator, a six-cell cooling tower, and heat recovery steam generator (HRSG) tube sections and associated equipment and piping. Construction activities to install this equipment will affect between 20 and 40 percent of the existing site. The remaining 13 acres of the site will be used for equipment laydown and parking during the construction of Phase 2. (Ex. 1, p 8.15-1; Ex. 30, p. 4.9-4.)

Prior to conversion to industrial use, the site was primarily used for agriculture. Orchard trees occupied the site before 1980 when they were removed and replaced with green houses used to grow potted plants and flowers. As discussed in the prior proceedings, the LECEF site is characterized as prime agricultural land. Soil types affected by the construction and operation of the project are Mocho Loam (Mq), Mocho Clay Loam (Mi), and Mocho Loam over Campbell- and Cropley-like soil (Mo). These soils are formed from sandstone and shale rock from recent fluvial deposition. (Ex. 30, p. 4.9-4.) (See Soil and Water Table 1, below).

SOIL AND WATER Table 1

Soil Types & Characteristics

Primary Soil Name	Slope Class %	Depth Range	USDA Texture	Parent Material	Water Erosion Hazard	Permeability	Drainage	Revegetation Potential
Mocho Loam (Mq)	1 – 3	0 – 6 ft.	Loam	Alluvium from sedimentary rocks	Slight	Moderate	Well Drained	Good in low alkali soil
Mocho Clay Loam (Mi)	0 – 1	N/A	Clay Loam	Alluvium from sedimentary rocks	Slight	Moderate to Slow	Well Drained	Very Good to Good in low alkali soil
Mocho Loam Over Campbell & Cropley-like Soil (Mo)	1 – 3	N/A	Loam over Clay Loam	Alluvium from sedimentary rocks	Slight	Moderate to Slow	Well Drained	Very Good

(Source: Soil and Water Table 2, Ex. 30, p. 4.9-4)

A Phase I Environmental Site Assessment (Phase I ESA), and a partial Phase II ESA evaluating soil and groundwater contamination were prepared for the LECEF site. The Phase II ESA found that the native soil contains residual pesticide contaminants from past agricultural practices, as discussed in the **Waste Management** section of this Decision. (Ex. 30, p. 4.9-5.)

Construction of Phase 2 will require major excavation and trenching in the switchyard, along on-site roadways, in the southwest corner of the site and adjacent to the combustion turbines near the chiller system. Ground disturbance during construction and operation of LECEF Phase 2 can increase both wind and water-related erosion and off-site sedimentation potential for soil found at the site. As part of construction and operation, various process chemicals, petroleum products, and other materials will be required. These materials, if not handled or stored properly, could contaminate soil and water resources. Exposed contaminated soil can increase health risks to construction and operation staff as well as potentially contaminate stormwater runoff/drainage. (Ex. 30, p. 4.9-16.)

During Phase 1 activities, the applicant developed an Erosion and Sediment Control Plan (ESCP) as well as both a construction-related and operation-related SWPPP. For Phase 2 activities, the applicant proposes to make minor changes to the Phase 1 plans and implement many of the same Best Management Practices (BMPs). No

major modifications to the existing site drainage facilities are proposed. Staff's concerns about the adequacy of BMPs to protect surface drainage and stormwater runoff from on-site contaminants lead us to the conclusion that improvements are needed in the existing system. These drainage improvements are discussed below. Site-specific BMPs for erosion control will be required under Condition of Certification **SOIL & WATER-1**. Combined with the Storm Water Pollution Prevention Plan (SWPPP) for construction (Condition of Certification **SOIL & WATER-2**), these documents will demonstrate plans for proper handling and containment of chemicals, scheduling for placement and removal of BMPs in coordination with construction activities, and monitoring during construction, among other erosion prevention measures. (Ex. 30, p. 4.9-16.)

Conditions of Certification **SOIL & WATER 1, 2** and **3** will ensure that the LECEF Phase 2 develops and implements plans to avoid contamination of surface runoff, minimizes erosion and offsite sedimentation, meets drainage and surface runoff requirements specified by City of San Jose and SCVWD, and complies with the General NPDES program requirements. (Ex. 30, p. 4.9-17.)

The proposed LECEF site lies above the Santa Clara Valley Groundwater Basin that extends from the Coyote Narrows at Metcalf Road to the San Francisco Bay. This basin is divided into three hydrogeologic units: the forebay, the upper aquifer and the lower aquifer. The upper or shallow aquifer is characterized by poorer quality water, with high salinity. The lower aquifer is confined and of general good quality making it the principal groundwater source of drinking water for the Santa Clara Valley. Regionally, groundwater flows to the north and west towards San Francisco Bay. Groundwater flows below the site are towards Coyote Creek. (Ex. 1, p. 8.15-2; Ex. 30, p. 4.9-5.)

The evidence indicates that shallow groundwater occurs at depths of 6.5 to 19 feet below ground surface. The project site is underlain by stiff clays, loose clayey silt and clayey sand, to depths of 5 to 20 feet. Below these materials are interbedded

strata of very stiff silty clay and loose to dense silty sand and sandy gravel, to at least 30 feet. These sediments have relatively poor groundwater yield and quality, and are subject to saltwater intrusion. The shallow zone is separated from deeper aquifers by a blue clay aquitard, which extends to approximately 150 feet. Below this aquitard, groundwater is used as a supply throughout the Santa Clara Valley. The Santa Clara Valley groundwater resources are generally in overdraft, meaning that recharge does not keep up with demand. (Ex. 1, pp. 8.15-2 to 8.15-3; Ex. 30, p. 4.9-5.)

Groundwater is not used for either LECEF Phase 1 or 2. Surface drainage is directed to Coyote Creek rather than a retention pond and process effluent is directed to the WPCP. As part of the Phase 1 construction, the applicant was required to remove and close six wells located on the land purchased by the applicant for the LECEF development. They have all been removed and original Condition of Certification SOIL & WATER-5 is no longer needed. Measures to be implemented in the event that shallow groundwater is encountered during trenching and/or excavation (de-watering) for Phase 2 will be addressed in the plans developed for Conditions of Certification SOIL & WATER 1, 2 and 3. Implementing the ESCP and SWPPP for construction, LECEF Phase 2 will result in no adverse impact on groundwater resources. (Ex. 30, p. 4.9-17.)

Coyote Creek is the largest drainage basin in the Santa Clara Valley, collecting runoff from a 320 square mile watershed spanning portions of the Diablo Range, Santa Cruz Mountains and Santa Clara Valley. In its 80-mile length, Coyote Creek passes through two flood control reservoirs at the western base of the Diablo Range, and flows northwest through the City of San Jose, and discharges into San Francisco Bay. The stream channel has been modified for flood control purposes in limited reaches through the urbanized Santa Clara Valley. In 1997, a new overflow channel (Coyote Creek Flood Bypass) was built to divert floodwaters along the south side of Newby Island Landfill. Additionally, an enlarged and enhanced levee system

was constructed along lower portions of Coyote Creek to improve flood conveyance capacity . (Ex. 1, p. 8.15-5; Ex. 30, p. 4.9-5.)

Drainage at the LECEF site has been designed to prevent flooding of permanent facilities and roads, both on-site and off-site. LECEF surface runoff/drainage is currently discharged to the high flow channel of Coyote Creek and eventually will be discharged approximately 250 feet further from the plant when the outfall is moved to the low flow channel. The SCVWD has issued a permit for the completion of the outfall line to the main low-water channel of Coyote Creek. (Ex. 30, p. 4.9-17.)

Subsequent to recent modifications to flood control features by the SCVWD and U.S. Army Corps of Engineers, a Letter of map Revision by the Federal Emergency Management Agency documents the site is outside of the 100-year flood plain. Neither the construction of LECEF Phase 2 nor its storm water runoff will exacerbate flooding conditions in Coyote Creek. (Ex. 30, p. 4.9-17.)

The southern edge of San Francisco Bay is located to the north of the site. As a result of land subsidence in the area caused by overdrafting the groundwater resources, salt water from the Bay travels up shallow creeks and streams. Coyote Creek water quality varies depending on the amount of fresh water flows from upland areas and tidal conditions in the Bay. The creek's flow and water quality is also influenced by discharges from industrial, commercial and urban sources. (Ex. 1, pp. 8.15-3 to 8.15-5; Ex. 30, pp. 4.9-5 to 4.9-6.)

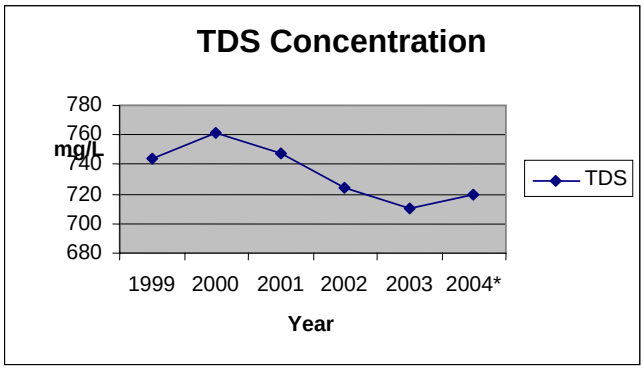
1. Water Use

Recycled water is and will be used for the vast majority of LECEF's water requirements and is delivered via an 18-inch, 1,500-foot pipeline from the San Jose/Santa Clara Water Pollution Control Plant (WPCP). Recycled water is disinfected, tertiary-treated waste water that has been treated to a level safe for release to the environment through a combination of biological, chemical, and

filtration treatment. Potable water for personal needs is currently and will continue to be trucked to the site by local suppliers (no municipal potable supply is used). (2005 Decision, p. 187; Ex. 30, p. 4.9-6.)

The WPCP treats wastewater to California Code of Regulations Title 22 standards for unrestricted use for the SBWR program (disinfected tertiary recycled water). Approximately ten percent (10 mgd) of the water treated by WPCP is used to supply the various customers of the SBWR program and the balance (90 mgd) is discharged to the Bay. Although the WPCP has a rated treatment capacity of 167 mgd, its existing NPDES permit requires the WPCP to maintain discharges into San Francisco Bay to not exceed 120 mgd. Through the implementation of an influent (waste water entering the treatment facility) reduction program, the City of San Jose has successfully reduced flows into the WPCP so as to reduce its effluent from 120 mgd during 1999 to 100 mgd during 2003. Data shows that the recycled water produced by the WPCP also improved in quality between 1999 and 2003 (see Soil and Water Table 2, below), as demonstrated by TDS annual average concentrations declining from 744 mg/L to 710 mg/L. During the first part of 2004, recycled water increased slightly in TDS concentration. (Ex. 30, p. 4.9-7.)

SOIL AND WATER Table 2
SBWR Program Recycled Water TDS Concentrations



Source: Ex. 30, p. 4.9-9, Soil and Water Figure 1.

Soil & Water Table 3, below, summarizes the proposed quantities of recycled water use and wastewater discharge to the WPCP associated with LECEF Phase 2. These

projections, developed by Staff in cooperation with Applicant and the City of San Jose Department of Environmental Services, Watershed Protection (the City), support revisions to the Recycled Water User Agreement between the City and applicant, as water demands will increase for LECEF Phase 2. The projections also account for several improvements that were identified under Phase 1 and are currently in-progress, for achieving higher in-plant recycled water use efficiency and reductions in wastewater discharge. (Ex. 30, p. 4.9-6.)

These improvements include:

1. Rerouting the microfilter backwash to the cooling tower for reuse rather than discharging as wastewater;

2. Working with the equipment vendor to assure achievement of the design ratings for the LECEF wastewater treatment equipment;

3. Installing additional instrumentation and valving to better monitor and control the LECEF wastewater system. (Ex. 30, p. 4.9-6.)

Rerouting of the microfilter backwash has been accomplished, and the two other tasks are in-progress and scheduled to be completed during 2005. These modifications, made for the operating Phase 1 facility will also assure greater efficiency for the proposed Phase 2 combined-cycle operations. (Ex. 30, p. 4.9-6.)

SOIL AND WATER Table 3
Proposed Recycled Water Usage and Wastewater Discharge
Gallons per Minute (gpm) and Gallons per Day (gpd)

	Average Day		Normal Peak Day	
Component Stream	**gpm**	**gpd**	**gpm**	**gpd**
Water Losses to Air and Land:				
Cooling Tower Evaporation	582	838,080	1028	1,480,320
Combustion Turbine Evaporation*	134	192,960	195	280,800
Landscape Irrigation	2	2,880	2	2,880
Total Evap. Loss & Irrigation**	**718**	**1,033,920**	**1225**	**1,764,000**
Wastewater Streams:				
Micro Filter Backwash***	Recycled	Recycled	Recycled	Recycled
Blowdown Cooling Tower	144	207,360	255	367,200
Oil/Water Separator Effluent	2	2,880	2	2,880
Reverse Osmosis Reject Water	47	67,680	69	99,360
Sanitary Wastewater	1	1,440	1	1,440
Total Wastewater Discharge	**194**	**279,360**	**327**	**470,880**
Subtotal – Recycled Water Use	**912**	**1,313,280**	**1552**	**2,234,880**
Water Supply:				
Recycled Makeup Water	912	1,313,280	1552	2,234,880
Potable Water	1	1,440	1	1,440
Total Water Supply	**913**	**1,314,720**	**1553**	**2,236,320**

Source: (Ex. 30, pp. 4.9-6 to 4.9-7.)

*Combustion Turbine evaporation includes inlet cooling, emission control and power augmentation.
**Evaporative Loss & Irrigation is water consumed by the project.
Under the Revised Permit, microfilter backwash is being recycled to the Cooling Tower, rather than being discharged as wastewater.
***Micro Filter Backwash is recycled to the cooling tower.

The Applicant has estimated a “worst-case” peak day recycled water demand of 2,946,131 million gallons per day (mgd), compared to a “normal” peak day demand of 2,236,320 mgd shown in the table above. The difference in assumptions is as follows:

1. Normal Peak Day – The normal peak day assumes 7 hours duct firing and 10 hours without duct firing at an average ambient temperature of 81 °F, and 7 hours without duct firing at an average temperature of 61 °F.

2. Worst-case Peak Day – The worst-case assumes 24 hours duct firing at an average ambient temperature of 81 °F.

The corresponding quantity of wastewater discharge would also increase in comparing the “normal peak day” to the “worst case peak day”, from 470,880 mgd to 614,656 mgd respectively. (Ex. 30, p. 4.9-7.)

The City of San Jose, as administrator for the South Bay Water Recycling Program, has established rules and regulations for the users of the program’s recycled water, including requirements for the design and operation of facilities using recycled water. The applicant obtained a User Agreement for Recycled Water for Phase 1 on December 16, 2002, providing a quantity of 300 acre-feet/year (Customer Number SJ-000-4271). The User Agreement must be revised to include the increases for the LECEF Phase 2 recycled water demands. (Ex. 30, p. 4.9-9.)

Soil and Water Table 4 provides water quality data from SBWR’s 2003 Report for their recycled water and is expressed in a range of minimum, average and maximum values for the year.

SOIL AND WATER Table 4
Recycled Water Quality for the SBWR Program
2003 Report Data

Water Quality Parameter	Minimum Level	Yearly Average	Maximum Level
Alkalinity (CaCO3) mg/L	170	194	213
Ammonia (Nitrogen) mg/L	<0.1	<0.3	0.8
Bicarbonate (HCO3) mg/L	170	194	213
Biological Oxygen Demand mg/L	2,0	3.4	6.0
Conductivity, µmhos/cm	1102	1205	1282
Hardness (CaCO3) mg/L	223	244	261
Nitrate (Nitrogen) mg/L	5.8	8.0	10.0
Nitrite (Nitrogen) mg/L	<0.05	<0.08	0.2
Settleable Solids mg/L/hr	<0.1	<0.1	<0.1
Total Coliform Count CFU/100ml	< 1	< 1	5
Total Dissolved Solids mg/L	**648**	**710**	**758**
Total Fats, Oils & Grease mg/L	< 5	< 5	< 5
Total Suspended Solids mg/L	<1.0	<2.0	3.6
Turbidity NTU	0.5	0.9	1.7
Arsenic mg/L	< 0.0005	0.0009	0.0014
Boron mg/L	0.479	0.578	0.651
Cadmium mg/L	< 0.0005	< 0.0005	< 0.0005
Calcium mg/L	50.5	53.6	58.7
Chloride mg/L	154.0	181.0	193.0
Total Chromium mg/L	< 0.0005	< 0.0007	0.001
Copper mg/L	0.0016	0.0028	0.0048
Iron mg/L	0.050	0.091	0.120
Lead mg/L	< 0.001	< 0.001	0.001
Magnesium mg/L	28.3	31.2	36.1
Mercury µg/L	< 0.002	< 0.002	0.002
Nickel mg/L	0.005	0.0058	0.008
Phosphate mg/L	0.600	2.370	5.500
Potassium mg/L	14.800	15.800	18.200
Silicon mg/L	10.900	12.400	13.600
Silver µg/L	< 0.2	< 0.2	< 0.2
Sodium mg/L	150.0	158.8	172.0
Sulfate mg/L	89.0	102.0	111.0
Zinc mg/L	0.031	0.054	0.120
Dissolved Oxygen mg/L	5.2	6.9	8.3
Ortho Phosphate mg/L	< 1.0	< 1.5	3.4

Source: Ex. 30, p. 4.9-10, adapted by Staff from the City of San Jose website: http://www.ci.san-jose.ca.us

The most sensitive water quality parameter is total dissolved solids (TDS). This affects the SBWR Program's ability to more broadly market its recycled water. The effect of the LECEF's operation on the Program's recycled water TDS concentration based on its wastewater discharge, is considered in detail below.

The City of San Jose regulates wastewater discharges to the San Jose/ Santa Clara Water Pollution Control Plant (WPCP) as conveyed via its sewer system (Municipal Code chapter 15.14, Ordinance No. 24800). Industrial wastewater dischargers such as LECEF must obtain an Industrial Wastewater Discharge Permit to comply with the City's requirements. For Phase 1, the applicant submitted an application for this permit in September 2002 and is currently operating under an amended Industrial Wastewater Discharge Permit (No. SJ-488A, October 2003). For Phase 2, the Industrial Wastewater Discharge Permit must be revised to reflect the higher quantities of wastewater discharge from LECEF and to consider any changes in the quality of wastewater. (Ex. 30, pp. 4.9-10 to 4.9-11.)

The projected quantities of wastewater discharge under normal operating conditions range from 279,360 gpd to 470,880 gpd for average and peak conditions, respectively. As before, the applicant has also estimated a "worst-case" peak day wastewater discharge of 614,656 gpd. Also as before, the difference in assumptions is as follows:

1. Normal Peak Day – The normal peak day assumes 7 hours duct firing and 10 hours without duct firing at an average ambient temperature of 81 °F, and 7 hours without duct firing at an average temperature of 61 °F.
2. Worst-case Peak Day – The worst-case assumes 24 hours duct firing at an average ambient temperature of 81 °F. (Ex. 30, p. 4.9-11.)

The process wastewater streams are attributable to cooling tower blowdown, effluent from the oil/water separator of the plant drain system, reject water from the reverse osmosis wastewater treatment process, and sanitary wastewater. During operation of Phase 1, another waste stream from the micro filter wastewater treatment process was, until recently, discharged as wastewater to the WPCP. The applicant has now re-plumbed the micro filter backwash to allow recycling for use in the cooling tower. This effectively reduces the quantity of wastewater discharge by about 10 percent, as well as the recycled water makeup demands by about 2 percent, and will be continued for the Phase 2 operations. (Ex. 30, p. 4.9-11.)

Phase 2 will increase the current 180 MW generating capacity of LECEF by 140 MW to 320 MW by adding HRSG tubing, associated equipment and piping, and a steam turbine. To cool the steam and additional equipment, the applicant proposes a new six-cell cooling tower using recycled water. The activities defined as part of the Phase 2 expansion of the LECEF generating capacity will predominately affect recycled water demand and wastewater discharge to the WPCP, increasing them by an approximate factor of three, as shown in Soil and Water Table 5, below. (Ex. 30, p. 4.9-16.)

SOIL AND WATER Table 5
Comparison of Recycled Water Demands for LECEF Phases 1 and 2

	Phase 1 (gpd)		**Phase 2 (gpd)**	
	average	**peak**	**average**	**peak**
Recycled Water Demand	450,414	836,091	1,313,292	2,946,131

Source: Ex. 30, p. 4.9-18, Soil and Water Table 8
The estimates are based on achieving 5 cycles of concentration in the cooling towers.

Construction and operation of Phase 2 will rely on recycled water to meet process demand. Use of recycled water for the Phase 2 expansion is consistent with statutory requirements and state policies, avoids the use of groundwater resources already affected by overdraft (fresh water resources) and will reduce WPCP flows to the Bay (approximately 60 percent of water used by LECEF will be consumed). These recycled water demands will not have any adverse effect on the total quantity of supply available from the City, and will, in fact, reduce the discharge of treated wastewater to San Francisco Bay. Current total customer demand for the City's recycled water product is approximately 10 million gallons per day (mgd), or 10 percent of the WPCP's average dry weather treated effluent flow of 100 mgd. Primary users of the recycled water currently are agricultural and irrigation customers. The LECEF Phase 2 peak recycled water demand of about three mgd will not have a detrimental effect on the quantity of water available to other existing or prospective customers under the SBWR program. To meet the increase in demand that is required to operate Phase 2, the WPCP can supply LECEF without additional infrastructure. The water supply pipeline from the WPCP to LECEF

constructed as part of Phase 1 was sized for both phases, and no additional pipelines are required. (Ex. 30, p. 4.9-18.)

Operation of LECEF Phase 2 will require a revision by the City Environmental Services Department, Watershed Protection, to the LECEF Industrial Wastewater Discharge Permit, as specified under Condition of Certification Soil & Water-8. The revised permit will need to consider both increases above Phase 1 in the average and peak day wastewater discharges, as well as any adverse effects that may be caused due to the quality of the Phase 2 wastewater. The applicant submitted an original will–serve request to the City in its letter dated November 25, 2003 proposing the WPCP receive LECEF Phase 2 average and peak day wastewater discharges of 323,788 gpd and 535,948 gpd respectively. After considering the effects of water efficiency measures being implemented under Phase 1, primarily attributable to the recycling of micro filter backwash to the cooling tower (which reduces the discharge by about 10 percent), the applicant has reduced its average day estimated quantity of wastewater from 323,788 gpd to 279,829 gpd. The applicant also updated its estimate of the peak day wastewater discharge quantity, and chose to increase it from 535,948 gpd to 614,656 gpd. The increase for peak day wastewater discharge considers the combined effects of recycling micro filter backwash (a reduction), in addition to assuming more extreme operating conditions (an increase), which results in an overall net increase in the peak day estimate. In its letter dated September 28, 2004, the applicant requested the City to accept LECEF Phase 2 wastewater discharge rates for average and peak days of 279,829 gpd and 614,656 gpd respectively. (Ex. 30, p. 4.9-19.)

