Staff Assessment

LOS ESTEROS CRITICAL ENERGY FACILITY

Application For Certification (01-AFC-12)
Santa Clara County

CALIFORNIA ENERGY COMMISSION

STAFF REPORT

DECEMBER 2001
(01-AFC-12)

Gray Davis, Governor

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CALIFORNIA ENERGY COMMISSION

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EXECUTIVE SUMMARY

Robert Worl

INTRODUCTION

This Staff Assessment (SA) contains the Energy Commission staff's independent analysis of Los Esteros Critical Energy Facility Project (LECEF) Application for Certification (AFC) (01-AFC-12). The LECEF and related facilities such as the electric transmission lines, natural gas line, water supply lines and wastewater lines are under the Energy Commission's jurisdiction (Pub. Resources Code § 25500). When issuing a license, the Energy Commission acts as lead state agency (Pub. Resource Code § 25519(c)) under the California Environmental Quality Act (Pub. Resource Code §§ 21000 et seq.), and its process is functionally equivalent to the preparation of an environmental impact report (Cal. Code Regs., tit. 14 § 15251(k)).

It is the responsibility of the Energy Commission staff to complete an independent assessment of the project's potential effects on the environment, the public's health and safety, and whether the project conforms with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends measures to mitigate potential significant adverse environmental effects and conditions for construction, operation and eventual closure of the project, if approved by the Energy Commission. The analyses contained in this document were prepared in accordance with Public Resources Code section 25500 et seq.; the California Code of Regulations, Title 20, section 12001 et seq.; and the California Environmental Quality Act (Pub. Resources Code § 21000 et seq.) and its guidelines (Cal. Code Regs., tit. 14 § 15000 et seq.).

This SA is not the decision document for these proceedings nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local/state/federal legal requirements. The final decision will be made by the Commissioners of the California Energy Commission only after the completion of evidentiary hearings. The Commissioners will consider the recommendations of all interested parties, including those of the Energy Commission staff; the applicant; intervenors; concerned citizens; and local, state, and federal agencies, before making a final decision on the application to construct and operate the LECEF.

BACKGROUND

On August 7, 2001, Calpine c*Power, filed an Application for Certification (AFC) for the Los Esteros Critical Energy Facility (LECEF). The AFC was found to be complete by the California Energy Commission on September 25, 2001. Calpine plans to have the project constructed and online for the summer of 2002. The project is proposed as mitigation for the U.S. DataPort (USD) Planned Development Zoning Project (PDZ) approved by the City of San Jose at a City Council Meeting on April 3, 2001. The U.S. DataPort Project included four dual-fuel-fired 10 MW turbines and approximately 90, two-MW diesel back up generators for emergency power generation. The City of San Jose requested that the applicant develop a more efficient, modern, and less polluting

energy facility instead of the diesel generators. The Los Esteros Critical Energy Facility is the result of that effort.

In light of California's energy emergency, Senate Bill 28X and Public Resources Code, section 25552, requires the Energy Commission expedite, to the extent feasible, the processing of applications for certification for projects like LECEF that will come online by December 31, 2002. The Energy Commission staff has proposed that this permitting process be completed in the 4-month review process.

On November 15, 2001 the Committee adopted a schedule which, with agreement from the applicant, will be completed in approximately 140 days subject to the completion of certain tasks by the staff, applicant, the air district and the City of San Jose. Certain of these tasks are beyond the control of the staff and applicant and may cause the addition of a number of days to the schedule.

The analyses contained in this SA are based upon information from: 1) the AFC; 2) subsequent amendments; 3) responses to data requests, workshops and site visits; 4) supplementary information from federal, state and local agencies; and 5) existing documents and publications.

PROJECT DESCRIPTION

Calpine c*Power is proposing to construct and operate the Los Esteros Critical Energy Facility (LECEF). The site is located near the intersection of State Route 237 and Zanker Road, at 1515 Alviso-Milpitas Road, in the City of San Jose, Santa Clara County, California. LECEF will be a nominally 180 megawatt (MW) simple-cycle Power plant. The proposed facility will include four combustion turbine generators (CTGs) equipped with water injection and spray intercooling injection (SPRINT) to control oxides of nitrogen (NOx) emissions and associated support equipment. The power plant area will be accessed via an access road from Zanker Road. The power plant will consist of four GE gas turbines (LM6000 - PC Sprint) with chillers, fuel gas compression facilities, power generators, selective catalytic reduction (SCR) for emission control, and associated instrumentation, piping, and wiring. The produced power will eventually be conveyed through underground cables to the new Los Esteros Substation to be built by PG&E adjacent to the LECEF and USDP project site. A temporary connection will be via a 2000-foot line interconnecting with an existing 115 kV line at Zanker Road. A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this SA.

PUBLIC AND AGENCY COORDINATION

In preparing the SA, Energy Commission staff conducted one publicly noticed workshop in mid-November, 2001. This workshop provided a forum for the public to learn about the project, the Energy Commission's process, and to air their questions and concerns about the proposed power plant.

Staff also coordinated with relevant local, state and federal agencies, such as the California Independent System Operator, Bay Area Air Quality Management District, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game, and the City of San Jose, the Alviso community and the Santa Clara Valley Water District. This SA provides agencies and the public the opportunity to review the Energy Commission staff's analysis of the proposed project.

In addition to the community and agency coordination efforts were made to insure that the public was widely informed regarding opportunities to participate. Site visits, informational hearings and workshops were adverstised in local and regional newpapers, including insertion of 5,000 bilingual (Spanish-English) flyers