In addition to the discharge rates, the Industrial Wastewater Discharge Permit also imposes limits for various constituents and, as part of the self-monitoring program, directs the project owner to perform periodic sampling for a subset of the regulated constituents in the discharge. The estimated quality of the wastewater discharge from LECEF has changed since the project was originally approved. Comparing the 2001 and 2003 AFC data, the average concentrations for silicon and total dissolved

solids (TDS, analogous to salinity) in the wastewater appeared about three and two times higher respectively than originally estimated in 2001, although the estimates of the source water quality have not changed (see SOIL and WATER Table 2, above. The project owner then provided an updated projection in 2004 as a revision to the 2003 AFC data, and now projects an average increase in silicon and TDS on the order of 3 times higher for Silicon and 1.5 times higher for TDS than original projections of 2001, as shown in Soil and Water Table 6, below. While neither of these projections violate specific wastewater quality discharge criteria according to the City's permit, Staff was concerned about LECEF's contribution to an incremental increase in TDS affecting the quality of the City's recycled water product and its acceptability for use by other customers overall. Staff's original analysis of the 2001 AFC found that LECEF's wastewater had the potential to adversely impact the quality of the recycled water produced for the SBWR program by increasing the concentration of TDS at the WPCP. Soil and Water

SOIL AND WATER Table 6
LECEF Effluent Discharge Concentrations

Constituent	Source Water	2001	2003	2004
Max Makeup Flow (gpm)		207	207	290
Silicon (mg/L)	11.7	31.5	107	93.5
TDS (mg/L)	869	2,232	4,328	3,394

Source: Ex. 30, p. 4.9-15, Soil and Water Table 7;
All silicon assumed to be in SiO_2 form.

Mitigation of these impacts could be addressed through a Salinity Control Program being developed by the City of San Jose, but that program is not yet completed and it may be ten years before a centralized salinity control system is in place according to City officials. (Ex. 30, p. 4.9-20.)

Avoiding impacts to the SBWR recycled water product becomes particularly important when considering the potential future uses of recycled water to meet San Jose regional water demand. To accommodate growth throughout the region, the City, through the Water Task Force, is reviewing options to augment water supplies and expand use of current resources. One alternative water supply option to

augment current supplies is the use of recycled water. For example, a new community is being planned in the Coyote Valley of San Jose near the Metcalf Energy Center. This community is projected to consist of employment opportunities of up to 50,000 jobs, 25,000 homes, and 80,000 residents. At present, estimates indicate that local fresh water sustainable yield is limited to approximately 7,000 AF/Y, matching current average consumption in the area. The new community is expected to need 16,000 - 20,000 AF/Y (this does not include Metcalf Energy Center's demand). To meet the water supply shortfall for this new development, recycled water would have to be treated beyond Title 22 standards to reduce TDS concentrations and other contaminants. Building a system capable of improving the quality of the recycled water (microfiltration, reverse osmosis, and ultraviolet treatment) is expensive. Degradation of the recycled water by other users will only increase costs to the City to achieve higher quality recycled water for expanded use. The City indicated effluent that will degrade the overall recycled water product is unacceptable. (Ex. 30, p. 4.9-20.)

The City analyzed the severity of the increased impacts on the recycled water product to be caused by Phase 2. Water officials there concluded that the effect of the LECEF wastewater discharge to the City's recycled water product results in increases in TDS as follows:

1. Normal peak day – An increase of about 1.5 percent, from about 719 mg/l to 730 mg/l;
2. Worst-case peak day - An increase of about 2.1 percent, from about 719 mg/l to 734 mg/l;

The City concluded that this incremental increase in TDS concentration is **not** a significant impact to its recycled water quality or marketability at this time. The City has also indicated it will revise the Industrial Wastewater Discharge Permit according to the applicant's proposed wastewater discharge rates for average and peak days. (Ex. 30, pp. 4.9-20 to 4.9-21.)

No evidence was found of any cumulative development projects, including the Metcalf Energy Center and the planned Coyote Valley community, that would diminish the supply of disinfected tertiary recycled water supply to LECEF. Conversely, development of the LECEF combined-cycle project will not have a negative impact on availability of disinfected tertiary recycled water for any existing or prospective customers of the SBWR Program. The proposed use of reclaimed water would be consistent with California Water Code requirements, State and Local Policies, including SWRCB Resolution 75-58 and CEC IEPR 2003, encouraging conservation of potable water supplies. (Ex. 30, p. 4.9-23.)

2. Stormwater Discharges

Characterized by relatively flat topography, the site elevation is 15 feet above mean sea level. The site has been graded to direct surface drainage at LECEF, predominately storm water, to perimeter ditches and underground culverts that convey the drainage to a sump located in the northeast corner of the site. Surface drainage is then discharged from the sump via a 1,000-foot pipeline into the high water channel of Coyote Creek east of the site. The pipeline crosses under existing flood control structures consisting of a levy/access road, the Coyote Creek Bypass (Overflow) Channel, and through the raised stream bank of Coyote Creek. The stream bank has been armored with rip-rap for erosion control. The project owner is currently working with the Santa Clara Valley Water District and federal agencies to move the discharge point approximately 250 feet from the high water channel to the main (low water) channel of the creek. Santa Clara Valley Water District (SCVWD) requires a Storm Water Outfall Construction Permit in accordance with District Ordinance No. 83-2 for the storm water outlet and discharge of flows into Coyote Creek, a designated floodway under SCVWD's jurisdiction. The permit to complete the 250 foot extension of the outfall into the low water (main) channel of Coyote Creek was granted on April 11, 2005. (Ex. 1, p. 8.15-1, -8; Ex. 30, pp. 4.9-11 to 4.9-12.)

LECEF originally incorporated a temporary storm water outfall to the high flow channel of Coyote Creek. The Energy Commission's July 2002 Decision included conditions that addressed the compliance of LECEF's temporary and permanent outfall with federal and state requirements. In 2002, the applicant obtained permits from the Santa Clara Valley Water District and others for the temporary stormwater outfall in the high flow channel of Coyote Creek. (2005 Decision, p. 194; Ex. 30, p. 4.9-21.).)

As noted in our earlier Decision, the outfall is to be relocated from the high flow channel to the left bank of the low flow channel in Coyote Creek. As a result, these permits and agreements will either need to be modified or re-issued. The project owner has already obtained most of the permits for the permanent outfall. The SCVWD issued the permit to construct the final reach of the outfall on April 11, 2005 in compliance with the original Condition of Certification Soil & Water-4 and that Condition is no loner needed. In addition, the applicant will need to request an extension of time from CDFG for the Section 1601 Permit, which expired December 31, 2004. The 1601 Permit extension is a common request of applicants and will very likely be approved. Once all permits are finalized, but prior to the start of construction for the permanent low flow channel outfall, the project owner must submit the recently acquired SCVWD Permit for Stormwater Outfall Construction to the Energy Commission Compliance Project Manager (CPM). (See Condition of Certification Soil & Water-4.) (Ex. 30, p. 4.9-21.)

The criteria SCVWD established during the original proceeding for accepting the runoff volume from the U.S. Dataport (USD) development including LECEF (both Phases 1 and 2), was to demonstrate that the USD discharge rate into Coyote Creek would not exceed the rate of natural drainage as attributable to the USD area before development. The USD area naturally drains in two directions, a portion to the northeast into Coyote Creek, and a portion towards the northwest along Zanker Road. Of the USD area of 174 acres total, about 58 acres drains naturally into Coyote Creek and the balance along Zanker Road. SCVWD has specified that the

rate of storm water discharge from USD into Coyote Creek is not to exceed the rate calculated under a 10-year 24-hour design storm. The applicant has estimated that for 58 acres under this criterion, the discharge rate would be 64 cubic feet per second (cfs). Under LECEF Phase 1, which occupies a 34-acre site, the applicant limited its discharge of storm water to a maximum of 33 cfs. For LECEF Phase 2, which will occupy the same site area, the applicant proposes to not exceed the existing discharge capacity of 33 cfs. (Ex. 30, pp. 4.9-21 to 4.9-22.)

For Phase 2, the incremental change in area producing storm water runoff will affect an area of approximately 32,000 square feet (about three-fourths of an acre), currently surfaced with gravel as part of Phase 1. Although Phase 2 will result in less than a 1-acre portion of the project site increasing in impervious surfacing for equipment foundations and paving, the expected increase in runoff is being more than offset by retention of precipitation within the cooling tower and transformer secondary containment. The precipitation occurring over the cooling tower will be effectively recycled for use in the cooling tower, and will not leave the site. The precipitation occurring over the transformer containment will be directed to the process drains and will become a wastewater stream to the WPCP, eliminating this runoff from the site. Therefore as a whole, the storm water runoff for the 34-acre LECEF site will slightly decrease as a result of the Phase 2 development and will not exceed the existing maximum rate of discharge of 33 cfs. (Ex. 30, p. 4.9-22.)

The LECEF storm water system is designed and will operate to prevent conveyance or discharge of any contaminants such as debris, oil or other petroleum products to Coyote Creek. Staff's earlier site visit in March 2004 revealed that flows from the vast majority of the site are directed to perimeter ditches and catch basins. These areas include "contact" areas where pollutants can usually be found such as in parking areas, roads and uncovered equipment storage areas. Only flows from a small portion of the site, those areas where the turbines are housed, are directed to the oil-water separator. The inspection also revealed an "oily scum" on the surface of the water in the catch basin and swales were lined with filter fabric that contained

heavy deposits of silt and sediments, but little vegetation. Since then, the perimeter ditches have established grass and will serve to better skim the limited oils that collect and drain from the paved and gravel-surfaced non-contact areas of the facility. (Ex. 30, p. 4.9-22.)

Staff recommended the catch basins be cleaned, and periodic inspections and sampling be done to ensure contaminants from the drainage areas are removed prior to the discharge of the drainage to the sump/lift station that lifts the drainage to Coyote Creek. If the grass-lined ditches are not successful in removing traces of oils during stormwater runoff events, staff also recommends that modifications to the site drainage occur so that flows from contact areas are also directed to an oil-water separator. The Storm Water Pollution Prevention Plan (SWPPP) for Industrial Activity must be updated to address additional BMP's or structural changes (e.g. rerouting the surface flows to an oil-water separator if needed) that eliminate the contamination of drainage discharged to the Creek (see Condition of Certification SOIL & WATER-3). Compliance with Conditions of Certification SOIL & WATER 1 through 4, will ensure that applicant’s plans for managing storm water will be accomplished in compliance with LORS, including SCVWD’s criterion for discharge into Coyote Creek, and with respect to preventing contaminants from being discharged via storm water from the LECEF into Coyote Creek. (Ex. 30, pp. 4.9-22 to 4.9-23.)

3. Changes and Modifications to Conditions

Based on currently available information, staff recommended, and we adopt changes to the original conditions for construction and operation of Phase 2. Some of the original conditions address the construction of LECEF and have been satisfied. Others need to be modified if the project is recertified to reflect changes since the prior decisions. Condition numbers 4 and 5 have been eliminated to ensure numbering consistent with our prior Decisions.

FINDINGS AND CONCLUSIONS

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

1. LECEF 2 will require a recycled water supply of approximately 1,313,000 gpd under average conditions and 2,235,000 gpd under normal peak demand conditions.

2. LECEF 2 will use San Jose/Santa Clara Water Pollution Control Plant (WPCP) treated reclaimed water for fire, process and cooling water in the operation of the power plant.

3. The WPCP has sufficient recycled water to meet project needs.

4. Recycled water from the WPCP meets California Code of Regulations Title 22 standards for unrestricted use.

5. LECEF 2's wastewater discharge will be returned to the WPCP and will not be a significant impact to its recycled water quality or marketability.

6. Potable water for domestic purposes will be trucked to the site and no municipal potable water supply will be used.

7. Development of site-specific Best Management Practices for erosion control will be required by the Conditions of Certification

8. Applicant will provide an updated Storm Water Pollution Prevention Plan (SWPPP) for Industrial Activity to the CPM.

9. The Conditions of Certification below will ensure that soil and water erosion does not create significant adverse environmental impacts.

10. Implementation of the Conditions of Certification below will assure that the proposed project will comply with all applicable LORS pertaining to Soil and Water Resources as set forth in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the proposed project will not create any significant direct, indirect, or cumulative adverse impacts to soil and water resources.

CONDITIONS OF CERTIFICATION

SOIL & WATER-1: Prior to beginning any site mobilization activities, the project owner shall obtain staff approval of a final Construction Erosion and Sediment Control Plan (ESCP). The Construction ESCP shall include and be consistent with the standards normally required in the City of San Jose's Grading and Excavation Permit, for all project elements. The final plan shall be submitted for Compliance Project Manager's (CPM's) approval, and for review and comment by the City of San Jose, and shall include provisions for containing and treating any contaminated soil or groundwater. The final plan will also include changes as appropriate, incorporating the final design of the project.

Verification: The Phase 2 ESCP shall be submitted to the CPM for review and approval and to the City of San Jose for review and comments at least 60 days prior to start of any site mobilization activities. The CPM must approve the final ESCP prior to the initiation of any site mobilization activities.

SOIL & WATER-2: 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 CPM approval of the related Storm Water Pollution Prevention Plan (SWPPP) for Construction Activity associated with Phase 2. The SWPPP will include final construction drainage design and specify Best Management Practices (BMPs) for all on and off-site LECEF project facilities. This includes final site drainage plans and locations of BMPs.

Verification: At least 60 days prior to the start of any site mobilization activities, the Phase 2 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 final SWPPP plan by the CPM must be received prior to initiation of any site mobilization activities.

SOIL & WATER-3: The project owner shall submit the following to the CPM as appropriate in association with obtaining approval for construction and operation of a storm water outfall into Coyote Creek:

1. If through the permitting process, Nationwide Permits 7 and 33 are not required under **SOIL & WATER-10** for construction of the storm water outfall in Coyote Creek, then the project owner shall submit an Application for 401 Water Quality Certification and/or Waiver of Waste Discharge Requirements to the San Francisco Bay Regional Water Quality Control Board (RWQCB) to obtain a Conditional Waiver of Waste Discharge Requirements;
2. Based on a design that will only discharge storm water from non-process areas for operation of the storm water outfall into Coyote

Creek, the project owner shall submit a Notice of Intent and acceptance from the State Water Resources Control Board (SWRCB) for operating under the General NPDES Permit for Discharge of Storm Water Associated with Industrial Activity.

3. For operation of the storm water outfall into Coyote Creek, the project owner shall obtain CPM approval of the related Storm Water Pollution Prevention Plan (SWPPP) for Industrial Activity. The SWPPP will include final operating drainage design and specify BMPs and monitoring requirements for the entire LECEF project facilities including Phase 2. This includes final site drainage plans and locations of BMPs.

Verification: The project owner shall submit the following to the CPM, as appropriate, in association with obtaining approval for construction and operation of a stormwater outfall into Coyote Creek:

1) At least 30 days prior to construction of the storm water outfall in Coyote Creek, and if through the permitting process a Conditional Waiver of Waste Discharge Requirements is required, a Conditional Waiver of Waste Discharge Requirements shall be submitted to the CPM. (Please note that if the RWQCB determines a Conditional Waiver of Waste Discharge Requirements is necessary, the Application for 401 Water Quality Certification and/or Waiver of Waste Discharge Requirements must be filed at least 120 days prior to expected approval by the RWQCB.)

2) At least 30 days prior to the start of project operation, evidence of acceptance by the SWRCB of the Notice of Intent for operating under the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity shall be submitted to the CPM.

3) At least 30 days prior to construction of the permanent outfall into Coyote Creek, the project owner shall submit to the CPM for approval a revised SWPPP for Industrial Activity for the entire LECEF project including Phase 2. Approval of the revised plan by the CPM must be obtained prior to permanent outfall construction. Installation or modification of BMPs as needed to ensure no contaminants are discharged to Coyote Creek, must be completed prior to permanent outfall operation.

SOIL & WATER 4: Deleted.

SOIL & WATER 5: Deleted.

SOIL & WATER-6: The project owner will install metering devices and/or utilize meters installed by the City of San Jose in order to record on a monthly basis the amount of recycled water used by the project. The project owner shall prepare an annual summary, which will include the 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 use summary to the CPM on an annual basis 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 to the CPM at least 60 days prior to the effective date of the proposed change.

SOIL & WATER-7: The project owner shall provide the CPM with all information/data necessary to satisfy the requirements of the User Agreement for Recycled Water under the South Bay Water Recycling (SBWR) Program including any additional documentation associated with recent or planned modification affecting recycled water use rates.

Verification: At least 60 days prior to initial operation, the project owner shall submit all documents needed to support the increased recycled water supply quantities for Phase 2 that are submitted to the City of San Jose, and a copy of the User Agreement with the City of San Jose to the CPM.

SOIL & WATER-8: The project owner shall provide the CPM with all information/data necessary to satisfy the requirements of the Industrial Wastewater Discharge Permit for its proposed disposal of industrial and sanitary waste into the San Jose/Santa Clara WPCP.

Verification: At least 60 days prior to operation the project owner shall submit copies of_all elements submitted to the City of San Jose for the Industrial Wastewater Discharge Permit, and a copy of the permit to the CPM when issued.

SOIL & WATER-9: The project owner shall provide the CPM with evidence of submitting an accepted Engineer's Report for Title 22 Reclamation Requirements to the CA Department of Health Services, as applicable for obtaining unrestricted use of recycled water.

Verification: At least 30 days prior to project operation, the project owner shall submit to the CPM evidence of submitting an Engineer's Report for Title 22 Reclamation Requirements to the CA Department of Health Services.

SOIL & WATER-10: The project owner shall provide the CPM with evidence of pre-construction notification and consultation with the Army Corps of Engineers regarding compliance with Nationwide Permit #'s 7 and 33, consistent with Section 404 of the Clean Water Act, if necessary, for placement of the storm water outfall and/or temporary construction, access and dewatering in Coyote Creek. In association with obtaining authorization for use of Nationwide Permit #'s 7 and 33, the Project owner may be directed to obtain Section 401 Water Quality Certification from the SWRCB.

Verification: At least 30 days prior to construction of the storm water outfall, the project owner shall submit to the CPM evidence of consultation with the Army Corps

of Engineers (ACOE) and authorization from the ACOE regarding Nationwide Permits #'s 7 and 33 as needed to comply with Section 404 of the Clean Water Act. If Nationwide Permits #'s 7 and 33 are required, at least 30 days prior to construction of the storm water outfall, the project owner shall submit evidence to the CPM regarding Section 401 Water Quality Certification from the SWRCB.

E. WASTE MANAGEMENT

This portion of the Decision assesses whether project-related wastes will result in any adverse environmental impacts. During construction and operation, the LECEF will generate hazardous and nonhazardous wastes. These waste products will be recycled or deposited at appropriate landfills. As a hazardous waste generator, the project owner must obtain an EPA identification number and use only permitted treatment, storage, and disposal facilities. Only registered hazardous waste transporters are permitted to handle the transfer of hazardous waste to disposal facilities. Nonhazardous wastes may be transferred to available local landfill facilities.

SUMMARY OF THE EVIDENCE

This analysis incorporates the findings and conclusions and Conditions of Certification adopted in the two previous LECEF Decisions. The additional evidence on waste management submitted in this proceeding is discussed below.

Previous environmental investigations at the LECEF site identified elevated levels of residual pesticides and metals in the soils. Prior to certification of the simple cycle LECEF, Applicant's consultants conducted Phase I and Phase II Environmental Site Assessments (ESAs) to evaluate contaminants at the site. Chemicals detected at the site included total DDT, arsenic, lead, toxaphene, dieldrin and endrin, consistent with the site's past agricultural use. (Ex. 1, Appendix 8.14-B and C.) The ESAs were followed by a limited site remediation, which consisted of (1) the removal and disposal of at least three fuel underground storage tanks, (2) the disposal of lead contaminated debris, (3) the disposal of asbestos wastes, (4) disposal of a limited amount of toxaphene and DDT contaminated soil excavated from two pesticide mixing/storage areas, and (5) the abandonment of several onsite water supply and groundwater monitoring wells. Excluding those soils removed from the pesticide mixing/storage areas, the remaining solids at the site were left in place, though they

were known to be contaminated with elevated levels of pesticides and metals. At the time, the soil contamination levels were below the industrial Preliminary Remediation Goals (PRGs) established by U.S. EPA Region IX. (Ex. 30, pp. 4.13.-3 and 4.13-4.)

Applicant has acknowledged that the underlying soils at the site still contain residual contamination, including elevated levels of total DDT, dieldrin, endrin, lead, and arsenic. (Ex. 1, § 8.14.1.4.) Although Applicant maintains that the levels of total DDT and arsenic remain below the California Total Threshold Limit Concentration (TTLC), Staff's updated analysis indicates that the concentrations of total DDT and arsenic levels in the soils are likely to exceed *current* PRGs established by U.S. EPA Region IX. (Ex. 1, p. 8.14-6; Ex. 30, p. 4.13-4.)

The potential for exposure to contaminated soils is presently mitigated since much of the site is covered by buildings and paved or gravel surfaces. However, uncovered areas are potential sources of adverse health effects to workers and site visitors. Construction activities such as excavation, trenching, removal, grading, filling or earth movement will inevitably disturb the contaminated soils and increase potential exposure. (Ex. 30, pp. 4.13-4 and 4.13-5.)

To protect workers and site visitors from exposure to contaminated soils, Staff proposed Conditions of Certification **WASTE-6** and **WASTE-7**, which would require the project owner to prepare a Soils Management Plan (SMP) and to clean-up the residual contamination as necessary. We adopted these Conditions in our 2005 LECEF Decision on recertification and we re-adopt them for Phase 2 since construction activities can exacerbate potential exposure through incidental ingestion, dermal contact, and inhalation of resuspended particulates from soils in both the covered and exposed areas of the site. (Ex. 30, pp. 4.13.4 and 4.13-5.) Conditions **WASTE-6** and **WASTE-7** replace former Conditions **WASTE-3** and **WASTE-4**.

Site preparation, along with construction of the proposed conversion to combined cycle will generate a variety of nonhazardous and hazardous wastes.

Nonhazardous waste streams from construction will include about 10 tons of paper, wood, glass, and plastics, as well as 10 tons each of concrete and metals. These waste products will be recycled where practical, with the remainder discharged to appropriate Materials Recovery Facilities (MRFs) or Class III landfills. (Ex. 30 p. 4.13-5.)

Hazardous wastes generated during construction include small amounts of lubricating oil, cleaning solvents, paints, batteries, oily rags and absorbent materials, and welding materials. Applicant identified the primary hazardous wastes as pipe flushing and cleaning fluids, passivating fluids, and solvents. (Ex. 1, p. 8.14-6.) The construction contractor will be responsible for recycling or disposing of these hazardous wastes at licensed hazardous waste disposal facilities. (Ex. 30, p. 4.13-5.)

Following the Phase 2 conversion, combined cycle operations will not produce significantly more nonhazardous waste than current simple cycle operations. About 5 cubic yards per year of additional waste will be generated from maintenance of the new HRSGs, steam turbine, cooling tower, and other associated components, including rags, metal and machine parts, and electrical materials. Recycling or disposal will be employed systematically with separate onsite collection centers accumulating specific types of wastes. (Ex. 1, § 8.14.3.2.) About 25 cubic yards per year of trash, office wastes, empty containers, broken or used parts, used packing material, and used filters will be recycled through brokers, when possible. Nonrecyclable solid wastes will be transported to Class III landfills. (Ex. 30, p. 4.13-6.)

Nonhazardous wastewater includes additional process waste water from Phase 2, including steam cycle blowdown, cooling tower blowdown, and plant drainage.

Phase 2 process wastewater streams will be similar in nature to Phase 1 and will be managed in the same manner as Phase 1. Equipment wash water and storm water associated with Phase 2 will also be handled in the same manner as for Phase 1. Steam cycle blowdown will be sent to the cooling tower as makeup water. While most of the water used to operate the facility will be lost through evaporation from the cooling towers, the remaining effluent from the cooling towers will be returned to the WPCP. (Ex. 1, §§ 8.14.3.2, 8.14.5.2.)

Applicant provided information on hazardous wastes expected to be generated during facility operation, along with the origin, composition, estimated quantity, classification, and disposal method of each. (Ex. 1, Tables 8.14-1 and 8.14-2.) These wastes include spent air pollution control catalysts, used oil and solvents, cooling tower sludge, laboratory analysis waste, and chemical feed area drainage. Other typical operational hazardous wastes will include paints, thinners, solvents and batteries. (Ex. 30, p. 4.13-6.)

Some of the hazardous wastes will be recycled, such as used oil, solvents, batteries, and the spent SCR catalyst. Other wastes will be treated onsite (neutralized), and still others will require off-site disposal. The project owner will follow the hierarchical approach to hazardous waste management beginning with reduction, then recycling, treatment, and disposal when necessary. (Ex. 30, p. 4.13-6.)

All project-related hazardous wastes will be managed in accordance with federal, state, and local laws regarding licensing, personnel training, waste storage times, and reporting and recordkeeping. Hazardous wastes will be properly characterized, segregated in bermed storage areas, and accumulated no longer than 90 days. If not recycled, these wastes will be transported offsite by licensed hazardous waste haulers to approved treatment, storage, or disposal (TSD) facilities. To ensure the use of appropriate hazardous waste disposal facilities, Condition of Certification **WASTE-1** requires the project owner to continue notification of any known enforcement actions against hazardous waste facilities or companies used for

project wastes. Condition **WASTE-5** requires the project owner to continue using its unique hazardous waste generator number for identification and tracking purposes. Any LECEF Phase 2 construction contractor shall also be required to obtain such a number.

Any non-compliance or violation of such requirements can potentially affect public health and/or the environment. We have re-adopted Conditions **WASTE-1** and **WASTE-5** to ensure continued compliance, notification, and reporting. (Ex. 30, p. 4.13-6.) We have also re-adopted Condition **WASTE-2**, which requires the project owner to prepare and implement an updated Waste Management Plan for construction and operation of LECEF Phase 2.

Since San Jose has a "free market" system for the collection of solid waste, LECEF will select from several franchised companies in the area to determine who will collect the waste and where it will be disposed. The local Class III landfills listed in Applicant's Table 8.14-3 have remaining capacities ranging from 6 to 40 years. (Ex. 1, § 8.14.4.1, Table 8.14-3; Ex. 30 p. 4.13-5.)

According to Staff, the estimated volume of nonhazardous waste generated during project construction and operation is a fraction of available landfill disposal capacities and will not significantly affect the daily operation or remaining lifetimes of existing Class III landfills. (Ex. 30, p. 4.13-7.)

Three Class I landfills in California, at Kettleman Hills in Kings County, Buttonwillow in Kern County, and Westmoreland in Imperial County, are permitted to accept hazardous waste. There is more than twenty million cubic yards of remaining disposal capacity at these landfills, with remaining operating lifetimes of over 40 years. The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators and waste transported out of state. (Ex. 30, p. 4.13-7.)

Much of the hazardous waste generated during construction and operation will be recycled, such as used oil and spent catalysts. Staff determined that even without recycling, the amount of project-related hazardous waste would be a small fraction of existing landfill capacity and would not significantly impact the capacities or remaining lives of any of the Class I landfills. (Ex. 30, p. 4.13-7.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we make the following findings and conclusions:

1. LECEF Phase 2 will generate hazardous and nonhazardous wastes during construction and operation.

2. Excavation activities may expose construction workers and onsite visitors to hazardous metals or organics in the soil.

3. The project owner will prepare and implement a Soils Management Plan to address environmental and health and safety contingencies during construction activities.

4. The project owner is responsible for appropriate mediation of the residual contamination should the site be used for non-power plant purposes.

5. Under the LECEF's Waste Management Plan, the project will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable LORS.

6. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to one of the three California Class I landfills.

7. Nonhazardous wastes that cannot be recycled will be disposed at nearby Class III landfills.

8. LECEF Phase 1 and Phase 2 combined will not create quantities of hazardous or nonhazardous construction or operational wastes sufficient to create a significant adverse impact upon available Class I or Class III landfills.

9. Due to the availability of hazardous and nonhazardous waste disposal facilities, and the relatively inconsequential amount of waste generated by the project, potential impacts to existing facilities will be insignificant.

10. With implementation of the Conditions of Certification listed below, the project will conform with all applicable LORS relating to waste management as identified in the pertinent portions of APPENDIX A of this Decision.

We therefore conclude that the disposal of hazardous and/or non-hazardous wastes generated by construction and operation of the project will not create any significant adverse direct, indirect, or cumulative impacts.

CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-2 Prior to the start of construction and operation, the project owner shall prepare and submit to the CEC CPM, for review and comment, an *updated* waste management plan for all wastes generated during pre-construction, construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, employee protection, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions within 20 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-3 Deleted.

WASTE-4 Deleted.

WASTE-5 Both the project owner and its construction contractor shall obtain unique hazardous waste generator identification numbers from the Department of Toxic Substances Control prior to generating any hazardous waste.

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-6 The project owner shall prepare and submit to the CEC CPM a Soils Management Plan (SMP) prior to any earthwork. The SMP must be prepared by a California Registered Geologist, a California Certified Engineering Geologist, or a California Registered Civil Engineer with sufficient experience in hazardous waste management. The SMP shall be updated as needed to reflect changes in laws, regulations or site conditions. A SMP summary report, which includes all analytical data and other findings, must be submitted once the earthwork has been completed. Topics covered by the SMP shall include, but not be limited to:

- Land use history, including description and locations of known contamination.
- The nature and extent of previous investigations and remediation at the site.
- The nature and extent of unremediated areas at LECEF.
- A listing and description of institutional controls, such as the City's excavation ordinance and other local, state, and federal regulations and laws that will apply to LECEF.
- Names and positions of individuals involved with soils management and their specific role.
- An earthwork schedule.
- A description of protocols for the investigation and evaluation of historically related chemicals such as DDT and previously unidentified contamination that may be potentially encountered, including any temporary and permanent controls that may be required to reduce exposure to onsite workers, visitors and the public.
- Requirements for site-specific Health and Safety Plans (HSPs) to be prepared by all contractors at LECEF. The HSP should be prepared by a Certified Industrial Hygienist and would protect onsite workers by including

engineering controls, monitoring, and security to prevent unauthorized entry and to reduce construction related hazards. The HSP should address the possibility of encountering subsurface hazards including hazardous waste contamination and include procedures to protect workers and the public.

- Hazardous waste determination and disposal procedures for known and previously unidentified contamination.

- Requirements for site specific techniques at the site to minimize dust, manage stockpiles, run-on and run-off controls, waste disposal procedures, etc.

- Copies of relevant permits or closures from regulatory agencies

Verification: At least 45 days prior to any earthwork, the project owner shall submit the SMP to the CPM for review and approval. The SMP shall also be submitted to the Berkeley office of the California Department of Toxic Substances Control (DTSC or its successor) for review and comment. All earthworks at the site shall be based on the SMP. A SMP summary shall be submitted to CPM and DTSC within 25 days of completion of any earthwork.

WASTE-7 The project owner shall not change ownership of, rent, or lease the entire project site or a portion for non-power plant use, without first notifying the CPM and DTSC (or its successor) and performing any remediation necessary to bring that particular portion of the site or the entire site itself (as applicable) into conformance with then current site cleanup standards appropriate to the intended use of that portion or the entire site.

Verification: At least 90 days prior to the change of ownership, rental or lease of the project site or a portion for non-power plant use, the project owner shall submit such notification to the CPM and DTSC and a statement that documents that the particular portion or the entire site will meet then current cleanup standards appropriate to its intended use or a remediation plan, if required to bring that portion or the entire site into conformance with the intended use.

VII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant project effect, 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 there are no unmitigated environmental impacts nor any areas of potential local concern.

A. LAND USE

The normal discussion of land use impacts for any powerplant 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.

SUMMARY AND DISCUSSION OF THE EVIDENCE

In Phase 1, Applicant requested that the Energy Commission recertify the license originally granted July 2, 2002 for the LECEF. To reach a Decision in Phase 1, we considered the information presented for Phase 1 contained in the current AFC (03-AFC-2). In addition to the current AFC (Exhibit 1), we reviewed the Commission Decision for the original LECEF (01-AFC-12) dated July 2002 (2002 Decision) and the Staff Assessment for Phase 1. We concluded that there are no changes in laws, ordinances, regulations and standards (LORS) affecting the project, and no changes to the environment inconsistent with the Energy Commission Decision of July 2002. That conclusion was based on the fact that there were no changes proposed for the Phase 1 simple-cycle LECEF. For Phase 1, the City of San Jose did not require any further zoning action or changes regarding land use permits relating to continuing the license for the

simple-cycle LECEF facility. (2005 Decision, pp, 209-211.) Insofar as it is not inconsistent with the findings and conclusions contained herein, we incorporate our 2005 Decision.

The land use analysis for Phase 2 focuses on the project's compatibility with existing and planned land uses (including recreational and agricultural uses), and its consistency with applicable land use plans, ordinances and policies. The major activity for the Phase 2 project is converting the existing simple-cycle Los Esteros power plant to a combined-cycle facility. (Ex. 30, p. 4.5-1) The critical difference in the analysis for Phase 2 is the need for the zoning to be updated to accommodate the additional power to be generated by the combined cycle facility. (Ex. 30, p.4.5-6.)

The LECEF Phase 2 site is located in northern San Jose within Santa Clara County, California, at 800 Thomas Foon Chew Way. The site is:

- north of State Road 237,
- east of Zanker Road and the San Jose/Santa Clara Water Pollution Control Plant (WPCP),
- west of Coyote Creek and the adjacent flood control channel, and
- south of the WPCP's sludge drying pools. (Ex. 30, p. 4.5-1.)

The proposed Phase 2 project would be located within the boundaries of the original LECEF project property, a 34-acre parcel which includes a vacant 13-acre site adjacent to the south sound wall of the existing LECEF facility. (Ex. 30, p. 4.5-2.)

The surrounding land uses and designations have not changed substantially since the land use analysis was conducted for the original LECEF project (01-AFC-12, see 2002 Decision.) . Agricultural uses are located to the north, west, and east. There are office park light industrial areas to the east of the facility as well as new office buildings south of SR-237. Industrial facilities are located along

the I-880 corridor in the City of Milpitas and further south along Zanker Road in San Jose. LECEF was originally envisioned as part of a 174-acre planned development originally proposed for the U.S. Dataport (USDP) project, an internet information service campus. It would surround the LECEF site on the former Lin-Hom and Ciker properties. As noted earlier, based on current market conditions, construction of the proposed USDP has not occurred and is unlikely in the near future. . Should the USDP project be built, LECEF will provide highly reliable power. (Ex. 1, p. 8.6-4; Ex. 30 pp. 4.5-3 to 4.5-4; 2005 Decision, p. 16.)

Under the California Environmental Quality Act (CEQA), Appendix G, a project may have a significant effect on land use if a proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; disrupt or divide the physical arrangement of an established community; or convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use. A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts, or if it precludes or unduly restricts existing or planned future uses.

Public Resources Code (PRC) §25525 dictates 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 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." *(Emphasis added.)* 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 meets and consults with applicable agencies to determine conformity and, when necessary, "to attempt to correct or eliminate any noncompliance" (PRC §25523(d)(1)).

Staff analyzed the laws, ordinances, regulations, standards (LORS) and policies applicable to the project to determine the extent to which the LECEF Phase 2 project is consistent or at variance with each requirement or standard. (Ex. 30, p. 4.5-5.) In addition, Staff has made numerous contacts with officials from the City of San Jose in an attempt to resolve the zoning inconsistency.

As defined in the Alviso Master Plan, the land use designation for the project site is Light Industrial (LI). According to the General Plan, the LI land use designation allows a wide variety of industrial uses (such as warehousing, wholesaling, light manufacturing, and industrial service and supply businesses) as long as any hazardous or nuisance effects are mitigated. Only low-intensity uses (defined as those with low employment densities) are permitted in the LI areas near Coyote Creek.. Given the small number of operational employees and the applicant's intent to mitigate for air emissions and other potential impacts, we conclude that the project is consistent with the light industrial designation, and compatible with other light industrial uses in the area. (See Ex. 30, p. 4.5-5.)That, however, does not end our analysis of the local zoning requirements. (See Ex. 30, p. 4.5-5.)

In 2001, the San Jose City Planning Commission certified the US Dataport Planned Development Zoning Project EIR and the San Jose City Council, acting as the CEQA Lead Agency, approved the US Dataport Planned Development Zoning Project, and adopted an ordinance to pre-zone and re-zone the US Dataport site, which includes the LECEF project. (Ex. 30, p. 4.5-5.) As noted above, the U.S. Dataport project has not been built. The San Jose City Council adopted this zoning in 2002 2002. However, that adoption was based on the development of the LECEF simple-cycle project at 180 MW net output. Phase 2

will add an additional 140 MW in generation, for a total electrical output of 320 MW. Therefore, the zoning needs to be revised. (Ex. 30, p. 4.5-6.)

The applicant submitted a preliminary filing with the City of San Jose to pursue conforming rezoning. City of San Jose staff reviewed the filing, provided comments, and the applicant prepared and filed, in March of 2005, a final Rezone Application. City staff is currently reviewing the final application. The City plans to use the Energy Commission staff's Final Staff Assessment as their California Environmental Quality Act (CEQA) equivalent document. The City of San Jose Planning Department intended to have the rezoning application heard by the Planning Commission in July, 2005. Following approval by the Planning Commission, the San Jose City Council would have heard the matter during August, 2005. (Ex. 30, p. 4.5-6; 6/30/05 R.T. 41-42.) Staff assumed such would be the case in preparing its Final Staff Analysis and this was confirmed during the Evidentiary Hearing on June 30, 2005, by Richard Buikema of the San Jose Planning Departmentt, who did not anticipate any difficulty "getting this zoning approval." (6/30/05 R.T. 41-46.) That has not, however, proved to be the case. At this writing it is now several months later and the matter has not, to our knowledge, even been heard by the Planning Commission, much less the City Council.

Construction and operation of the LECEF Phase 2 combined-cycle power plant and its associated linear facilities would not significantly interfere with, disrupt, or physically divide any established communities around the project site. It would be consistent with existing land uses, particularly the existing LECEF simple-cycle facility since it would be built within the boundaries of the current LECEF site, and it would not result in the conversion of any farmland. The two new 230-kV transmission lines extend a short distance to the north and connect with the recently constructed Silicon Valley Power Station. Staff is not proposing any additional mitigation measures. (Ex. 30, p. 4.5-6.)

Cumulative impacts may be caused if a proposed project would have effects that are individually limited but cumulatively considerable when viewed together with the effects of related projects. Staff's analysis of the Phase 2 project reveals that it would not result in any significant cumulative land use impacts. The proposed project does not significantly contribute to regional impacts related to new development and growth, such as population in-migration, increased demand for public services, expansion of public infrastructure, or loss of open space. The proposed project's contribution to land use impacts resulting from past, present, and probable future projects is not expected to be cumulatively considerable. The proposed project is consistent with the long-term plans of the City and would not contribute to a cumulatively significant impact to the City's goals and plans for the area. (Ex. 30, p. 4.5-6.) Therefore, we conclude that there are no significant cumulative land use impacts associated with the proposed project.

The proposed LECEF Phase 2 project would not physically divide an established community and would not conflict with any applicable habitat conservation plan. In addition, the proposed project would not conflict with any existing or planned land uses, recreational or agricultural land uses. Therefore, there are no significant land use impacts. Ex. 30, pp. 4.5-8 to 4.5-9.)

In November 2002, the City of San Jose Planning Department amended the Circulation Element of the San Jose General Plan regarding trails and bike paths to make it consistent with guidelines and maps developed by the San Jose Parks and Recreation Department. Fifteen new trails were incorporated into the General Plan Scenic Routes and Trails Diagram. The two closest to the LECEF site are an alternate route that connects the San Francisco Bay Trail with the Coyote Creek Trail (1750 feet north of the project site), and the Highway 237 Bike Trail (700 feet south of the LECEF site. This latter bike trail has sustained significant damage at some point in time since 2001. The applicant, in response to inquiries from the Silicon Valley Bicycle Coalition, initiated discussions with the City of San Jose, PG&E, and SVP regarding repair of this segment of the bike

path. While the applicant is may not be liable for the repairs, Applicant appears to be cooperating with the relevant jurisdictions to complete these repairs as a good neighbor in the community, based on the testimony of Staff and statements made by counsel at the evidentiary hearing. (See Ex. 30, p. 4.5-4; 6/30/05 RT 46-56.)

This matter, however, first came to our attention during the Committee Conference of the PMPD for Phase 1 on March 14, 2005. While we expressed concern at that time and encouraged the parties to resolve the matter, the evidentiary record was insufficient to allow us to reach any findings or decision in that particular. (See, generally, 3/14/05 R.T. 17-33.)

It appears that the bike path in question is a City bike path located on CALTRANS right-of-way. That being the case, the Applicant has no ability to simply repair the bike trail, even were it so inclined. The City also prefers that Applicant make a financial contribution rather than do the repair work. Applicant has agreed, during negotiations with the City of San Jose, to fund repairs up to the sum of $23,000.00, that being the amount the City estimates will be required.

We will impose a Condition of Certification upon the applicant designed to ensure that the repairs are properly funded. The timeliness of the repairs is necessarily left to the agencies having legal jurisdiction over the bike path right of way. As the City representative, John Brazil, noted, those repairs may take six months (from June 29, 2005). (6/30/05 R.T. 48.)

There were no Conditions of Certification for **Land Use** in the Phase 1 decision, and none are proposed for Phase 2, other than a Condition designed to alleviate the situation concerning the repair of the bike path.

FINDINGS AND CONCLUSIONS

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

1. LECEF Phase 2 and its related facilities is not a permissible use under the currently applicable City of San Jose zoning designations.

2. Construction and operation of the LECEF will not create conflicts with existing or planned land uses in the project vicinity.

3. No significant or adverse impact will result to agricultural or residential property affected by the LECEF.

4. The Phase 2 project does not comply with LORS unless the applicable zoning for the LECEF Phase 2 is changed by the City of San Jose.

We therefore conclude that Phase 2 of LECEF will not create any significant direct or indirect adverse land use impacts. Given that there are no significant land use impacts, no conditions of certification have been proposed other than a Condition designed to alleviate the situation concerning the repair of the bike path. Nevertheless, the lack of appropriate zoning at this time prevents the Committee from recommending that the license for Phase 2 be granted.

CONDITIONS OF CERTIFICATION:

LAND-1 To help maintain public access and recreation adjacent to the project site, the project owner shall fund an endowment through a one-time payment of up to $23,000.00, as determined by the City of San Jose., to be used by the City for the repair of the paved bikeway immediately to the north of, and parallel to, Highway 237, between Zanker Road and Coyote Creek ("bikeway"). To establish the endowment and its terms for repairing the bikeway, the project owner shall enter into a Fund Transfer Agreement with the City of San Jose.

Verification: The project owner shall submit a copy of the Fund Transfer Agreement to the CPM within 60 days of the Commission's final decision. Commencing 90 days after the Commission's final decision, the project sowner

shall provide the CPM with a quarterly report on the progress of the City of San Jose's efforts to complete repairs of the bikeway. The final report shall be submitted within 30 days after the City has completed repairs of the bikeway with the funds provided by the project owner.

B. NOISE AND VIBRATION

Construction and operation of any power plant produces noise that can cause hearing loss to workers as well as nuisance and auditory interference with activities on neighboring properties. The character and loudness of project-related noise, the times of day or night that it is produced, and the proximity of the facility to sensitive receptors are factors to be considered in analyzing potential adverse impacts. Further, construction activities such as blasting and pile driving can produce ground-borne vibration that has the potential to cause structural damage and annoyance to adjacent properties. Airborne vibration from the operation of combustion engines creates acoustic energy that may cause perceptible movement in nearby structures.

SUMMARY OF THE EVIDENCE

This noise impact analysis draws upon the findings, conclusions, and Conditions of Certification contained in the two previous Commission LECEF Decisions. In addition, Staff confirmed the accuracy of noise measurements conducted by Applicant since the initial certification of the LECEF simple cycle plant. (Ex. 30, p. 4.6-5 et seq.)

The project must comply with the policies and standards on noise emissions established by the City of San Jose and provide necessary mitigation under CEQA Guidelines for evaluating potential noise impacts. The project must also comply with Cal-OSHA regulations, which identify specific industrial noise exposure limits and require employers to provide hearing protective equipment for employees. (Ex. 30, p. 4.6.2 et seq.)

For purposes of reviewing the noise impacts of the proposed Phase 2 project, the current operation of the simple cycle LECEF was included in the ambient noise profile for the project vicinity. (Ex. 1, § 8.7.4 et seq.) The nearest sensitive noise receptors are residences on the Cilker property, approximately 1,100 feet (0.2 miles) southeast of the site. An existing bicycle-hiking trail and a mobile home

park lie approximately 0.6 to 0.8 miles to the southwest and east across Highway 237. No new linear facilities will be required for Phase 2. (Ex. 30, p. 4.6-4.)

Condition of Certification **NOISE-4** in the 2002 LECEF Decision required the project owner to measure the noise regime in the project vicinity before construction of the simple cycle plant and again after the simple cycle began operation. (2002 Decision at pp. 301-302.)

To satisfy this Condition, the project owner measured ambient noise at the backyard fence of the main Cilker residence on January 31 and February 1, 2002, prior to commencing construction. The background noise level, or L_{90} value, reached a minimum of 46 L_{90} dBA for the four-hour period from midnight to 4 a.m.[29] (Ex. 1, § 8.7.2.4, App. 8.7-B).

After the simple cycle plant began operation, the project owner measured ambient noise at the Cilker residence, at the proposed San Francisco Bay Trail site, and at the Coyote Creek riparian corridor on April 2 and 3, 2003. (Ex. 1, § 8.7.3.1, App. 8.7-B.) Nighttime noise levels at the Cilker residence were 45 to 47 dBA L_{90} with the plant operating and 45 to 47 dBA L_{90} with the plant shut down. (*Id.* at App. 8.7-B, Table 2.) Since operational noise did not increase the L_{90} noise level at the Cilker residence by more than 5 dBA, the simple cycle operation did not cause significant noise impacts at the nearest sensitive receptor.[30] (*Id*. at § 8.7.3.1.) Staff therefore used these noise measurements as a baseline for predicting the potential noise impacts of LECEF Phase 2. (Ex. 30, p. 4.6-6.)

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[29] According to Staff, ambient nighttime noise levels are useful for predicting noise impacts of the operating power plant. (Ex. 30, p. 4.6-6.)

[30] Staff believes that consistent with CEQA Guidelines, the threshold for finding an adverse noise impact occurs when the operating noise of a power plant plus the background noise exceeds the background by 5 dBA L_{90} at the nearest sensitive receptor. However, while an increase of more than 10 dBA would be considered significant, an increase between 5 and 10 dBA may not be significant depending on the particular circumstances. (Ex. 30, pp. 4.6-5, 4.6-11.) The Commission concurs.

Construction noise is a temporary disturbance as in this case where construction is expected to last approximately 19 months. (Ex. 1, §§ 1.2, 2.4.9). Since construction of an industrial facility is typically noisier than levels permitted by the City's noise ordinances, construction noise during daytime hours is generally exempt from enforcement of local ordinances. Noise Policy 9 of the City's General Plan Noise Element encourages construction equipment operators to use available noise suppression devices and techniques. Municipal Code section 20.20.300 establishes a maximum noise level of 55 dBA for sound delivered to any adjacent residential property line such as the Cilker residence. If the noise at the residential property line exceeds 55 dBA, the project owner must obtain a conditional use permit. No perceptible vibration is permitted at the property line. (Ex. 30, p. 4.6-7; Ex. 1, § 8.7.7.1.)

To predict construction noise impacts on residential receptors, Applicant compared noise levels that are typically correlated to construction equipment with the daytime ambient noise regime at the Cilker residence, which was measured at 58 dBA L_{eq} or 53 dBA L_{90}. (Ex. 1, § 8.7.4.1 and Appendix 8.7-B, Table 2.)

According to Applicant, average construction noise levels at the Cilker residence are expected to range from 46 to 57 dBA. Compared to the daytime ambient L_{eq} level of 58 dBA, it is likely that construction noise will not be intrusive at this location. (Ex. 30, p. 4.6-8; Ex. 1 § 8.7.4.1.) While Municipal Code section 20.20.300 limits noise transmissions to 55 dBA at residential property lines, the sporadic and temporary nature of project-related construction noise emitted in the context of existing traffic and other noise during daytime hours would not be inconsistent with this requirement. (*Ibid*.)

To inform nearby residents of project-related construction noise and to provide a method for dealing with noise complaints, we adopt Conditions of Certification **NOISE-1** and **NOISE-2** below. These conditions require notification of residents

that construction is about to begin, and establishes a noise complaint monitoring and resolution process.

The noisiest period during construction will occur as a result of pile driving. Noise levels from these activities are expected to reach 77 dBA at the Cilker property. (Ex. 1, § 8.7.4.1, p. 8.7-9.) Since this would violate the 55 dBA limit specified in Municipal Code section 20.20.300, pile driving shall be restricted to the same daytime hours that were required in the 2002 LECEF Decision and set forth in Condition of Certification **NOISE-8**, below.

The loudest noise encountered during construction is caused by steam blows to flush out debris in the feed water and steam systems prior to project startup. This process requires a series of short steam blows, lasting two or three minutes each, to be performed several times daily over a period of two or three weeks. Without appropriate silencing equipment, high-pressure steam blows can produce noise as loud as 129 dBA at a distance of 50 feet. With a silencer installed on the steam blow piping, noise levels will reach 89 dBA at 50 feet. This should attenuate to approximately 59 dBA at the Cilker residence. (Ex. 30 , p. 4.6-8.) Compared to the daytime ambient noise level of 58 dBA L_{eq} at the residence, steam blow noise would be barely noticeable and unobtrusive. To ensure that steam blow noise does not cause adverse effects, Condition of Certification **NOISE-4** restricts steam blows to daytime hours and requires installation of appropriate silencers. Condition **NOISE-5** requires that nearby residents be notified in advance of steam blows to eliminate surprise.

Pile driving is the only construction activity likely to produce significant vibration. According to Applicant, the ground-borne vibration from pile driving should attenuate to imperceptible levels at the nearest sensitive receptors. (Ex. 1, § 8.7.4.1, p. 8.7-10.)

During operation, the LECEF will represent a steady, broadband noise source day and night. The primary noise components added by Phase 2 include the steam turbine generator, HRSG exhaust, mechanical draft cooling tower, and various pumps. Occasional brief noise level increases may occur as steam relief valves open to vent pressure, or during startup or shutdown as the plant transitions to and from steady-state operation. Noise levels will decrease when the plant is shut down for lack of dispatch or maintenance. (Ex. 30, p. 4.6-10.)

Applicant performed acoustical modeling to determine the impacts of operational noise on the nearest sensitive receptors. (Ex. 1, AFC § 8.7.4.2, Tables 8.7-10, 8.7-11). This modeling included a noise barrier wall around the fuel gas compressors as a mitigation measure anticipated by Applicant. (*Id*. at p. 8.7-11 and § 8.7.6). The noise level projections are shown in Staff's Noise Table 3**,** replicated below:

Noise Table 3 – Projected Plant Operational Noise Impacts (dBA)

Monitoring Location	Ambient Four-Hour Average Background	Projected Power Plant Noise Level	Resultant Level
Cilker Residence	46 L_{90}[1]	55 L_{eq}	55 L_{eq}[2]
Coyote Creek Riparian Corridor (M2)	48 L_{90}[1]	60 L_{dn}[3]	60 L_{dn}

[1] Ex. 1, Table 8.7-6; Appendix 8.7-B, Tables 1, 2, 3, and Figure 6
[2] Ex. 1, Table 8.7-10
[3] Ex. 1, Table 8.7-11
Source: Ex. 30, p. 4.6-10.

The City General Plan Noise Element sets a short-range guideline of 60 dBA L_{dn} for continuous noise sources such as the LECEF. If project noise at the Cilker property line remains at 55 dBA L_{eq}, this would be equivalent to 61 dBA L_{dn}.[31] Since noise impact modeling relies on conservative assumptions, actual project noise will likely be less than predicted. To ensure compliance with the City's noise policy, Condition of Certification **NOISE-6** requires the project owner to

[31]Section 20.20.300 of the City Zoning Ordinance sets a maximum noise level of 55 dBA L_{eq} at an adjacent residential property line. According to Staff, the projected noise impact at the Cilker residence complies with this limit. (Ex. 30, p. 4.6-10.)

implement appropriate mitigation measures such as a noise barrier wall and to conduct a community noise survey when the project begins operation at 80 percent output. Condition **NOISE-6** also ensures compliance with the City's Riparian Corridor Policy, which sets a limit of 60 dBA L_{dn}, measured at the Coyote Creek Riparian Corridor.

As shown in Noise Table 3 above, LECEF Phase 2 would cause an increase of approximately 9 dBA in the four-hour average background noise level at the Cilker residence. Given the nature of the ambient noise regime in this area, which is relatively noisy, Staff believes a noise level increase up to 10 dBA would not be intrusive and would not constitute a significant adverse impact. As noted above, Condition **NOISE-6** ensures that the project will comply with the City's noise policies. Condition **NOISE-2** provides for a noise complaint monitoring and resolution process to respond to project-related noise concerns at neighboring properties.

Condition **NOISE-6** also includes an evaluation of tonal noise at the nearest residence and the implementation of necessary mitigation if the addition of Phase 2 creates dominant sources of plant noise.

To prevent ground-borne vibration, the operating components of any combined cycle power plant are well-balanced and designed to minimize perceptible vibration levels. Vibration monitoring systems are also installed to ensure that the equipment remains well-balanced. The chief source of potential airborne vibration would be gas turbine exhaust. However, when turbine exhaust passes through the HRSGs, the exhaust noise is attenuated and any perceptible airborne vibration effects are reduced substantially. Applicant therefore asserts that no ground-borne or airborne vibration effects will be detectable at sensitive receptor locations. (Ex. 1, § 8.7.4.1, pp. 8.7-9 and 8.7-10.)

Finally, in conjunction with Cal-OSHA requirements, Condition of Certification **NOISE-3** directs the project owner to implement a noise control program to

reduce employee exposure to excessive noise levels during construction. Condition **NOISE-7** requires the project owner to conduct an occupational noise survey after operation begins and to identify necessary mitigation measures to prevent excessive noise exposure. The noise control program instituted in compliance with the previous LECEF Decisions shall continue to apply for Phase 2.

There is no evidence of cumulative noise impacts. The land surrounding the LECEF site will not likely be developed in the near future. The only known development would be the US DataPort project. Both US DataPort and LECEF have been designed in consideration of potential cumulative noise emissions. (Ex. 1, § 8.7.5.)

FINDINGS AND CONCLUSIONS

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

1. The nearest sensitive noise receptors are residences on the Cilker property, approximately 1,100 feet (0.2 miles) southeast of the site, an existing bicycle-hiking trail 0.6 miles to the southwest, and a mobile home park approximately 0.8 miles to east.

2. The evidence indicates that operation of the LECEF simple cycle did not significantly increase ambient noise at the Cilker property and, therefore, the noise profile with the simple cycle operation was used as a baseline for predicting potential noise impacts of LECEF Phase 2.

3. While Phase 2 construction noise may occasionally exceed noise standards established by the City of San Jose, project-related construction noise will be temporary and limited to daytime hours when existing traffic and other activities typically elevate noise levels in the area.

4. The project owner will install silencers to mitigate loud steam blow noise and notify nearby residents of impending steam blow activities.

5. While operational noise may increase existing ambient noise levels at the nearest sensitive receptors, the increase is not considered a significant adverse impact on the environment or public health.

6. The project owner will conduct community noise surveys after commencing Phase 2 operations to measure actual noise levels at the sensitive receptor locations and, if necessary, implement appropriate mitigation to reduce noise transmission to acceptable levels.

7. The project owner will implement a noise notification and complaint process for area residents to provide for mitigation of any exposure to high noise levels during construction and operation.

8. There is no evidence that project construction or operation will result in ground-borne or airborne vibration effects at adjacent property lines.

9. The project owner will implement a noise control program to reduce employee exposure to excessive noise during construction.

10. The project owner will conduct an occupational noise survey to identify mitigation measures necessary to prevent employee noise exposure during project operations.

11. There is no evidence of potential cumulative noise effects in the project vicinity as a result Phase 2 operations.

12. With implementation of the Conditions of Certification listed below, LECEF Phase 2 will comply with the laws, ordinances, regulations or standards on noise and vibration as set forth in the pertinent portions of Appendix A.

We therefore conclude that the LECEF Phase 2 project will not cause any significant adverse noise or vibration impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site, 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 (below), 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 10 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the local jurisdiction and the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program. The project owner shall make the program available to Cal-OSHA upon request.

STEAM BLOW MANAGEMENT

NOISE-4 The project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 50 feet. The project owner shall conduct steam blows only during the hours specified in Condition of Certification **NOISE-8**, unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance.

Verification: At least 15 days prior to the first 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.

STEAM BLOW NOTIFICATION

NOISE-5 Prior to the first steam blow(s), the project owner shall notify all residents and business owners within one-half mile of the site of the planned steam blow 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 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: Project owner shall notify residents and businesses at least 15 days prior to the first steam blow(s). Within five days of notifying these entities, the project owner shall send a letter to the CPM confirming that local residents and businesses 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 mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation to exceed the values shown here:

Monitoring Location	Noise Due to Project
Cilker Residence	55 dBA L_{eq}
Coyote Creek Riparian Corridor (M2)	60 dBA L_{dn}

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 and transient vents shall be adequately muffled to preclude noise that draws legitimate complaints.

A. When the project first achieves a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at the Cilker residence. This survey during power plant operation 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.

   During the period of this survey, the project owner shall conduct a short-term survey of noise at the Coyote Creek Riparian Corridor. 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.

   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 tones or other dominant sources of plant noise.

B. If the results from the noise survey indicate that the power plant noise level (L_{eq}) at the affected receptor exceeds the above value for any given hour during the 25-hour period, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The survey shall take place within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity. Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 30 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

NOISE-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 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 Pile driving and steam blows shall be restricted to the times of day delineated below:

Any day 8 a.m. to 5 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.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Los Esteros Critical Energy Facility Combined Cycle Conversion
(03-AFC-2)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____
Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____
Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

NOISE APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **Noise Table A1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (L_{eq}), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (L_{dn}). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical L_{dn} values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (Effects of Noise on People, U.S. Environmental Protection Agency, December 31,1971).

In order to help the reader understand the concept of noise in decibels (dBA), **Noise Table A2** has been provided to illustrate common noises and their associated sound levels, in dBA.

Noise Table A1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: Guidelines for the Preparation and Content of Noise Elements of the General Plan, Model Community Noise Control Ordinance, California Department of Health Services 1976, 1977.

Noise Table A2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Handbook of Noise Measurement, Arnold P.G. Peterson, 1980

Subjective Response to Noise

The adverse effects of noise on people can be classified into three general categories:

Subjective effects of annoyance, nuisance, dissatisfaction.

- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships can be helpful in understanding the significance of human exposure to noise.

1 Except under special conditions, a change in sound level of one dB cannot be perceived.

2 Outside of the laboratory, a three dB change is considered a barely noticeable difference.

3 A change in level of at least five dB is required before any noticeable change in community response would be expected.

4 A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response. (Kryter, Karl D., The Effects of Noise on Man, 1970)

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

Noise Table A3
Addition of Decibel Values

When two decibel values differ by:	Add the following amount to the larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0
Figures in this table are accurate to ± 1 dB.	

Source: Architectural Acoustics, M. David Egan, 1988

Sound and Distance

Doubling the distance from a noise source reduces the sound pressure level by six dB.

Increasing the distance from a noise source 10 times reduces the sound pressure level by 20 dB.

Worker Protection

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

Noise Table A4

OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 C.F.R. § 1910.95

C. SOCIOECONOMICS

Under this topic, we evaluate any direct, indirect and induced, or cumulative impacts that the project may cause to local public services, infrastructure, and community concerns such as environmental justice.

SUMMARY OF THE EVIDENCE

This analysis draws upon the findings and conclusions contained in the two previous Commission Decisions on the LECEF. The evidence indicates that Staff verified the current status of data submitted by Applicant in the instant proceeding. (Ex. 30, p. 4.8-1 et seq.)

The socioeconomic analysis considers the project's potential impacts on employment, fiscal resources, housing, schools, public services, and utilities. The parties used demographic data for Santa Clara County, which comprises the San Jose Metropolitan Statistical Area (MSA), to evaluate worker availability, available community services, and potential infrastructure impacts.[32] (Ex. 1, § 8.10.1.)

The project construction schedule will last about 19 months. The construction workforce will average about 84 workers per month with an employment peak of 144 workers in the 11th month of construction. Data on available skilled labor in the San Jose MSA indicate that the existing workforce in the area is sufficient to fulfill the project's construction requirements. It is expected that most of the construction labor will be drawn from the local San Jose MSA area, which is within a reasonable commute distance of the project site. (Ex. 1, § 8.10.1.3; Ex. 30, p. 4.8-1.)

[32] Most of the environmental and economic impacts identified in the analysis are based in Santa Clara County as the study area since it is most likely to be impacted by the project. Applicant used IMPLAN (an input-output model) to estimate employment and regional economic impacts. Since the IMPLAN modeling tool is widely used for this purpose, Staff agreed that the modeling results were reliable. (Ex. 30, p. 4.8-3.)

Construction workers who travel from outside Santa Clara County to the site may temporarily reside near the site during the work week but it is unlikely they will relocate their families due to the seasonal nature of the work. (Ex. 30, p. 4.8-2.) The evidence indicates that sufficient short-term housing such as motel accommodations for non-local construction workers is available to meet transitory housing needs. (*Id*. at p. 4.8-5.)

During project operation, 17 permanent employees will be needed to maintain and operate the overall LECEF project, representing an increase of eight employees added to the existing operating workforce. This minimal increase in the permanent workforce will not create a significant impact on local employment or induce population growth. Staff assumes the permanent operations workforce will be drawn from the local area. (Ex. 30, p. 4.8-4.)

The evidentiary record establishes that the addition of the combined cycle unit to the existing LECEF will not result in significant socioeconomic impacts to local housing, schools, police, emergency services, hospitals, or utilities. (Ex. 30, p. 4.8-5 et seq.; Ex. 1, §8.10.3 et seq.) The environmental justice analysis remains the same as discussed in the two previous LECEF Decisions, concluding that no significant EJ issues are associated with this project since all potential adverse impacts will be mitigated. (*Id*. at p. 4.8-8 et seq.) Finally, there are no cumulative socioeconomic impacts since most of the construction and operation workforce will likely reside in the San Jose MSA and construction activities are short-term. (*Id*. at p. 4.8-7 et seq.)

Fiscal impacts will be positive. Direct as well as indirect and induced benefits will result in secondary jobs and consumer purchases in the MSA. Sales taxes will benefit state and local governmental entities. Property taxes will also be substantial, adding to the base revenues of both city and county governments. (Ex. 1, § 8.10.2.9; Ex. 30, p. 4.8-13.)

Staff's Socioeconomics Table 2, replicated below, provides a summary of socioeconomic data and information from this analysis with emphasis on the economic benefits of the LECEF conversion to combined-cycle operation.

Socioeconomic Data and Information Table 2[33]	
Project Construction Costs	$100 million
Estimate of Locally Purchased Materials	
Construction	$5.8 million
Operation	$1.8 per year
Estimated Annual Property Taxes	N/A
Estimated School Impact Fees	None required. No building expansion.
Direct Employment	
Construction (average)	82 jobs
Operation	17 jobs
Secondary Employment	
Construction	45 jobs
Operation	16 jobs
Direct Income	
Construction	$7,668,632
Operation	$3,507,000
Secondary Income	
Construction	$1,795,888
Operation	$1,037,847
Payroll	
Construction	Total-$15.1 million.
Operation	Average: $957,000 annually.
Estimated Sales Taxes (on equipment and materials)	
Construction	$560,000
Operation	$32,000 annually.
Existing /Projected Unemployment Rates	Existing – 7 percent in January 2004, not seasonally adjusted for Santa Clara County. Projected - Not available.
Percent Minority Population (6 mile radius)	69.60 percent
Percent Poverty Population (6 mile radius)	7.51 percent

Source: Ex. 30, p. 4.8-14.

[33] Table 2 uses 2008 dollars, construction is for 19 months, and project life planned for 30 years. Economic (non-fiscal and fiscal) impacts, unemployment, and population information are generally for Santa Clara County. However, the results of IMPLAN/Input-Output modeling are for Santa Clara County and show secondary, indirect and induced impacts, as well as direct impacts.

In the 2002 LECEF Decision, we adopted Condition of Certification SOCIO-2 requiring payment of the one-time statutory school facility development fee. According to Staff, that requirement was satisfied for the initial LECEF construction. Since there are no new principal buildings associated with LECEF Phase 2, there are no new school impact fees. (Ex. 30, p. 4.8-6.) The 2002 LECEF Decision also included Condition of Certification SOCIO-1, which required the project owner to recruit employees and procure materials within the Bay Area. We have re-adopted that Condition for LECEF Phase 2 to reduce the potential for in-migration of workers to the area and to enhance the predicted economic benefits associated with the project.

FINDINGS AND CONCLUSION

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

1. The proposed project will draw primarily upon the local San Jose Metropolitan Statistical Area (MSA) labor force for construction and operation workers.

2. The proposed project will not cause an influx of a significant number of construction or operation workers into the project area.

3. The proposed project will not strain local housing, medical, police and fire fighting services, or public utilities, which are adequate to meet the needs of the proposed project.

4. Construction and operation of the proposed project will result in direct, indirect, and induced benefits to the local economy from increased revenue from property and sales taxes, employment, and sales of services, manufactured goods, and equipment.

5. There is no evidence that project-related construction and operation activities, when considered either singularly or cumulatively, will result in any adverse socioeconomic impacts to the San Jose MSA.

6. There is no evidence that environmental justice issues are associated with construction or operation of the LECEF Phase 2 project.

7. With implementation of the Condition of Certification described below, the proposed project will comply with the laws, ordinances, regulations, and

standards related to socioeconomics as identified in the pertinent portions of Appendix A of this Decision.

We therefore conclude that the proposed project will not result in any significant direct, indirect, or cumulative adverse socioeconomic impacts.

CONDITION OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within the Bay Area 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 the start of construction, the project owner shall submit to the Energy Commission CPM copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the Bay Area that will occur during the next two months.

D. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the project will affect the regional and the local transportation systems. Large numbers of construction workers commuting to the site as well as deliveries of construction equipment and project components may increase roadway congestion and affect traffic flow. This analysis considers the following factors in determining whether project-related traffic will create an unacceptable burden on local and regional traffic patterns:

- the roads and routings that will be used;
- potential traffic problems associated with those routings;
- the anticipated number of deliveries of oversized/overweight equipment;
- anticipated encroachments upon public rights-of-way;
- frequency of and routes associated with delivery of hazardous materials; and
- availability of alternative transportation methods.

SUMMARY OF THE EVIDENCE

The findings and conclusions and Conditions of Certification regarding traffic and transportation in the previous LECEF Decisions are incorporated herein. The 2005 Decision found that existing Phase I traffic impacts are insignificant due to the minimal number of truck deliveries and small workforce required to operate the facility. We have focused our review on the additional evidence in this case regarding potential traffic impacts of Phase 2 construction and operation activities.

The major local roadways near the site include State Road (SR) 237, which extends from US Highway 101 (US 101) to Interstate 880 (I-880) in an east/west direction and is located immediately south of the LECEF site. SR 237 is a 6-lane freeway under Caltrans jurisdiction, serving 115,000 vehicles per day. The primary route to the site is via Zanker Road, a two-to-four lane arterial that runs north/south from SR 237. McCarthy Boulevard, another arterial, also runs north-south from SR 237 east of Zanker. Tasman Drive is an east-west four-lane

arterial that extends from Lawrence Expressway to I-880. Montague Expressway is a six-lane expressway that runs east/west to the south of SR 237. Thomas Foon Chew Way is the newly constructed site access road off Zanker Road, approximately 0.2 miles north of SR 237. (Ex. 30, p. 4.10-4.)

Potential traffic impacts could result from an influx of construction workers and truck deliveries during the 19-month construction period. The average construction workforce will be 82-84 employees per month, with a peak workforce of 144 in the 11th month. Approximately 1,512 truck deliveries of materials and supplies are expected during the construction period, an average of two to three deliveries per day. During peak construction, the number of daily truck deliveries will increase to seven. All truck deliveries will follow the truck route guidance in the San Jose 2020 General Plan, which encourages truck traffic to use state freeways, county expressways, six-lane arterials, and routes that have the least adverse impact on residential areas. (Ex. 1, p. 8.12-9; Ex. 30, p. 4.10-8.) Condition **TRANS-2** requires the project owner to comply with vehicle weight and size limitations on local roadways. Condition **TRANS-5** also requires the project owner to repair affected rights-of-way damaged by construction traffic.

Staff's Traffic and Transportation Table 2, replicated below, summarizes the trip generation anticipated during project construction. Using worst-case assumptions, the average vehicle occupancy (AVO) would be 1.1 persons per vehicle. Combining construction workers' vehicles and truck deliveries, the project would generate a total of 82 daily round trips during typical construction months and 145 daily round trips during peak construction. Additional worst-case analysis assumed that 80 percent of the workforce and ten percent of deliveries would arrive or depart during peak commute hours, generating a total of 67 vehicle round trips on average, with 116 vehicle round trips during peak construction activity.[34] (Ex. 30, p. 4.10-8.)

[34] Staff believes carpooling would reduce these worst-case estimates and, therefore, recommended implementation of an employee carpool program in accordance with Condition of Certification **TRANS-1**. (Ex. 30, p. 4.10-8.) Applicant concurred, also noting that construction

Traffic and Transportation Table 2
Trip Generation Summary Table – Construction Phase

Type of Vehicle	**Vehicle Daily Round Trips**		**Vehicle Daily Round Trips for Peak Commute Hours** (3)	
	Average	Peak(2)	Average	Peak(2)
Workers(1)	76	131	66	115
Trucks	6	14	1	1
Total	**82**	**145**	**67**	**116**

(1) Assumes an AVO of 1.1 persons per vehicle.
(2) "Peak" refers to scheduled peak quarter of construction activity (months 11-12 from notice to proceed).
(3) Peak commute hours are 7 to 8 a.m. and 5 to 6 p.m.
Source: Ex. 30, p. 4.10-8

To determine whether project-related traffic would cause a change in the existing Level of Service (LOS) resulting in a significant adverse impact, Applicant made the following worst-case assumptions:

- When leaving the site, 99 percent of the traffic will travel south on Zanker Road; about 35 percent will travel west on SR 237; the remaining 14 percent will continue traveling south on Zanker Road.
- Of the traffic that continues to travel south on Zanker Road, 60 percent will turn onto Tasman Drive, and the remaining 40 percent will travel to the Zanker Road-Montague Expressway interchange. (Ex. 1, p. 8.12-8.)

Staff's Traffic and Transportation Table 3, below, shows a combination of existing traffic patterns plus anticipated construction traffic for local roads and intersections in the project vicinity using Applicant's assumptions. (Ex. 30, pp. 4.10-9 and 4.10-10.)

Based on the results of the worst-case analysis, construction traffic is not expected to adversely affect LOS on existing roadways in the project area. However, assumptions used in the analysis may not reflect actual project-related traffic patterns or unmitigated impacts. To ensure that any potential traffic impacts are mitigated, Condition of Certification **TRANS-1** requires the project

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personnel tend to arrive before morning peak begins (7-8 am) and leave before evening peak occurs (5-6 pm). (Ex. 1, p. 8.12-9.)

owner to prepare a Construction Traffic Control Plan that would limit peak-hour truck and commute traffic in coordination with the City of San Jose, the County of Santa Clara, and Caltrans.

Traffic and Transportation Table 3
Existing Plus Construction Traffic

Segments	Capacity(1)	Current	With LECEF Construction	Current LOS	LOS With LECEF Construction
SR 237 from the following segments:					
North First Street to Zanker Road (WB)	6,000	5,050	5,091(2)	D	D
Zanker Road to McCarthy Blvd. (WB)	6,000	5,200	5,258 (2)	D	D
McCarthy Blvd. to I-880 (WB)	6,000	5,650	5,708 (2)	F	F
Zanker Road from the following segments:					
SR 237 to McCarthy Blvd. (NB)	1,700	ND	ND	A	A
SR 237 to Tasman Drive (SB)	5,400	1,437	1,457(3)	A	A
Tasman Drive to Montague Exp. (SB)	3,600	1,423	1,430(3)	A	A

1. Highway Capacity Manual 1985
2. Caltrans 2002
3. City of San Jose 2003

Source: Ex. 30, p. 4.10-10.

Staff noted that with construction traffic, SR 237 from Zanker to I-880 eastbound would operate at LOS F during the peak PM hour. However, this segment of SR 237 currently operates at LOS F without project-related traffic. While the addition of construction traffic is technically a significant impact since it would impact a freeway segment currently operating below the minimum acceptable LOS, this would be a temporary occurrence mitigated under the Construction Traffic Control Plan limiting construction-related peak hour traffic. (Ex. 30, pp. 4.10-10 and 4.10-11.)

Further, as indicated in the 2005 LECEF Decision, Caltrans recently completed a major overhaul of the SR 237 to I-880 interchange that should alleviate some of the traffic congestion in the area. (See also, Ex. 1, p. 8.12-5.)

Class I and Class II bicycle paths and lanes co-exist with roadways near the project site. The bike path closest to the site (south of SR 237) is a Class I Bikeway, which is completely paved with a separate right-of-way shared with pedestrians and excluding motor vehicle traffic. (Ex. 30, p. 4.10-3.) Because extreme to moderate caution is recommended when riding bikes along most roads near the site, Condition **TRANS-1** ensures that construction traffic will proceed in a safe manner in the vicinity of the bike path.

Since onsite parking was adequate for construction of LECEF Phase 1, the same onsite parking areas will be used for Phase 2. All project-related parking will be restricted to the site. (Ex. 30, p. 4.10-11.) Condition **TRANS-4**, which requires the project owner to provide a parking and staging plan, is re-adopted for Phase 2.

After construction of Phase 2, the LECEF will employ a total of 17 permanent employees spread over two shifts, representing an overall increase of eight employees for project operation. Existing roadways can accommodate this small increase in commuter traffic without affecting existing LOS volume. (Ex. 1, §8.12-11; Ex. 30, p. 4.10-11.)

During operation, trucks deliveries will average only two to three truck round trips per day. Therefore, the existing highway and roadway system will not be significantly affected by the minor increase in truck traffic associated with operation of LECEF. (Ex. 1, p. 8.12-11; Ex. 30, p. 4.10-12.)

The transport of hazardous materials, such as aqueous ammonia, to and from the site has the potential to increase traffic hazards. To ensure that potential impacts are reduced to insignificant levels, Condition **TRANS-3** requires the project owner to obtain necessary permits and/or licenses for the transport of project-related hazardous materials and to observe all applicable LORS. All hazardous material deliveries shall be routed from SR 237 to exit northbound at

Zanker Road, and right turn from Zanker to Thomas Foon Chew Way to enter the LECEF. (Ex. 30, pp. 4.10-12 and 4.10-13.)

The evidence indicates that emergency vehicle access to the site will not be impaired by project-related traffic. (Ex. 30, p. 4.10-12.) *See* the section on **Fire Protection and Worker Safety** in this Decision.

There is no evidence of potentially significant cumulative traffic impacts during construction or operation of the project. Construction-related commuter and truck traffic will be temporary and limited to off-peak hours. Traffic obstructions due to movement of large equipment will be transitory and controlled. Construction traffic will not affect the access or movement of traffic associated with the operation of Phase 1 or with other projects currently under construction in the site vicinity. (Ex. 30, p. 4.10-13.)

FINDINGS AND CONCLUSIONS

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

1. Potential traffic impacts on local roadways may result from an influx of construction workers and truck deliveries during the construction period.

2. Implementation of a Construction Traffic Control Plan will mitigate construction-related traffic impacts.

3. Under the Construction Traffic Control Plan, workers will carpool and travel during off-peak commuter times and truck deliveries will occur during off-peak hours using designated truck routes.

4. The project owner will ensure that all necessary permits and/or licenses are obtained for truck deliveries of hazardous materials and for oversize and overweight vehicles.

5. Emergency vehicle access will not be impaired by project-related traffic.

6. Commuter traffic and truck deliveries during project operation will not affect the LOS levels of any local roadways.

7. Construction and operation of the project will not contribute to cumulatively significant adverse traffic impacts.

8. Compliance with the Conditions of Certification, below, will mitigate any potential impacts on traffic and transportation and ensure that construction and operation of LECEF 2 complies with all laws, ordinances, regulations, and standards on traffic and transportation identified in **Appendix A** of this Decision.

We conclude that LECEF Phase 2 will not create any significant direct, indirect, or cumulative adverse traffic and transportation impacts.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall develop a Construction Traffic Control Plan that limits peak hour construction-period truck and commute traffic in coordination with the City of San Jose Public Works Department. The project owner shall also consult with Santa Clara County, Caltrans, the California Highway Patrol, and the City of San Jose staff dealing with traffic regulation enforcement. Specifically, the overall traffic control plan shall include the following:

- Require the primary contractor and major subcontractors to develop and implement a construction employee carpool program;
- Through worker education and shift scheduling, maximize worker commute trips during off-peak hours, which are defined as (1) before 6 a.m.; (2) between 9 a.m. and 4 p.m.; and (3) after 6 p.m., or other hours as agreed to by the CPM;
- Schedule heavy vehicle equipment and building material deliveries as well as the movement of materials and equipment to the site and the adjacent lay-down area to occur during off-peak hours;
- Signing, lighting, and traffic control device placement;
- Temporary travel lane closures and potential need for flagmen;
- Maintaining access to adjacent residential and commercial properties; and
- Emergency access.

Verification: At least 60 days prior to start of site mobilization, the project owner shall provide to Santa Clara County, the City of San Jose, the California Highway Patrol, and Caltrans for review and comment, and to the CPM for review and approval, a copy of its Construction Traffic Control Plan. Every two months during the construction period, the project owner shall monitor and report

the turning movements and traffic volumes for the project access roads during the AM (7 to 9 a.m.) and PM (4 to 6 p.m.) peak hours to confirm construction trip generation rates.

TRANS-2 The project owner shall comply with California Department of Transportation (Caltrans) and other affected jurisdictions' limitations on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of all hazardous materials, and that all federal and state regulations for the transport of hazardous materials are observed. The project owner shall ensure that all heavy vehicles and vehicles transporting hazardous materials shall use the following route: from SR 237, exit northbound at Zanker Road, from Zanker turn right to enter the LECEF site via Thomas Foon Chew Way, the primary site access road;

Verification: The project owner shall include in its Monthly Compliance Reports during construction and Annual Compliance Reports during operations copies of all permits and licenses acquired by the project owner concerning the transport of hazardous materials and copies of written documentation to transporters indicating the preferred route for delivery of hazardous materials.

TRANS-4 Prior to the construction of the power plant and all related facilities, the project owner shall develop a parking and staging plan for all phases of project construction, to enforce a policy that all project related parking occurs onsite.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the plan to the City of San Jose Public Works staff for review and comment, and to the CPM for review and approval. The material submitted to the CPM shall include documentation of the City's review and comments. Monthly Compliance Reports submitted to the CPM shall describe the project owner's actions to ensure that this condition is being met.

TRANS-5 The project owner shall repair affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path, etc.) to original or near original condition that have been damaged due to construction activities conducted for the project and its associated facilities.

Verification: Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s) and Caltrans (if applicable) to identify sections of the public right-of-way to be repaired, to establish a schedule to complete the repairs, and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the affected local jurisdiction(s) and Caltrans stating their satisfaction with the repairs.

E. VISUAL RESOURCES

Visual resources are the natural and cultural features of the environment that contribute to its visual character or quality. CEQA requires an evaluation of the project's visual impacts on the environment. The project must comply with the visual resources policies established by the local jurisdictions, including the City of San Jose General Plan, the Alviso Master Plan, and applicable zoning ordinances.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The findings and conclusions and Conditions of Certification regarding visual resources in the previous LECEF Decisions are incorporated herein. We focus here on the potential visual impacts related to Phase 2 development. The Conditions adopted below for Phase 2 reflect and incorporate any changes to the Conditions identified in the 2005 LECEF Decision.

Construction of LECEF Phase 1 changed the visual environment described in the 2002 LECEF Decision by adding the simple cycle power plant itself and the new access road, Thomas Foon Chew Way. Other changes include the SVP Switching Station immediately north of the LECEF site; PG&E's Los Esteros Substation and related transmission lines, some of which parallel SR 237; and berms and landscaping installed in compliance with the Phase 1 Landscaping Plan. (Ex. 1, § 8.13.1.2.) The Conditions of Certification in the previous LECEF Decisions were designed to mitigate Phase 1 visual impacts to insignificant levels. The existing visual environment now includes Phase 1 and its associated mitigation measures and is considered the baseline for this analysis.

The most noticeable component of the Phase 2 project would be a new six-cell, plume-abated cooling tower, which is 58 feet tall and 289 feet long. Other noticeable new structures would include the steam drums installed on top of the four existing 59-foot tall Heat Recovery Steam Generator (HRSG) casings and

one 55-foot tall and 75-foot long steam turbine generator. (Ex. 30, p. 4.12-3.) Phase 2 also includes a 200-foot long overhead transmission line to interconnect the LECEF switchyard to the SVP Switching Station. The existing transmission line connecting to a PG&E transmission line would be removed. (*Id*. at p. 4.12-8.)

Except for the existing one-cell cooling tower, Phase 1 power plant structures are painted gray to optimize their integration with the surrounding landscape and the sky. Phase 2 structures will also be painted or treated with a gray finish per Condition of Certification **VIS-2**. The existing one-cell cooling tower has beige-color treated fiberglass side panels. The raw water storage tank in the northeast quadrant of the project site is also painted beige. A 12-foot tall sound wall, which was installed around the southern, eastern, and western sides of the site, is painted with a dull finish on the lower 8-foot portion to blend with the surrounding area while the upper 4-foot portion is decorative redwood lattice. (Ex. 1, § 8.13.2.3.)

Applicant selected the same key observation points (KOPs) used previously to characterize the existing visual setting and to evaluate potential Phase 2 impacts. These KOPs were chosen because they represent open views across the site potentially seen by large numbers of viewers. (Ex. 1, § 8.13.1.4.)

KOP 1: Eastbound SR 237 at Zanker Road

KOP 1 is located on the Zanker Road on-ramp to eastbound SR 237, approximately 0.25 mile southwest of the site. The present view from KOP 1 in the direction of the site is dominated by the highway in the foreground and the East Bay Hills in the background. Other prominent features include the LECEF, the landscaped berms installed south and southwest of the site, and the electrical transmission lines and poles that parallel the north side of the highway. Although the East Bay Hills, including the 2,500-foot-high summit of Mission Peak, are a high quality landscape feature, the LECEF, highway, electrical transmission

poles, and roadway signs detract from the overall quality of the view. The visual quality of the view from KOP 1 toward the LECEF site is considered moderately low. (Ex. 30, p. 4.12-5.)

No residential viewers are represented by KOP 1, only commuters traveling east on SR 237. Because the attention of motorists is primarily focused on navigating the roadway, and viewers have likely become accustomed to seeing energy infrastructure in this area, viewer concern regarding visual changes is considered moderately low. (Ex. 30, p. 4.12-6.)

From the First Street on-ramp to the Zanker Road over crossing, the upper portions of the LECEF (mostly the stacks) are periodically visible to eastbound motorists on SR 237 when not blocked by buildings and trees along the highway. As eastbound motorists approach the Zanker Road overpass, the LECEF is completely blocked from view by the overpass structure and trees planted along the off-ramp to Zanker Road from westbound SR 237. After passing underneath the Zanker Road overpass, the LECEF comes into full view and is visible for 20 seconds or more while driving at 55 to 60 MPH. The landscaped berms installed southwest and south of the LECEF site currently screen only small portions of the facility. Overall viewer exposure (which takes into account the number of viewers and the visibility and duration of their view) in the area of KOP 1 is considered moderately high. (Ex. 30, p. 4.12-6.)

For KOP 1, the moderately low visual quality, moderately low viewer concern, and moderately high viewer exposure result in an overall visual sensitivity rating of moderate. (Ex. 30, p. 4.12-6.)

KOP 2: Zanker Road

KOP 2 is located on Zanker Road approximately 0.38 mile west of the site and about 0.4 mile north of SR 237. Prominent existing features in the view from KOP 2 are the WPCP buffer lands in the foreground; the LECEF, PG&E Los

Esteros Substation, the SVP Switching Station, and electrical transmission lines in the middle ground; and the East Bay Hills in the background. The power plant and substation have substantially changed the formerly rural character of the view from KOP 2 and disrupt the view of the East Bay Hills. Overall visual quality is moderately low at KOP 2. (Ex. 30, p. 4.12-6.)

KOP 2 does not represent residential views, only views of motorists traveling on Zanker Road. Motorists on Zanker Road, who may work in the area or are using the road to access the neighborhood of Alviso or the Don Edwards San Francisco Bay National Wildlife Area, would likely anticipate seeing public service infrastructure in this area since it is zoned for industrial and public service uses. At KOP 2, viewer concern regarding visual changes is moderately low. (Ex. 30, p. 4.12-6.)

The LECEF is highly visible from KOP 2 because the intervening land is open and undeveloped. The LECEF site is peripheral to Zanker Road and outside the primary focus of both northbound and southbound motorists on the road. Overall viewer exposure at KOP 2 is moderate. (Ex. 30, p. 4.12-7.)

For KOP 2, the moderately low visual quality and viewer concern, and the moderate viewer exposure result in an overall visual sensitivity rating of moderately low. (Ex. 30, p. 4.12-7.)

Applicant provided photo simulations of the new Phase 2 components at both KOPs to compare the views with and without the project. (Ex. 30, Visual Resources Figures 2A, 2B, 2C, 2D, 3A, and 3B.) Based on the simulations and in accordance with CEQA methodology, the evidentiary record describes the project's potential impacts on scenic vistas, scenic resources, and the visual character or quality of the area view shed. (*Id*. at p. 4.12-9 et seq.)

From KOP 1, the overall visual change caused by Phase 2 would be moderate due to the moderate degree of contrast and dominance, and the moderately low degree of view blockage. Within the context of the moderate visual sensitivity of the existing view shed, the moderate degree of visual change perceived from the KOP 1 area would not substantially degrade existing visual quality. While this moderate change would result in an adverse visual impact, it is less than significant since the visual impact would be reduced as LECEF's landscaping matures to provide screening of the project's structures. Condition of Certification **VIS-3** ensures that the landscaping and berms are maintained for the life of the project. (Ex. 30, p. 4.12-9.)

From KOP 2, the overall visual change caused by Phase 2 would be moderately low due to the moderate degree of contrast and low degrees of dominance and view blockage. Within the context of the moderately low visual sensitivity of the existing view shed, the moderately low degree of visual change perceived from KOP 2 area would not substantially degrade existing visual quality. While this would result in an adverse visual impact, it is less than significant. (Ex. 30, p. 4.12-10.)

Staff presented extensive evidence on the potential impacts of visible water-vapor plumes from both the cooling towers and HRSG exhaust stacks. (Ex. 30, p. 4.12-11 et seq., Appendix VR-2 Visible Plume Analysis.) The evidence indicates that cooling tower plumes, if properly abated, would occur infrequently and not result in significant visual impacts. Condition **VIS-6** requires the project owner to install plume abatement equipment and monitoring systems on the new six-cell cooling tower to minimize the formation of visible plumes. (Ex. 30, p. 4.12-12.) Staff determined that exhaust stack plumes would occur so infrequently that no technological mitigation measures would be necessary. (*Id*. at p. 4.12-13.)

During construction and operation of Phase 2, additional lighting will be necessary for safety and security. Condition **VIS-4** requires the project owner to implement a lighting plan to minimize off-site visual impacts during both construction and operation. (Ex. 30, pp. 4.12-8 and 4.12-13.)

Construction equipment and materials stored on the 13-acre laydown area south of the site will be partially visible to passing motorists on SR 237. (Ex. 30, p. 4.12-8.) Although construction activities will be temporary, Condition **VIS-1** requires screening of the laydown areas and restoration after construction to prevent these areas from becoming sources of long-term visual blight.

In the previous LECEF Decisions, we found the project's cumulative visual impacts would be less than significant with mitigation. Phase 2 structures will be screened by the landscaping planted on the berms and along the boundaries of the LECEF site so the cumulative visual impacts of LECEF will remain less than significant. The new SVP Switching Station, located in the narrow strip of land between the LECEF and the Los Esteros Substation, is not particularly noticeable to motorists on SR 237 since it is screened by the LECEF itself, the berm, and landscaping. Although the Switching Station is more visible from Zanker Road, it is not within the primary view of motorists. Thus, we conclude that Phase 2 and the SVP Switching Station would not combine together to produce significant cumulative visual impacts. (Ex. 30, p. 4.12-14.)

The panoramic view from the Alviso neighborhood along Grand Boulevard west of the LECEF site contains approximately 6-8 visible water vapor plumes emanating from sources south of SR-237. The most prominent of these plumes and the one closest to the project is the plume from Calpine's Agnews Cogeneration Plant located approximately 0.9 mile south of the LECEF site. Because the Phase 2 HRSG plumes and abated cooling tower plumes would occur very infrequently, the resulting adverse cumulative visual impact experienced from Alviso would not be significant, particularly when viewed at a

distance of 1.7 miles away. (Ex. 30, p. 4.12-14.) Thus, we conclude there are no significant cumulative visual impacts resulting from construction and operation of Phase 2.

Staff's Visual Resources Table 3, replicated below, evaluates the project's consistency with applicable local LORS.

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
General Plan; Community Development; Urban Design	Policy 2: Private development should include adequate landscape areas. Landscape areas should utilize water efficient plant materials and irrigation systems. All landscape areas should include provision for ongoing landscape maintenance.	**Yes.** The west, south, and east boundaries of the LECEF site have already been extensively landscaped. In addition, a landscaped berm was installed southwest of the site. No additional landscaping has been proposed for Phase 2. Some of the tree species that were planted are drought tolerant. The LECEF landscape areas are irrigated with reclaimed water. Staff is proposing modifications to Condition of Certification **VIS-3** to require routine maintenance of the landscape areas for the life of the LECEF Phase 2 project.
	Policy 17: Development adjacent to creekside areas should incorporate compatible design and landscaping including plant species which are native to the area or are compatible with native species.	**Yes.** Landscaping was planted along the west, south, and east sides of the LECEF site, and on a large berm southwest of the site. The following trees were planted in these areas: coast redwood, river she-oak, shamel ash, cajeput, California sycamore, and coast live oak. Of these, the redwood, sycamore, and oak are native to California. And of these, the sycamore and oak are found in the Coyote Creek riparian area. The non-native trees in the landscape areas are compatible with native species found in the area.
	Policy 18: Where sound attenuation walls are deemed necessary, landscaping and an aesthetically pleasing design shall be used to minimize visual impact.	**Yes.** An eight-foot tall, masonry block sound wall was installed on the west, south, and east sides of the LECEF site. The wall has a textured surface and is adorned with a 4-foot tall decorative redwood lattice fence along its top. Shrubs and tall growing trees have been planted on the outside of the wall.
General Plan; Aesthetic, Cultural, and Recreational Resources; Scenic Routes	Policy 1: Development within the designated Rural Scenic Corridors and along designated Landscaped Throughways should be designed with the intent of preserving and enhancing attractive natural and man-made vistas.	**Yes.** SR 237 is a designated Landscaped Throughway. The landscaping surrounding the LECEF has been designed so it will substantially screen the power plant structures but will not block sightlines from KOP 1 of the distant ridgelines of the north trending East Bay Hills. The new cooling tower structure would block a small portion of the East Bay Hills; however, the portion of the hills that would be blocked by the new structure is already compromised by existing development. The new Phase 2 structures would not disrupt views of the ridgeline of the East Bay Hills as seen from public viewpoints.

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
	Policy 4: Any development occurring adjacent to Landscape Throughways should incorporate interesting and attractive design qualities and promote a high standard of architectural excellence.	**Yes.** An Architectural Review Committee, which included representatives of the cities of San Jose and Milpitas, was established to ensure the LECEF's compliance with Policy 4 (see condition **VIS-7**). The committee did not recommend any architectural treatment on the existing structures themselves, but rather recommended installation of two large landscaped berms to the south and southwest of the LECEF site, which Calpine installed at the end of 2003. Staff inspected the completed landscaping and found that it was installed consistent with the landscape plans approved by the Energy Commission Compliance Project Manager. The landscaping planted on the berms and around the LECEF site will substantially screen the LECEF Phase 2 project structures when it matures. As such, staff does not believe there is a need, as VIS-7 requires, to "continue to confer with the cities of San Jose and Milpitas to consider additional aesthetic changes" to ensure the project's compliance with Policy 4. To avoid confusion as to whether it is necessary to "continue to confer" with the local agencies, staff believes condition **VIS-7** should be deleted (shown in strikethrough format). Calpine proposes to treat the new six-cell cooling tower and the other Phase 2 structures in a gray color to match the existing LECEF power plant structures, and to blend with the sky (as seen from westbound SR 237) and the hills (which change in color seasonally from green to brown and often appear grayish due to haze). The plume abatement air intake vents would break up the otherwise uniform façade of the new cooling tower. The decorative sound wall and the extensive landscaping are interesting and attractive features at the LECEF site.
	Policy 5: Any development along Landscaped Throughways entering the City should be designed to provide attractive gateways to the City.	**Yes.** The LECEF is visible briefly to westbound motorists on SR 237 as they enter San Jose from neighboring Milpitas. Although most people would not consider the existing LECEF structures and the proposed cooling tower to be "attractive," as required by **VIS-2**, all of the LECEF structures will be repainted or retreated as necessary to maintain a high-quality appearance for the life of the project. The new cooling tower would be treated in a gray color similar to the existing power plant to maximize its integration with the environment. The decorative sound wall and landscaping are attractive features visible to motorists entering the City of San Jose that enhance the overall appearance of the project.
General Plan; Aesthetic, Cultural, and Recreational Resources;	Policy 1: The City should control land development along designated Trails and Pathways Corridors in order to provide sufficient trail right-of-way and to ensure that new	**Yes.** The sound wall, berm, and tall growing trees will partially screen views of the project structures from the proposed Bay Trail alignment along Coyote Creek.

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
Trails and Pathways	development adjacent to the corridors does not compromise safe trail access nor detract from the scenic and aesthetic qualities of the corridor.	
General Plan; Scenic Routes and Trails Diagram; Scenic Routes	Landscaping in Urban Throughways should be used to supplement and enhance adjacent land. Landscaping along these thoroughfares will provide a foreground framework or a clearing for longer distance views, and will also screen unsightly views or uncharacteristic land uses.	**Yes.** The landscaping that has been installed on and offsite will in time substantially screen the proposed cooling tower and the existing LECEF structures. The landscaping was designed so at maturity it will not block views of the distant ridgeline of the East Bay Hills as seen from SR 237.
	Commercial and industrial development adjacent to Urban Throughways should be attractive and have a high quality of architectural design. These developments should be sufficiently spaced to preserve the scenic character of the thoroughfare.	**Yes.** Upon recommendation of the Architectural Review Committee, landscaped berms were installed to improve the appearance of the LECEF. The committee did not recommend any architectural treatment on the existing LECEF structures themselves. The new cooling tower would be treated in a gray color to maximize its integration with the environment. In time, the landscaping will substantially screen the tower. The Phase 2 additions are being built within the existing fence line of the LECEF site. The land surrounding the LECEF access road (Thomas Foon Chew Way) is to be maintained as a landscaped buffer area, and the remaining land west of the site and east of Zanker Road, as well as land west of Zanker Road are open WPCP buffer lands, all of which provide a clearing for views to the surrounding area.
Alviso Master Plan; Land Use Policies	Industrial/Non Industrial Relationships Policy 2: The light industrial areas located north of State Street and adjacent to Coyote Creek should mitigate potential negative environmental impacts to nearby natural resources.	**Yes.** The new six-cell cooling tower is located over 1,600 feet away from the Coyote Creek corridor. The sound wall, berm, and tall growing trees would partially screen views of the new structure from the proposed future Bay Trail along the creek.
	Gateway Entrances Objective: Development located near Highway 237 along both sides of Gold Street, First Street, and Zanker Road should foster a “gateway” feel through building orientation, signs, trees, landscaping, and other features.	**Yes.** The LECEF is visible briefly to westbound motorists on SR 237 as they enter San Jose from neighboring Milpitas. Tall growing trees and a decorative sound wall were installed around the boundaries of the LECEF. Upon recommendation of the Architectural Review Committee, two large landscape berms were installed south and southwest of the site to screen views of the LECEF from eastbound and westbound SR 237. The committee did not recommend any architectural treatment on the existing LECEF structures, and none is proposed by Calpine for the Phase 2 structures. The most noticeable new structure, the six-cell cooling tower would be treated in a gray color similar to the existing power plant to maximize its integration with the environment.
Alviso Master Plan; Design	Design Objective: Given the high visibility of most of this area,	**Yes.** While the Phase 2 structures themselves would not be considered “attractive” by most

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
Guidelines; Lands Outside of the Village Area	development should be attractive; should fit in the context of the larger community; and should reflect some of the elements and materials of seaside styles to contribute to Alviso's sense of place.	people, all of the LECEF structures will be repainted or retreated as necessary to maintain a high-quality appearance for the life of the project. The decorative sound wall and extensive landscaping improve the appearance of the LECEF. While none of the existing or proposed LECEF structures incorporate seaside styles characteristic of the community of Alviso, some native trees found in the Coyote Creek riparian area have been incorporated into the project's landscaped areas. The project does fit into the context of the other public service infrastructure characteristic of the area.
Alviso Master Plan; Design Guidelines; Lands Outside of the Village Area; Industrial Development	Development Standards – Parking: The majority of the surface parking area for any industrial development should be located at the side and/or rear of the building. Parking areas adjoining the street should be screened by the placement of trees, a low hedge or a wall within the front setback area.	**Yes.** No additional parking areas are proposed for Phase 2. The existing LECEF parking area is located south of the office and control buildings, which are located north of the power generation equipment. The parking area is not visible from offsite because it is screened by the sound wall, landscaping, and the power plant structures.
Alviso Master Plan; Landscaping Policies	Landscaping Policy 1: Landscaping should make a strong connection between the natural and built environment and preserve Alviso's existing character.	**Yes.** The LECEF site is located about 1.7 miles east of the community of Alviso and about 700 feet west of densely vegetated Coyote Creek riparian area. The project site has been extensively landscaped using some California native trees that are found in the Coyote Creek riparian area.
	Landscaping Policy 2: Landscaping should be simple and minimal to reflect Alviso's open character. a)…Trees should be used sparingly to maintain the open views of Alviso.	**Yes.** While much of the area between the community of Alviso and the LECEF site is open and sparsely vegetated, the project site is about 700 feet west of the Coyote Creek riparian area, which is densely vegetated with typical native riparian vegetation including Fremont cottonwood, red willow, box elder, coast live oak, arroyo willow, western sycamore, and black walnut. The LECEF landscaping includes some of these native trees and other riparian trees to reflect the character of the Coyote Creek vegetation.
	Landscaping Policy 3: Landscaping should be used to screen unattractive uses and soften the effect of taller buildings due to the flood protection requirements.	**Yes.** In time, the tall growing trees on the berms and around the site boundaries will substantially screen the existing LECEF and Phase 2 structures.
	Landscaping Policy 4: Landscaping should not block views of the rivers, natural riparian areas, or marshlands.	**Yes.** The LECEF landscaping partially obstructs views of the Coyote Creek riparian area. Views of the riparian area are still possible from various points along SR 237 and Zanker Road. Project landscaping includes several California native trees, including species found in the riparian area.
	Landscaping Policy 7: To the extent feasible, major new landscaping should be irrigated with reclaimed water from the Water Pollution Control Plant.	**Yes.** The LECEF landscaped areas are irrigated with reclaimed water from the WPCP.
San Jose	I. Building Height: The maximum	**Yes.** Urban Design Policy 10 of the General Plan

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
Ordinance No. 26579; General Development Plan; Development Standards	building height shall conform to the General Plan. Auxiliary structures, including but not limited to, towers and communications devices shall not exceed 100 feet in height, or as allowed by the General Plan.	states that building height should not exceed 50 feet. No new buildings are proposed for Phase 2. None of the proposed Phase 2 structures would exceed the structural height limitation of 100 feet. The existing HRSG stacks are 90 feet tall. The proposed combined-cycle modifications to the HRSG casings, such as the steam drums and relief valves and silencers, would extend to a height of 71 feet and 88 feet from grade, respectively. The proposed six-cell cooling tower would be 58 feet tall, and the proposed steam turbine generator would be 55 feet tall.
San Jose Ordinance No. 26579; General Development Plan; VIII. Environmental Mitigations; H. Visual Resources	2. All new industrial development will comply with the City's Industrial Design Guidelines, which state that structures and activities should be located and designed to avoid creating nuisances and hazards for adjoining properties. The Industrial Design Guidelines also provide that lighting levels should not spill onto adjacent properties.	**Yes.** Lights needed for the Phase 2 structures would be designed similar to the existing LECEF fixtures to minimize offsite impacts. Existing lights are hooded/shielded to minimize direct light trespass and prevent direct illumination of the night sky. Many of the lights, such as those on the upper levels of the facility, are on switched circuits and kept off at night unless needed for nighttime maintenance and routine inspections by plant operators. Direct light is visible from immediately outside the project boundary given the high location of some of the fixtures on the taller structures. However, the property to the west of the site is undeveloped WPCP buffer lands that are not publicly accessible, and the property to the east is an agricultural field. The PG&E Los Esteros Substation to the north has some unshielded lights. From public viewpoints, direct light is not visible from the hooded/shielded LECEF light fixtures.
	3. … taller buildings will be located farther from the residential neighborhood and closer to SR 237. To the extent feasible, landscape plant materials will be native, wind tolerant, relatively fast growing and require little care. Landscaping will be used to soften the effect of taller buildings.	**Yes.** The project, which includes a 58-foot tall cooling tower, is located about 1.7 miles east of the residential community of Alviso and about 700 feet north of SR 237. The landscaping includes several tree species that are native to California. The coast live oak and cajeput tree are moderate growers. The shamel ash, sycamore, and coast redwood are fast growers and the river she-oak is a moderately fast grower. Except for cajeput, which grows to 30 to 40 feet tall, all of the trees will grow to a maximum height of 60 feet or more. The coast redwoods could grow 90 feet tall. Over time, the trees would soften the effect of the proposed 58-foot tall six-cell cooling tower.
	4. Small equipment within the energy facility will be placed within enclosures as appropriate.	**Yes.** Small equipment at the LECEF has been placed within enclosures. The 12-foot perimeter wall also screens the small equipment from view. The proposed steam turbine would be in an enclosure. Although the lower portion of the six-cell cooling tower would be open, the upper portion would be enclosed.
	5. Landscape berms surrounding the site will be put in place to partially shield views of the project from SR 237 and the proposed Bay Trail	**Yes.** Two large berms were constructed southwest and immediately south of the site. A smaller berm was constructed on the east side of the site. The berms have been landscaped with

Visual Resources Table 3
Consistency with City of San Jose LORS

LORS		
Source	**Objective and Policy Descriptions**	**Consistency Determination**
	alignment. The Coyote Creek Trail may be located at the top of the existing Coyote Creek by-pass levee and shielding would be less effective.	tall growing trees which will partially shield views of the project from SR 237 and the proposed Bay Trail along the Coyote Creek corridor. The trees will be much more effective at screening the project from SR 237 than from Coyote Creek because the trees were planted closer to highway than they were to the creek.
San Jose Ordinance No. 26579; General Development Plan; Conditions of Approval	3.c) Open space on the Water Pollution Control Plant's "Buffer Lands" to be landscaped consistent with the Alviso Master Plan and WPCP Guidelines. To the extent possible, indigenous species should be planted as grasslands or marshlands with low shrubs and few trees. Trees should be kept close to the buildings.	**Yes.** About 28 acres of the WPCP buffer land surrounding the LECEF access road will be maintained as open space. The berm to the southwest of the site was built on a part of this land. About 20 large coast live oak trees were planted sporadically and informally on the berm. These oaks are native species that are found in the Coyote Creek riparian area. All other trees were planted close to the LECEF structures.

FINDINGS AND CONCLUSIONS

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

1. The LECEF is located near a busy freeway in an area that has a mix of open space land-extensive infrastructure facilities, and scattered industrial, commercial, and residential development.

2. Construction of LECEF Phase 1 changed the visual environment described in the 2002 LECEF Decision by adding the simple cycle power plant and the new access road, Thomas Foon Chew Way. Other changes include the SVP Switching Station; PG&E's Los Esteros Substation and related transmission lines; and berms and landscaping installed in compliance with the Phase 1 Landscaping Plan.

3. While the addition of Phase 2 components will create moderate and moderately low changes to the view shed at the key observation points (KOPs), these changes will not result in significant visual impacts.

4. Implementation of the Landscaping Plan for the life of the project and the other mitigation measures contained in the Conditions of Certification will reduce the project's visual impacts to less than significant levels.

5. With implementation of the Landscaping Plan and the Conditions of Certification, Phase 2 will not significantly degrade the general visual character or quality of the view shed.

6. All laydown and equipment storage areas will be screened during construction and remediated upon completion of construction to ensure that no permanent visual impacts result from construction activities.

7. Plume abatement equipment and monitoring systems on the new six-cell cooling tower will minimize the formation of visible water vapor plumes so that occurrences will be infrequent and not significant.

8. Implementation of an approved Lighting Plan will minimize illumination of the project site to off-site views.

9. Surfaces of project components will be painted and finished to minimize visual contrast in the site vicinity.

10. The mitigation measures described in the evidentiary record and contained in the Conditions of Certification adequately mitigate the project's contribution to any overall cumulative visual impacts.

11. LECEF Phase 2, as conditioned herein, will comply with the applicable laws, ordinances, regulations, and standards identified in Visual Resources Table 3 in this section and in the pertinent portions of Appendix A in this Decision.

We therefore conclude that construction and operation of the LECEF Phase 2 will not cause any significant direct, indirect, or cumulative adverse visual impacts.

CONDITIONS OF CERTIFICATION

VIS-1 The project owner shall ensure that visual impacts of project construction are adequately mitigated. To accomplish this, the project owner shall require the following as a condition of contract with its contractors to construct the proposed project:

Protocol: All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction.

The project owner shall submit a plan to the California Energy Commission Compliance Project Manager (CPM) for review and approval and to the City of San Jose for review and comment for restoring the surface conditions of construction staging and storage areas. The plan shall include grading, contouring, and revegetation consistent with applicable plans.

The project owner shall not implement the plan until receiving written approval of the submittal from the CPM.

Verification: At least 45 days prior to beginning implementation of the surface restoration, the project owner shall submit the restoration plan to the CPM for review and approval and to the City of San Jose for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 15 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within 7 days after completing the surface restoration that it is ready for inspection.

VIS-2 The project owner shall a) treat all project structures and buildings visible to the public in appropriate colors or hues that minimize visual intrusion and contrast by blending with the surrounding landscape, and b) ensure that those structures and buildings have surfaces that do not create glare. A specific treatment plan shall be developed for CPM approval to ensure that the proposed colors do not unduly contrast with the surrounding landscape colors. The plan shall be submitted sufficiently early to ensure that any precolored buildings, structures, and linear facilities will have colors approved and included in bid specifications for such buildings or structures. Prior to submittal of the plan to the CPM, the project owner shall submit the plan to the City of San Jose for review and comment.

Protocol: The treatment plan shall include:

a) specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
b) a list of each major project structure, building, and tank, specifying the color(s) proposed for each item;
c) samples of the proposed treatment and color on any fiberglass materials that would be visible to the public and one set of color brochures or color chips showing each proposed color and finish;
d) documentation that the surfaces to be used on all project elements visible to the public will minimize glare; where this is not practicable, provide documentation of the infeasibility of nonglare paint or material;
e) a detailed schedule for completion of the treatment; and;

f) a procedure to ensure proper treatment maintenance for the life of the project.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

Verification: At least 30 days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval and to the City of San Jose for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Prior to the start of commercial operation of Phase 2, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all buildings and structures (including the perimeter walls) at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

VIS-3 The project owner shall provide landscaping that is effective in screening the majority of structural forms (not the upper portions of the stacks) from the following key viewing areas: (a) SR-237 and the existing bicycle trail to the south, (b) Zanker Road to the west, and (c) the proposed Bay Trail alignments to the east (Reach 1). Screening vegetation must be provided around the project's eastern, southern, and western edges, and include a sufficient number of appropriately located evergreen trees to ensure effective year-round screening. Trees and other vegetation must be strategically placed and of sufficient height and density to achieve maximum effective screening of the proposed project structures as soon as possible. In screening project facilities, care must be taken in siting vegetation plantings to avoid blocking vista views of distant ridgelines.

Protocol: The project owner shall submit a final landscaping plan that has been approved by the Project Architectural Committee. The plan shall, to the extent feasible, incorporate the landscaping plan presented to the Commission on May 20, 2002, by Dr. Priestly. The Plan shall include:

a) 11”x17” color simulations of the proposed landscaping at 5 years as viewed from KOPs 1 and 2;

b) a detailed list of plants to be used and times to maturity given their size and age at planting;

c) a detailed schedule describing when plants will be installed in specific landscape areas, and a discussion which provides the justification for the planting schedule for the specific areas and species proposed;

d) maintenance procedures, including but not limited to, any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project; and

e) a procedure for monitoring for and replacement of unsuccessful plantings for the life of the project as necessary to maintain a visual screen.

The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM. However, the planting must be completed as soon as practical without impeding construction and consistent with the Applicant’s revised landscaping plan that was presented on May 20, 2002.

Verification: The final project landscaping plan shall be prepared under the direction of the Architectural Committee. At least 30 days prior to installing the landscaping, the project owner shall submit the plan to the CPM for review and approval and the City of San Jose for review and comment. If the CPM does not approve the landscape plan, that element shall return to the Committee for further discussion and resolution.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within 7 days after completing installation of the landscaping, that the landscaping is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying screening trees and any major repairs to the berms and irrigation system, for the previous year of operation in each Annual Compliance Report.

VIS-4 The project owner shall design and install all lighting such that light bulb and reflector glare is not visible from public viewing areas and illumination of the vicinity and the night sky is minimized during both project construction and operation. The project owner shall develop and submit lighting plans for construction and operation of the project to the CPM for review and approval and the City of San Jose for review and comment.

Protocol: The lighting plan shall require that:

a) All exterior night lighting shall be of minimum necessary brightness consistent with operational safety and security.
b) Lighting shall be designed so that during both construction and operation (consistent with worker safety), highly directional, exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the night sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary, except where necessary for security.
c) High illumination areas not occupied on a continuous basis such as maintenance platforms shall be provided with switches or motion detectors to light the area only when occupied.
d) A lighting complaint resolution form (following the general format of the complaint report/resolution form in the General Conditions section) shall be used by plant operations, to record all lighting complaints received and to document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file. The project owner shall provide a copy of each completed complaint form to the CPM.

Lighting shall not be installed before the plans are approved.

Verification: At least 15 days prior to installing the construction lighting, the project owner shall provide the construction lighting plans to the CPM for review and approval and the City of San Jose for review and comment. If the CPM notifies the project owner that revisions to the construction lighting plan are needed before the CPM will approve the plans, the project owner shall submit a revised plan within seven days of receiving that notification from the CPM

At least 30 days before ordering the facility exterior lighting, the project owner shall provide the lighting plan to the CPM for review and approval and the City of San Jose for review and comment. If the CPM notifies the project owner that any revisions to the facility lighting plans are needed before the CPM will approve the plans, the project owner shall submit to the CPM a revised plan within 30 days of receiving the CPM's notice that revisions to the plan are required.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 15 days for construction lighting and 30 days for facility lighting of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 48 hours of receiving a lighting complaint, the project owner shall provide to the CPM a) a report of the complaint, b) a proposal to resolve the complaint, and c) a schedule for implementation of the proposal. The project owner shall provide a copy of the completed complaint resolution form to the CPM within 10 days of complaint resolution, and retain a copy in the project owner's compliance file.

VIS-5 The project owner shall comply with the City of San Jose's requirements regarding signs visible to the public. In addition, the project owner shall install minimal signage, which shall be constructed of non-glare materials and unobtrusive colors. 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 CPM for review and approval and to the City of San Jose for review and comment. The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

Verification: At least 30 days prior to installing signage visible to the public, the project owner shall submit the plan to the CPM for review and approval and to the City of San Jose for review and comment.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within 7 days after completing installation of the signage that they are ready for inspection.

VIS-6 The project owner shall reduce the six-cell cooling tower visible vapor plumes through the use of a dry-cooling section that has a stipulated plume abatement design equivalent to or better than that depicted in the Data Request Response No. 53 Attachment VIS-3 Fogging Frequency Curve, dated April 2004. Automated meteorological equipment that monitors plume forming ambient conditions shall be used to notify the operator when the plume abatement system needs to be activated immediately to ensure that plumes are abated to the maximum extent possible for the stipulated design point. The monitoring system shall also

include a video camera and feed to the control room to provide visual verification of plume abatement.

The project owner shall operate the one-cell cooling tower in a manner that abates visible plumes to the maximum extent possible based on the existing plume abatement design.

Verification: At least 60 days prior to construction of the six-cell cooling tower, the project owner shall provide to the CPM for review and approval the specifications for the abatement system (including the fogging frequency curve) and for the meteorological monitoring and notification system and the operations protocol for its use, that will be used to ensure maximum plume abatement from the dry-cooling section of the six-cell cooling tower.

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 design parameters, except as necessary to prevent damage to the cooling tower. If determined by the CPM to be necessary to ensure operational compliance, based on legitimate complaints received or 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: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Proof of Service List*

Appendix C: *Exhibit List*

APPENDICES

AIR QUALITY

FEDERAL

Under the Federal Clean Air Act (42 U.S.C. §7401 et seq.), there are two major components of air pollution law, New Source Review (NSR) and Prevention of Significant Deterioration (PSD). NSR is a regulatory process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a regulatory process for evaluation of those pollutants that do not violate federal ambient air quality standards.

The NSR analysis has been delegated by the United States Environmental Protection Agency (U.S. EPA) to the District. The U.S. EPA determines conformance with the PSD regulations. The PSD requirements apply only to those projects (known as major sources) that exceed 100 tons per year for any pollutant. LECEF Phase 2 will not be subject to PSD requirements because the facility does not emit more than 100 tons per year of any singular criteria pollutant.

STATE

The federal Clean Air Act is implemented by the California Air Resources Board (ARB) and a number of local air districts. ARB also adopts state standards for criteria pollutant impacts that are often more stringent than those adopted by the federal EPA. These state requirements, like the federal ones, are in turn enforced by the local air districts. These air districts issue air permits for most stationary sources, enforce state and federal law, and monitor sources for permit compliance. When power plants are licensed by the Energy Commission, the air district permit is incorporated as part of that license, thus capturing the conditions the local air district would otherwise have required for compliance with state and federal law.

LOCAL

The project is subject to all applicable District rules and regulations, briefly described below:

Regulation 2

Rule 1 - General Requirements. This rule contains general requirements, definitions, and a requirement that an applicant submit an application for an authority to construct and permit to operate.

Rule 2 - New Source Review. This rule applies to all new and modified sources. The following sections of Rule 2 are the regulations that are applicable to this project.

- Section 2-2-301 - Best Available Control Technology (BACT) Requirement: This rule requires that BACT be applied for each pollutant which is emitted in excess of 10.0 pounds per day.
- Section 2-2-302 - Offset Requirement, Precursor Organic Compounds (POC) and Oxides of Nitrogen (NO_x). This section applies to projects with an emissions increase of 50 tons per year or more of POC and/or NO_x. Offsets shall be provided at a ratio of 1.15 tons of emission reduction credits (ERCs) for each 1.0 ton of proposed project permitted emissions.
- Section 2-2-303 - Offset Requirements, Particulate Matter (TSP), PM10 and Sulfur Dioxide: If a Major Facility (a project that emits more than 100 tons per year of PM10) has a *cumulative increase* of 1.0 ton per year of PM10 or SO_2, emission offsets must be provided for the entire cumulative increase at a ratio of 1.0:1.0.

Emission reductions of nitrogen oxides and/or sulfur dioxide may be used to offset increased emissions of PM10 at offset ratios deemed appropriate by the Air Pollution Control Officer. A facility that emits less than 100 tons of any pollutant may voluntarily provide emission offsets for all, or any portion, of their PM10 or sulfur dioxide emissions increase at the offset ratio required above (1.0:1.0).

- Section 2-2-606 - Emission Calculation Procedures, Offsets. This section requires that emission offsets must be provided from the District's Emissions Bank, and/or from contemporaneous actual emission reductions.

Rule 7-Acid Rain. This rule applies the requirements of Title IV of the federal Clean Air Act, which are spelled out in Title 40, Code of Federal Regulations, section 72. The provisions of Section 72 will apply when the U.S. EPA approves the District's Title IV program, which has not been approved at this time. The Title IV requirements will include the installation of continuous emission monitors to monitor acid deposition precursor pollutants.

Regulation 6

Regulation 6 - Particulate Matter and Visible Emissions. The purpose of this regulation is to limit the quantity of particulate matter in the atmosphere. The following two sections of Regulation 6 are directly applicable to this project:

- Section 301 - Ringelmann No. 1 Limitation: This rule limits visible emissions to no darker than Ringelmann No. 1 for periods greater than three minutes in any hour.
- Section 310 - Particulate Weight Limitation: This rule limits source particulate matter emissions to no greater than 0.15 grains per standard dry cubic foot.

Regulation 9

Rule 1 - Limitations

- Section 301: Limitations on Ground Level Sulfur Dioxide Concentration. This section requires that emissions of sulfur dioxide shall not impact at ground level in excess of 0.5 ppm for 3 consecutive minutes, or 0.25 ppm averaged over 60 minutes, or 0.05 ppm averaged over 24 hours.
- Section 302: General Emission Limitation. This rule limits the sulfur dioxide concentration from an exhaust stack to no greater than 300 ppm dry.

Rule 9 - Nitrogen Oxides from Stationary Gas Turbines. This rule limits gaseous fired, selective catalytic reduction (SCR) equipped, combustion turbines rated greater than 10 MW to 9 ppm @ 15 percent O_2.

Regulation 10

Rule 26 - Gas Turbines - Standards of Performance for New Stationary Sources. This rule adopts the national maximum emission limits (40 C.F.R. §60) which are 75 ppm NO_x and 150 ppm SO_2 at 15 percent O_2. Whenever any source is subject to more than one emission limitation rule, regulation, provision or requirement relating to the control of any air contaminant, the most stringent limitation applies.

ALTERNATIVES

The “Guidelines for Implementation of the California Environmental Quality Act,” Title 14, California Code of Regulations Section 15126.6(a), requires an evaluation of the comparative merits of “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.” In addition, the analysis must address the No Project Alternative (Cal. Code Regs., tit. 14, §15126.6(e)).

The range of alternatives is governed by the “rule of reason” which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. The California Environmental Quality Act (CEQA) states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative (Cal. Code Regs., tit. 14, §15126.6(f)(3)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (City of Santee v. County of San Diego (4th Dist. 1989) 214 Cal. App. 3d 1438).

BIOLOGICAL RESOURCES

FEDERAL

Clean Water Act of 1977

Title 33, United States Code, sections 1251-1376, and Code of Federal Regulations, part 30, 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 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, prohibit 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 plant and animal 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.

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 as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird.

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. protects state rare, threatened, and endangered plants.

California Code of Regulations

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

LOCAL

Santa Clara County General Plan- 1995 to 2010

Policy R-RC 19 requests that habitat types and biodiversity be maintained and enhanced. Policy R-RC 24 requests that areas of particularly fragile ecological nature necessary for preserving threatened or endangered species receive special consideration for preservation and protection from development impacts. Policy R-RC 37 requests that lands near creeks, streams, and freshwater marshes shall be considered to be in a protected buffer area. Policy R-RC 38 states that buildings, structures, and parking lots are not allowed in the buffers defined in R-RC 37, exceptions being those minor structures required as part of flood control projects.

City of San Jose 2020 General Plan

Woodlands, Grasslands, Chaparral, and Scrub Policies

Number 8: Serpentine grasslands should be preserved and protected to the greatest extent feasible or appropriate measures should be taken to restore or compensate.

Bay and Baylands Policies

Number 5: The City should continue to participate in the Santa Clara Valley Non-Point Source Pollution Control Program and meet regional water quality standards implemented through the National Pollution Discharge Elimination System Permits.

Species of Concern Policies

Number 1: Consideration should be given to setting aside conservation areas in the Bay and baylands, along riparian corridors, upland wetlands, and hillside areas to protect habitats of unique, threatened, and endangered species.

Number 2: Habitats that support Species of Concern should be retained to the greatest extent feasible.

Urban Forest Policies

Number 8: Where urban development occurs adjacent to natural plant communities (e.g. riparian forest), landscape plantings should incorporate tree species native to the area to the greatest extent feasible.

Coyote Valley Specific Plan

The City Council for City of San Jose initiated this Specific Plan in 2002 and it is still a work in progress. It plans land uses in detail, determines infrastructure and community services, formulates financing and implementation programs, and phases the implementation of any of the plan elements as necessary. Coyote Valley Specific Plan is being carefully coordinated with the various wildlife agencies.

City of San Jose Riparian Corridor Policy

Guideline 1C: Setback Areas

All buildings, other structures, impervious surfaces, outdoor activity areas, and ornamental landscaped areas should be separated a minimum of 100 feet from the edge of the riparian corridor (or top of bank, whichever is greater). Exceptions to the 100-foot setback may be considered for certain circumstances, including utility or equipment installations which involve no significant disturbance to the riparian corridor during construction and operation, and generate only incidental human activity.

Guideline 2C: Visual and Guideline 2E: Lighting

Development projects should be designed to minimize potential impacts to adjacent riparian habitat through the use of environmentally sensitive construction materials/activities, specialized lighting features, and native landscaping.

Guideline 2f: Noise

The operation of mechanical equipment within or adjacent to riparian corridors should not exceed noise levels for open space as specified in the Noise Element of the City of San Jose's General Plan. Noise producing stationary equipment should be located as far as necessary from riparian corridors to preclude exceeding the ambient noise level in the corridors.

Guideline 6D: Herbicides

Herbicide use within and adjacent to riparian corridors should be limited to those specifically labeled for use adjacent to water courses.

Guideline 7B: Water Quality/Drainage and Runoff

The direct discharge of industrial effluent into the riparian channel, corridor, or floodplain is prohibited. Runoff from industrial uses should not enter the riparian corridor, or Best Management Practices should be provided and permanently maintained and on-site retention areas used.

Ordinance-sized Trees and Heritage Trees

City of San Jose Civil Code, Titles 13.28.330-13.28.360 define and protect Heritage Trees. Title 13.31.010 to 13.32.100 prohibits the removal of trees that are 56 inches or greater at 24 inches above the natural grade or slope without a permit.

Ordinance 26248 - Lighting

City of San Jose Municipal Code (Part 5) states any lighting located adjacent to riparian areas shall be directed downward and away from riparian areas.

CULTURAL RESOURCES

FEDERAL

- Code of Federal Regulations, 36 CFR Part 61. Federal Guidelines for Historic Preservation Projects: The U.S. Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.
- Code of Federal Regulations, 36 CFR Part 800 et seq., the implementing regulations of Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470 requires federal agencies to take into account the effects of their undertakings on historic properties through consultations beginning at the early stages of project planning. The regulations implementing this act, which were revised in 1997, set forth procedures to be followed for determining eligibility of cultural resources, determining the effect of the undertaking on the historic properties, and how the effect will be taken into account. The eligibility criteria and the process described in these regulations are used by federal agencies. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the California Register of Historical Resources.

STATE

- Public Resources Code, Section 5000 establishes the California Register of Historical Resources (CRHR), establishes criteria for eligibility to the CRHR, and defines eligible resources. It identifies any unauthorized removal or destruction of historic resources on sites located on public land as a misdemeanor. It also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and establishes the penalty for possession of such artifacts with intent to sell or vandalize them as a felony. This section defines procedures for the notification of discovery of Native American artifacts or remains, and states that it is the policy of the State that Native American remains and associated grave artifacts shall be repatriated.
- California Code of Regulations, Title 14, section 4852 describes the range of historical resources that best reflect the history of California. It also identifies the criteria used to determine eligibility for listing in the California Register. Types of resources considered for listing include buildings, sites, structures, objects, and historic districts.

- Public Resources Code section 21083.2 states that the lead agency determines whether a project may have a significant effect on “unique” archaeological resources; if so, an Environmental Impact Report (EIR) shall address these resources. If a potential for damage to unique archaeological 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. [The California Energy Commission process is a CEQA equivalent process].

- Public Resources Code section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource. The section further defines a “historic resource” and describes what constitutes a “significant” historic resource.
- Government Code section 37361 (b) allows the legislative body of a City to make special provisions for cultural resources identified as having special character or special historical or aesthetic interest or value.
- California Environmental Quality Act (CEQA) Guidelines, Title 14, California Code of Regulations, section 15126.4(b), prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project’s impact on a historical resource; discusses documentation as a mitigation measure; and 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.” Subsection (f) directs the lead agency to make provisions for historical or unique archeological resources that are accidentally discovered during construction.
- 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.
- California Health and Safety Code, section 18961 states that all agencies which enforce and administer approvals, variances, or appeals procedures or decisions affecting the preservation or safety of the historical aspects of

historical buildings shall use the alternative provisions of this part and shall consult with the State Historical Building Safety Board to obtain its review prior to undertaking action or making decisions on variances or appeals which affect historical buildings.

LOCAL

City of San Jose

The San Jose 2020 General Plan, 2005 update, asserts that the City has a long colorful heritage that is valuable in adding to a sense of community identity. The City of San Jose seeks to do this by promoting an awareness of San Jose's historic and archaeological heritage.

The City's goal is preservation of historically and archaeologically significant structures, sites, districts and artifacts. The City has developed an eleven-point plan that illustrates the City's policy:

1. Preservation of irreplaceable historic and archaeological resources should be a key consideration in the development review process.
2. The City should use the Area of Historic Sensitivity overlay and landmark designation process to promote and enhance the preservation process.
3. An inventory of significant structures should be maintained and promoted.
4. Areas of numerous significant sites or structures should be considered for inclusion and preservation as Historic Preservation Districts.
5. New development should be designed to be compatible with nearby designated historic resources.
6. The City should foster rehabilitation of buildings and offer financial incentives to assist in the rehabilitation.
7. Historic structures proposed for demolition should be considered for relocation.
8. The City requires archaeologically sensitive areas be investigated during the planning process and appropriate mitigation efforts should be incorporated into the project design.
9. If Native American burials are encountered during construction, development activity should cease until examination and reburial in an appropriate manner is accomplished.
10. Heritage trees should be maintained and protected in a healthy state.
11. The City should encourage the appropriate Federal and State programs that provide tax and other incentives for preservation of resources (City of San Jose, 2005, pp. 103-104).

EFFICIENCY

No federal, state, or local laws, ordinances, regulations and standards apply to the efficiency of this project.

FACILITY DESIGN

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (LECEF 2003a, Appendices 10-A through 10-D). Some of these LORS include the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM) and American Welding Society (AWS).

GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

The applicable LORS are listed in the Application For Certification (AFC), in Section 8.4.5 and 8.8.6 of the AFC (LECEF, LLC, 2003). A brief description of the LORS for geological hazards and resources, and paleontological resources, follows:

FEDERAL

There are no federal LORS for geological hazards and resources, grading, or paleontological resources for the proposed project.

STATE AND LOCAL

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC), in particular Part 2, the California Building Code (CBC). The CBC includes a series of standards that are used in project investigation, design and construction (including grading and erosion control).

The “Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures” (Society of Vertebrate Paleontology, 1995) is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the Society of Vertebrate Paleontology (SVP), a national organization of professional scientists.

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. §11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.

The Clean Air Act (CAA) of 1990 (42 U.S.C. §7401 et seq. as amended) established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The CAA section on Risk Management Plans - codified in 42 U.S.C. §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 the CAA are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Accidental Release Prevention Program (Cal-ARP), implemented pursuant to Health and Safety Code, section 25531, 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 program supersedes the California Risk Management and Prevention Plan.

Section 25503.5 of the California Health and Safety Code requires facilities which store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case the County of Santa Clara, Department of Environmental Health. This Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.

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 anhydrous ammonia. These sections generally codify the requirements of several industry codes, including the ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and Pressure Vessel Inspection Code. While these codes apply to anhydrous ammonia, 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.”

LOCAL AND REGIONAL

The Uniform Fire Code (UFC 2000) contains provisions regarding the storage and handling of hazardous materials in Articles 4 and 79. The most recent version of the UFC was adopted in 2000.

The County of Santa Clara is the designated Certified Unified Program Authority (CUPA) and is responsible for administering Hazardous Materials Business Plans, Hazardous Materials Management Plans, Spill Prevention, Control, and Countermeasure Plans and RMP’s (LECEF 2003).

LAND USE

LOCAL

Local land use laws, ordinances, regulations and standards (LORS) applicable to the proposed project include the City of San Jose General Plan and Zoning Ordinance, the Alviso Master Plan (i.e., a subset of the General Plan), and the City of San Jose Riparian Corridor Policy Study. The applicable land use LORS are summarized in **Land Use Table 1**.

Land Use Table 1 summarizes relevant policies from the City General Plan, Alviso Master Plan, the Riparian Corridor Policy Study, and provides a brief description of their purpose and intent. The City of San Jose Zoning Ordinance is also listed due to its role as the major tool for implementing these policies. The Zoning Ordinance provides detailed specifications for allowable development within area designated by the General Plan.

Land Use Table 1
Land Use Policies Relevant to the Proposed Project

Relevant Policy	Description
City of San Jose General Plan	
Economic Development Major Strategy	Strives to make San Jose a more "balanced community" by encouraging commercial and industrial growth to balance existing residential development.
Greenline Major Strategy	Directs the "preservation of the scenic backdrop of the hillsides surrounding San Jose, reserving land that protects water, habitat, or agricultural resources and offers recreational opportunities".
Sustainable City Major Strategy	Mandates a "sustainable city, [which] is a city designed, constructed, and operated to minimize waste, efficiently use its natural resources, and to manage and conserve them for the use of present and future generations".
Industrial Land Use 1	"Industrial development should incorporate measures to minimize negative impacts on nearby land uses".
Urban Design Policy 1	"The City should continue to apply strong architectural and site design controls on all types of development for the protection and development of neighborhood character and for the proper transition between areas with different types of land uses"
Urban Design Policy 7	The City should require the undergrounding of distribution utility lines serving new development sites as well as proposed redevelopment sites. The City should also encourage programs for undergrounding existing overhead distribution lines. Overhead lines providing electrical power to light rail transit vehicles and high-tension electrical transmission lines are exempt from this policy.
Urban Design Policy 24	New development projects should preserve significant trees, and any adverse affects should be avoided through appropriate design measures and construction practices. When tree preservation is not feasible, the project should include appropriate tree replacement.
Tree Removal Controls	Protects native and non-native with trunks measuring 56 inches or more in circumference, 24 inches above the natural grade of slope. A tree removal permit usually requires the replacement of trees on a 3:1 or 4:1 ratio, as dictated by consultations with the City.

Relevant Policy	Description
Scenic Routes and Trails Diagram	Due to the City's diverse natural environment, the City has: "many scenic and recreational opportunities…The Scenic Routes and Trails Diagram identifies the City's most outstanding natural amenities and establishes guidelines to develop and preserve these resources…Scenic routes, trails and pathways are incorporated into a single plan because they share many of the same characteristics and locations…They all provide scenic views of the natural areas of the City and are linear in form…Because these designations strive for many of the same objectives they sometimes overlap and are incorporated into corridors that provide access to both scenic resources and outdoor recreational opportunities". Urban Throughways are designated on the Scenic Routes and Trails Diagram and they include "all State and Interstate Highways that traverse through the City's Sphere of Influence". Trails and Pathways Corridors are "the interconnecting trail system in the City, providing many important access links to the regional parks and open spaces in or adjoining the City. The Scenic Routes and Trails Diagram indicates these focal points and designates the most feasible and accessible rotes to develop trails.
Trails and Pathways Policy 1	New development adjacent to the Trails and Pathways Corridors should not compromise safe trail access nor detract from the scenic and aesthetic qualities of the corridor.
Trails and Pathways Policy 2	When new development occurs adjacent to a designated Trails and Pathways Corridor, the City should encourage the developer to install and maintain the trail.
Riparian Corridor Policy 4	"New development should be designed to protect adjacent riparian corridors from encroachment of lighting, exotic landscaping, noise, and toxic substances into the riparian zone."
Hazards Policy 2	Levels of "acceptable exposure to risk" established for land uses and structures based on descriptions of land use groups and risk exposure levels should be considered in the development review process.
Soils and Geologic Conditions Policy 1	The City should require soils and geologic review of development proposals to assess potential hazards relating to seismic activity, surface ruptures, liquefaction, landslides, mudslides, erosion and sedimentation.
Soils and Geologic Conditions Policy 3	In areas susceptible to erosion, appropriate control measures should be required in conjunction with proposed development.
Soils and Geologic Conditions Policy 6	Development in areas subject to soils and geologic hazards should incorporate adequate mitigation measures.
Soils and Geologic Conditions Policy 8	Developments proposed within areas of potential geological hazards should not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.
Earthquake Policies 3	The City should only approve new development in areas of identified seismic hazard if such hazard can be appropriately mitigated.
Earthquake Policies 5	The City should continue to require geotechnical studies for development proposals; such studies should determine the actual extent of seismic hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.
City of San Jose: Alviso Master Plan – A Specific Plan For The Alviso Community	
Community Character Policy 2	New developments should have architectural and landscaping qualities that maintain the "seaside" qualities of Alviso.
Industrial/ Non-Industrial Relationships Objective	Setbacks and buffers should be established to protect environmental resources (e.g., Coyote Creek) and "sensitive uses" (e.g., residential, day care, and school uses) from potential negative impacts of industrial use.
Industrial /Non-Industrial Relationships Policy 2	The Light Industrial areas located north of State Street and adjacent to Coyote Creek should mitigate potential negative environmental impacts to nearby natural resources.
Environmental Protection Policy 1	All new parking, circulation, loading, outdoor storage, utility, and other similar activity areas must be located on paved surfaces with proper drainage to avoid potential pollutants from entering the groundwater, Guadalupe River, Coyote Creek, or San Francisco Bay.

Relevant Policy	Description
Environmental Protection Policy 3	The riparian corridors adjacent to Coyote Creek and Guadalupe River should be preserved intact. Any development adjacent to the waterways should follow the City's Riparian Corridor Policies.
Environmental Protection Policy 5	To protect aquatic habitats that receive storm runoff, all new development must comply with adopted City Council policy entitled "Post-Construction Urban Runoff Management."
Lands Outside of the Village Area Design Objective	Given the high visibility of most of this area, development should be attractive, should fit in the context of the larger community, and should reflect some of the elements and materials of seaside styles to contribute to Alviso's sense of place.
Lands Outside of the Village Area Design Objective – Industrial Development Guidelines	Building heights may only exceed the 45-foot limit if they are located next to State Route 237 and the additional height of the building (up to 90 feet) is coupled with preserved habitat areas on the northern portions of the site.
Landscaping Policy 3	Landscaping should be used to screen unattractive uses and soften the effect of taller buildings due to the flood protection requirements.
Storm Drainage Policy 1	All new development projects should be evaluated to determine the possible need for additional storm drainage facilities.
City of San Jose: Riparian Corridor Policy Study	
Guideline 1A: Orientation	Site activities should be oriented to draw activity away from the riparian corridor, for example, entrances, loading and delivery areas, noise generating activities and equipment, and activities requiring night lighting should be oriented toward non-riparian property edges.
Guideline 1C: Setback Areas	All buildings, other structures, impervious surfaces, outdoor activity areas, and ornamental landscaped areas should be separated a minimum of 100 feet from the edge of the riparian corridor (or top of bank, whichever is greater).
Guideline 2F: Noise	Noise producing stationary equipment should be located as far as necessary from riparian corridors to preclude exceeding the ambient noise level in the corridors.
Planned Development Zoning	**City of San Jose: Zoning Ordinance**

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. These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed (see **NOISE Appendix A, Table A4** immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

There are no federal laws governing off-site (community) noise.

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects. These guidelines have been applied by other jurisdictions to other types of projects such as power plants. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The 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 simple tone, or "pure tone," in terms of one-third octave band sound pressure levels that can be used to determine whether a noise source contains 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 five dBA.

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards (see **NOISE Appendix A, Table A4**).

LOCAL

County of Santa Clara

Because the project site lies within the City of San Jose, noise regulations of the County of Santa Clara do not apply to this project.

City of San Jose Noise Ordinance

Sections 10.16.010 and 10.16.020 of the City of San Jose Municipal Code are part of a Noise Ordinance that protects the community from disturbing or unreasonably loud noises.

City of San Jose Zoning Ordinance

Title 20 of the San Jose Municipal Code is a Zoning Ordinance that includes performance standards for noise transmitted between properties. These standards specify the amount of noise that is allowed at the property line of a noise source adjacent to sensitive uses. LECEF is located on land designated as Agricultural-Planned Development. The maximum noise levels allowed by Section 20.20.300 of the Zoning Ordinance for uses in agricultural districts are (measured at the adjacent property line):

- 55 dB adjacent to a property used or zoned for residential purposes;
- 60 dB adjacent to a property used or zoned for commercial purposes; and
- 70 dB adjacent to a property used or zoned for industrial use.

This section further prohibits activity that causes ground vibration that is perceptible, without instruments, at the property line of the site.

City of San Jose General Plan Noise Element

The Hazards/Noise Element of the 2020 General Plan (adopted August 16, 1994) designates the following noise levels as satisfactory:

- public, quasi-public, residential, recreation and commercial land uses: 60 dBA L_{dn}
- industrial land uses: 70 dBA L_{dn}
- agricultural and open land: 76 dBA L_{dn}

Noise Policy 1 of the Noise Element pursues the long-range exterior noise goal of 55 dBA L_{dn} by requiring that non-residential uses located adjacent to existing or planned residences or public/quasi-public uses (schools, libraries and

hospitals) should mitigate as necessary to achieve a noise limit of 55 dBA L_{dn} at the property line. (Because existing noise levels exceed this figure in many locations, Policy 1 sets 60 dBA L_{dn} as a short-range goal.) Further, the maximum acceptable exterior noise level is 76 dBA L_{dn}, a level beyond which the federal Environmental Protection Agency considers noise to be hazardous to health.

Noise Policy 9 states that construction operations should use available noise suppression techniques.

Noise Policy 11 restates the limit of 55 dBA L_{dn} for property line noise from a non-residential use adjacent to residential and public/quasi-public uses.

Riparian Corridor Policy

The City of San Jose's Riparian Corridor Policy (updated in 1999) provides guidelines that would limit noise impacts on riparian areas, including Coyote Creek. This policy recommends that noise levels be limited to 60 dBA L_{dn} at property lines, or background noise levels not be exceeded.

PUBLIC HEALTH

STATE

California Health and Safety Code sections 39650 et seq.

These sections mandate 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

Bay Area Air Quality Management District Rule 2-1-316

This rule requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants that exceed specified amounts.

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)). Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system (see **Setting** below).

SETTING

The responsibility for overseeing system reliability falls largely to the Western Electricity Coordinating Council (WECC), an entity that is responsible for coordinating and promoting electric system reliability throughout the nine western states. The WECC has reliability, operating, and planning standards, criteria and guidelines necessary to maintain the reliable operation of the Western Interconnection's interconnected bulk power system. As a member of the WECC, the applicant should adhere to the guidelines of the WECC and the North American Electric Reliability Council (NERC) in order to supply Calpine's customers with a reliable source of power.

As part of its plan to provide needed reliability, the applicant proposes to operate the 320 MW (nominal net output) LECEF Phase 2, providing power to its customers (LECEF 2003, AFC §§ 1.1, 2.4). The project is expected to operate at an overall availability of 92 to 98 percent (LECEF 2003, AFC § 2.4.1), and at a capacity factor, over the life of the plant, of 20 to 100 percent of maximum load (LECEF 2003, AFC § 10.2.2).

SOCIOECONOMICS

California Government Code, sections 65996-65997 place levies against development projects near school districts. As amended by SB 50 (Stats. 1998, ch. 407, Sec. 23), public agencies may not impose fees, charges or other financial requirements to offset the cost for school facilities.

SOIL AND WATER RESOURCES

SOIL & WATER Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

plicable Law	***Description***
Federal	
Clean Water Act	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of storm water discharges during construction and operation of a facility. These are normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit. For the LECEF Project, regulation of water quality is administered by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).
Resource Conservation and Recovery Act	The Resource Conservation Recovery Act (RCRA) of 1976 (40 CFR Part 260 et seq.) seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
NRCS *National Engineering Handbook, 1983,* sections 2 and 3	The handbook provides standards for soil conservation during planning, design, and construction activities.
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 also cross ephemeral drainages that are considered waters of the United States.
State	
California Constitution, Article X, Section 2	This section requires that the water resources of the State be put to beneficial use to the fullest extent possible. The waste, unreasonable use, or unreasonable method of use of water is prohibited.
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. In addition, discharges to land for the protection of surface and groundwater 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 for protection of water quality as applicable.
California Water Code	California Water Code 13550 requires the use of reclaimed water for industrial purposes subject to reclaimed water being available and meeting certain conditions.

	California Water Code Section 13260 requires that, as part of the NPDES permit, any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system must submit a report of waste discharge to the RWQCB.
The California Safe Drinking Water and Toxic Enforcement Act	This Act (California Health & Safety Code Section 25249.5 et seq.) prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The requirements of the Act are administered by the RWCQB.
Recycling Act of 1991	The Water Recycling Act of 1991 (Water Code § 13575 et seq.) encourages the use of recycled water whenever possible.
Water Recycling Criteria	Under Title 22 of the California Code of Regulations § 60301 et seq., the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of reclaimed water for industrial processes such as steam production and cooling water.
SWRCB Resolutions 75-58	The principal policy of the State Board, 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 (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.
SWRCB Resolution 77-1	Resolution 77-1 encourages and promotes reclaimed water use for non-potable purposes.
SWRCB Resolution 68-16	Resolution 68-16 (the Anti-Degradation Policy) promotes maintaining existing high quality waters to the maximum extent possible, and requires any activity that discharges a waste to high quality waters to provide the best practicable treatment necessary to maintain the highest quality water.
Energy Commission IEPR 2003	Consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”
Local	
Santa Clara Valley Water District (SCVWD) - Storm Water Outfall Construction Permit	Santa Clara Valley Water District (SCVWD) requires a Storm Water Outfall Construction Permit in accordance with Ordinance No. 83-2 for the storm water outlet and discharge of flows into Coyote Creek, a designated floodway under SCVWD’s jurisdiction.
City of San Jose – Grading Requirements	The City of San Jose has established requirements for grading, excavation and drainage.
City of San Jose – Recycled Water User Agreement	City of San Jose, Environmental Services Department, Watershed Protection, as administrator for the South Bay Water Recycling (SBWR) Program, has established rules and regulations for the users of program’s recycled water.

City of San Jose – Industrial Wastewater Discharge Permit	City of San Jose regulates wastewater discharges to the San Jose/ Santa Clara Water Pollution Control Plant (WPCP) via the sewer system (Municipal Code chapter 15.14, Ordinance No. 24800). Industrial wastewater dischargers must obtain an Industrial Wastewater Discharge Permit in compliance with these requirements.

TRAFFIC AND TRANSPORTATION

Federal, state, and local regulations that are applicable to the proposed project are listed below. Included are regulations related to the transportation of hazardous materials, which are designed to control and mitigate for potential impacts. The Applicant has indicated its intent to comply with all federal, state, and local regulations related to the transport of hazardous materials.

FEDERAL

- Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the types 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 Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.

STATE

- Section 353 defines hazardous materials. California Vehicle Code, Sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon.
- Sections 31600-31620 regulate the transportation of explosive materials.
- Sections 32000-32053 regulate the licensing of carriers of hazardous materials and include noticing requirements.
- Sections 32100-32109 establish special requirements for the transportation of substances presenting inhalation hazards and poisonous gases.
- Sections 34000-34121 establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.
- Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5 and 34510-11 regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.
- Sections 25160 et seq. addresses the safe transport of hazardous materials.
- Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- 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, the possession of certificates permitting the operation of vehicles transporting hazardous materials is required.

- California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code, Sections 35780 et seq., require permits for the transportation of oversized loads on county roads.
- California Street and Highways Code, Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.
- In accordance with Section 21400 of the California Vehicle Code, and per the California Department of Transportation (Caltrans), all construction within the public right-of-way will need to comply with the "Manual of Traffic Controls for Construction and Maintenance of Work Zones."

LOCAL

The Santa Clara Valley Transportation Authority (VTA) oversees the Santa Clara County Congestion Management Plan (CMP). The County and cities within are mandated by State legislation to implement a deficiency plan whenever applicable roadways operate below an adopted minimum level of service. The Transportation and Circulation Element in the 1994 San Jose General Plan sets forth goals, policies, and implementation programs related to traffic issues in the city. These goals include minimum level of service (LOS) standards for local routes, regional routes, and state highway facilities. LOS measurements represent the flow of traffic. In general, LOS ranges from "A" with free flowing traffic to "F", which is heavily congested with flow stopping frequently. The General Plan lists the following policies:

- The City's LOS standards for the state highway system and specific routes of regional significance shall be those standards adopted in the Santa Clara County CMP; and
- The City shall require all new development projects to analyze their contribution to increased traffic and to implement improvements necessary to address the increase.

The City of San Jose has defined the desirable minimum level of service for its local intersections to be D during peak commute times. The Santa Clara County CMP also desires a minimum LOS D but allows a LOS E on certain routes of regional significance as well as state highway facilities.

The City of San Jose considers a traffic impact significant if it causes a local intersection to deteriorate below LOS D. If the intersection is already operating at LOS E or F, a traffic impact is considered significant if it causes an increase in

the average stopped delay[1] for the critical movements by four seconds or more and the critical Volume/Capacity[2] (V/C) value to increase by 0.01 or more.

The CMP considers a traffic impact significant if it causes a regional intersection to deteriorate below LOS E. If the intersection is already operating at LOS F, a traffic impact is considered significant if it causes an increase in the average stopped delay for the critical movements by four seconds or more and the critical V/C value to increase by 0.01 or more.

The CMP considers an impact to the freeway system significant if it causes the segment to operate below LOS E, or contributes in excess of 1% of segment capacity[3] to a segment already operating at LOS F.

The General Plan states that truck traffic is encouraged to use state freeways, county expressways, six-lane arterials, and those routes that have the least adverse impact on residential areas. The plan also states that truck travel on neighborhood streets should be minimized, and freight loading and unloading should not occur on public streets.

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[1] Average Stopped Delay is the total stopped time delay experienced by all vehicles in an approach or lane group during a designated time period divided by the total volume entering the intersection in the approach or lane group during the same time period. The stopped time delay is the time an individual vehicle spends stopped in a queue while waiting to enter an intersection.

[2] Volume/Capacity (V/C) is a measure of the overall sufficiency of an intersection. It is typically referred to as degree of saturation. Sustainable values of V/C range from 0, when the flow rate is zero, to 1.0, when the flow rate equals capacity.

[3] The CMP specifies that freeway capacity for a 6-lane segment is 2,300 vehicles per hour per lane (vphpl) and 2,200 vphpl for a 4-lane facility.

TRANSMISSION LINE SAFETY AND NUISANCE

Discussed below by subject area are design-related LORS applicable to the physical impacts of the overhead transmission lines as proposed to connect the LECEF Phase 2 with the Silicon Valley Power (SVP) 230 kV Switching Station. The potential for these impacts is assessed in terms of compliance with specific federal or state regulations or established industry standards and practices. There presently are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit the impacts noted above. However, many local jurisdictions require such lines to be located underground in new housing developments because of the potential for visual impacts on the landscape. Such requirements are not related to the concern over health effects.

AVIATION SAFETY

Any potential hazard to area aircraft would relate to the potential for collision in the navigable air space. The applicable federal LORS, as discussed below, are intended to ensure the distance and visibility necessary to prevent such collisions.

Federal

- 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 the aviation hazards of concern.

- FAA Advisory Circular (AC) No. 70/460-2H, “Proposed Construction and or Alteration of Objects that May Affect the Navigation Space.” This circular informs each proponent of a project that could pose an aviation hazard of the need to file the “Notice of Proposed Construction or Alteration” (Form 7640) with the FAA.

- FAA AC No. 70/460-1G, “Obstruction Marking and Lighting.” This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action

of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge, but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines.

Electric fields are unable to penetrate most materials, including the soil, therefore, such interference and other electric field effects are not associated with underground lines. The level of any such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for perception could be assessed from considering the field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal

Federal Communications Commission (FCC) regulations are specified in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff recommends specific conditions of certification as necessary to ensure compliance with this FCC requirement.

State

California Public Utilities Commission (CPUC), General Order 52 (GO-52), governs the construction and operation of power and communications lines to prevent or mitigate inductive interference.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated into the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

Industry Standards

There are no design-specific federal or state regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited through design, construction or maintenance practices established from industry research and

experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All modern overhead high-voltage lines are designed to assure compliance with such noise limits. As with radio-frequency noise, such audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum, especially in wet weather. Since the noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from those of less than 345 kV as proposed for LECEF Phase 2. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects.

State

CPUC, General Order 95 (GO-95), “Rules for Overhead Electric Line Construction,” specifies tree-trimming criteria to minimize the potential for power line-related fires.
Title 14, California Code of Regulations, Section 1250: “Fire Prevention Standards for Electric Utilities” specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line whether overhead or underground. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

State

CPUC, GO-95, “Rules for Overhead Line Construction,” 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 line workers.

Title 8, California Code of Regulations, Section 2700 et seq.: “High Voltage Electric Safety Orders,” establish essential requirements and minimum standards

for safely installing, operating, working around, and maintaining electrical installations and equipment.

Industrial Standards

No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry from compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

NUISANCE SHOCKS

Industry Standards

Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields.

There are no design-specific federal or state regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). As with the proposed overhead lines, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff recommends specific conditions of certification as necessary to ensure that such grounding is made along the proposed route.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans.

However, staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Staff, therefore, considers it appropriate in light of present uncertainty, to recommend reduction of such fields as feasible without affecting safety, efficiency, reliability and maintainability.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

State

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Utilities which are not within the jurisdiction of the CPUC, voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, staff requires a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability, efficiency, and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by the ground-level field strengths as measured during operation. When estimated or measured for lines of similar voltage and current-carrying capacity, such field strength values can be used by staff and other regulatory agencies to assess the effectiveness of the applied reduction measures. These field strengths can be estimated for any given design using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures,

degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required by the CPUC to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, its fields are required under this CPUC policy to be similar to fields from similar lines in that service area. Designing the proposed LECEF Phase 2 connection line according to existing SVP field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management. Staff recommends a specific condition of certification (**TLSN-1**) to ensure implementation of the design measures necessary.

Industrial Standards

There are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF health issue.

In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar to those from existing lines. Some states (Florida, Minnesota, New Jersey, New York, Montana) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component whose effects can manifest themselves as the previously noted radio noise, audible noise and nuisance shocks. The present focus is on the magnetic field because only it can penetrate soil, building and other materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the strong magnetic fields from the more visible overhead transmission and other high-voltage power lines, staff considers it important, for perspective, to note that an individual in a home could be exposed to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). The difference between these types of field exposures is that the higher-level, appliance-related exposures are short-term, while the exposure from power lines are lower level, but long-term. Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than around high-voltage power lines.

TRANSMISSION SYSTEM ENGINEERING

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), “Rules for Overhead Electric Line Construction,” formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation, or use of overhead electric lines and to the public in general.
- Western Systems Coordinating Council (WSCC) Reliability Criteria provide 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 include 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. 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. It also applies when there are any impacts to the Cal-ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the Cal-ISO.

VISUAL RESOURCES

FEDERAL

The proposed project is not located on federally administered public lands and therefore is not subject to federal regulations pertaining to visual resources.

STATE

None of the highways in the project vicinity, including SR 237 and Interstate 880 (I-880) are eligible or designated as State Scenic Highways. Therefore, no state regulations pertaining to scenic resources are applicable to the project.

LOCAL

The proposed project would be located in the City of San Jose within an area planned for industrial and public service land uses. The proposed project would be subject to local LORS pertaining to the protection and maintenance of visual resources which are found in the City of San Jose General Plan, the Alviso Master Plan, and the General Development Plan adopted as part of Ordinance No. 26579, which approved the Planned Development Zoning for the LECEF site. The pertinent sections of the general plan include the scenic routes and trails and pathways discussions under the chapter on Aesthetic, Cultural and Recreational Resources, and the discussion of urban throughways under Section V Land Use/Transportation Diagram. Relevant policies in the Alviso Master Plan are found in the Land Use Plan section under Land Use Policies, Design Guidelines, and Landscaping Policies. An assessment of the project's consistency with these applicable local LORS is discussed later in this analysis.

WASTE MANAGEMENT

A framework, based on LORS, exists to reduce risks to the public and environment from the generation, storage, transport and disposal of both hazardous and nonhazardous wastes. The institutional and legal conditions of applicable laws, regulations, policies and programs that would regulate wastes from the Phase 2 combined-cycle conversion of LECEF (LECEF Phase 2) are outlined below.

FEDERAL

Resource Conservation and Recovery Act, RCRA (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 the generators of hazardous wastes to comply with requirements regarding:

- Record keeping practices which identify the quantities and disposal of hazardous wastes generated,
- Labeling practices and use of appropriate containers,
- Use of a recording or manifest system for transportation, and
- Submission of periodic reports to the U.S. Environmental Protection Agency (EPA) or an authorized state agency.

Title 40, Code of Federal Regulations, Part 260

These sections specify the regulations promulgated by the EPA to implement the requirements of RCRA as described above. To facilitate such implementation, the defining characteristics of each hazardous waste are specified in terms of toxicity, ignitability, corrosivity, and reactivity.

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 or 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 specific criteria and guidelines for classifying such wastes. The Act also requires all hazardous waste generators to file specific 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 specify the minimum standards applicable to the handling and disposal of solid wastes. They also specify the guidelines necessary to ensure that all solid waste management facilities comply with the solid waste management plans of the administering county agency and the California Integrated Waste Management Board.

California Civil Code section 1471

This section delineates the various circumstances under which land use restrictions can be recorded to specify requirements or limitations on the use of real property. It also points out that land use restrictions are binding on current and subsequent property owners, and remain in effect until they are formally removed or modified.

Title 22, California Code of Regulations, Division 4.5, Chapter 39

This regulation provides specific details regarding the application of appropriate land use covenants as adopted by the Department of Toxic Substances Control (DTSC). Land use covenants can be used by DTSC when (1) facility closure, corrective action, remedial action, or other responsive actions are undertaken pursuant to chapter 6.5, 6.8, or 6.85 of division 20 of the Health and Safety Code, or article 1 of chapter 1, part 10.5 of the education code, and (2) hazardous materials, wastes, constituents, or substances will remain at the property at levels which are not suitable for unrestricted use of the land.

Title 22, California Code of Regulations, § 66262.10 et seq. (Generator Standards)

These sections establish specific requirements for generators of hazardous wastes with respect to handling and disposal. Under these requirements, all waste generators are required to determine whether or not their wastes are hazardous according to state-specified criteria. As with the federal program, every hazardous waste generator is required to obtain an EPA identification number, prepare all relevant manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, all hazardous wastes are required to be handled only by registered hazardous waste transporters. Requirements for record keeping, reporting, packaging, and labeling are also established for each generator.

LOCAL

The City of San Jose has the responsibility for administration and enforcement of the California Integrated Waste Management Act for non-hazardous solid waste for the proposed LECEF Phase 2.

The Santa Clara County Environmental Health Department is designated by the State of California as a Certified Unified Program Agency (CUPA) to administer

and enforce compliance with the Hazardous Waste Control Act. This agency will also regulate hazardous waste management, handling and disposal procedures at the proposed LECEF Phase 2.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970, Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act (OSH 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 at Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500 and clearly define the procedures for 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 OSH 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 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 U.S.C. § 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.C. § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 C.F.R. §§ 1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 C.F.R. §§ 1952.170 – 1952.175 (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 C.F.R. §§ 1910.1 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 (“Cal/OSHA”) as published in the California Labor Code section 6300. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with sections 337 through 560 and continuing with sections 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. California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at Title 29 Code of Federal Regulations, sections 1910.1 through 1910.1500. The U.S. 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 tool for ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (Cal. Code Regs., tit. 8, § 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 C.F.R. §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, Title 8, California Code of Regulations, section 3203 requires that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Applicable State requirements include:

- Title 8, California Code of Regulations, section 330 et seq. Cal/OSHA regulations;
- Title 24, California Code of Regulations, section 3 et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code, section 25500 et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;

- Health and Safety Code, sections 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code (Title 24 of the California Code of Regulations, section 3 et seq.) is comprised of eleven 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 & 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; 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 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 States' 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. The City of San Jose Fire Department is the administering agency for the 2000 Uniform Fire Code.

Applicable local (or locally enforced) requirements include:

- 2001 Edition of California Fire Code and all applicable NFPA standards (Cal. Code Regs., tit. 24, Part 9);
- California Building Code Title 24, California Code of Regulations (Cal. Code Regs., tit. 24, § 3 et seq.).
- Uniform Fire Code, 2000

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

APPLICATION FOR CERTIFICATION FOR THE LOS ESTEROS CRITICAL ENERGY FACILITY PHASE 2 (LOS ESTEROS 2)	**DOCKET NO. 03-AFC-2** ***PROOF OF SERVICE***

DOCKET UNIT

CEC DOCKET UNIT
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DECLARATION OF SERVICE

I _____declare that on _____, I deposited copies of the attached _____in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

I declare under penalty of perjury that the foregoing is true and correct.

_____

[signature]

Before the Energy Resources Conservation and Development Commission
OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION OF THE LOS ESTEROS CRITICAL ENERGY FACILITY 2, PHASE 2	**DOCKET NO. 03-AFC-2**

EXHIBIT LIST

EXHIBIT 1 Application for Certification for the Los Esteros Critical Energy Facility, Phase 1 Relicense and Phase 2 Combined-cycle Conversion (03-AFC-2), dated December 2003. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 2 Applicant's Response to CEC Staff Data Requests, dated April 30, 2004. Data Requests 1 through 57. Sponsored by Applicant; admitted into evidence on June 30, 2005.

EXHIBIT 3 Supplement in Response to Data Adequacy Comments, Sections 1.0, 8.16. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 4 Information needed for Water Analysis, dated October 1, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 5 Los Esteros Critical Energy Facility LECEF Phase 2 Transmission Interconnection with Silicon Valley Power. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 6 Low Effect Habitat Conservation Plan For Bay Checkerspot Butterfly and Serpentine Endemic Plant Species, dated May 26, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 7 Response to e-mail from Janet Naito, DTSC to Ramesh Sundareswaran, California Energy Commission, dated April 6, 2004, regarding DTSC Comments on the Los Esteros 2 Project. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 8 Letter from Gary Rubenstein, Sierra Research, to Dennis Jang, Bay Area Air Quality Management District (BAAQMD), responding to EPA and CEC Staff comments on the revised PDOC, dated May 11, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 9 Letter from Gary Rubenstein, Sierra Research, to Dennis Jang, BAAQMD, regarding emission reduction credits, dated May 5, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 10 Letter from Gary Rubenstein, Sierra Research, to Dennis Jang, BAAQMD, commenting on revised PDOC, dated April 4, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 11 Revised Preliminary Determination of Compliance, Bay Area Air Quality Management District, dated March 14, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 12 E-mail from Gary Rubenstein, Sierra Research, to Gabriel Taylor (et al.), CEC, providing responses to CEC questions, dated February 2, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 13 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD, regarding elimination of the proposed PM_{10} emission increase, dated January 27, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 14 Letter from Gary Rubenstein, Sierra Research, to Bob Worl, CEC, regarding elimination of the proposed PM_{10} emission increase, dated January 27, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 15 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD regarding Proposed BACT Determination, dated December 28, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 16 Letter from Gary Rubenstein, Sierra Research, to Dennis Jang, BAAQMD, providing comments on the Preliminary Determination of Compliance, dated November 30, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 17 Preliminary Determination of Compliance, BAAQMD, dated September 28, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 18 Letter from Steve Hill, BAAQMD to Gary Rubenstein, Sierra Research, regarding NOx BACT determination, dated September 28, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 19 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD, regarding the NOx Best Available Control Technology determination for the combined-cycle gas turbine configuration, dated September 8, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 20 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD, regarding NOx Best Available Control Technology Determination, dated August 17, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 21 Letter from Gary Rubenstein, Sierra Research, to Dennis Jang, BAAQMD regarding various permit conditions, dated July 8, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 22 Letter from Gary Rubenstein, Sierra Research, to Bob Worl, CEC, regarding Revised Cancer Risk Assessment and response to ARB comments, dated July 2, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 23 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD, regarding NOx Best Available Control Technology Determination, dated July 2, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 24 Letter from Gary Rubenstein, Sierra Research, to Steve Hill, BAAQMD, regarding the proposed modifications to the LECEF Facility, dated June 1, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 25 Letter from Gary Rubenstein, Sierra Research, to Bob Worl, California Energy Commission, regarding the proposed modifications to the LECEF Facility, dated June 1, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 26 Cumulative Air Quality Impacts Analysis, dated May 18, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 27 Letter from Dennis Jang, BAAQMD to Robert Worl, CEC, regarding completeness determination, dated February 9, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 28 Letter from Victor Morales-Lannon, BAAQMD, to Nancy Matthews, Sierra Research, regarding receipt of application, dated January 13, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 29 Application to the Bay Area Air Quality Management District for a Determination of Compliance and Authority to Construct Permit Modification at the Los Esteros Critical Energy Facility in San Jose California, dated January 12, 2004. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 30 Final Staff Assessment**,** dated May 26, 2005. Sponsored by Staff; received into evidence on June 30, 2005.

EXHIBIT 31 Supplementary testimony of Gabriel Taylor regarding indirect PM_{10} from Ammonia Emissions, dated June 23, 2005. Sponsored by Staff; received into evidence on June 30, 2005.

EXHIBIT 32 Errata with revised language for the **COM-8 Construction and Operation Security Plan** Condition and other miscellaneous corrections, dated June 23, 2005. Sponsored by Staff; received into evidence on June 30, 2005.

EXHIBIT 33 Final Determination of Compliance from BAAQMD, dated June 28, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.

EXHIBIT 34 Testimony and Declaration of Gregory P. Beattie, dated June 23, 2005. Sponsored by CARE; received into evidence on June 30, 2005.

EXHIBIT 35 Attachment B, Applicant's Testimony, dated June 23, 2005. Sponsored by Applicant; received into evidence on June 30, 2005.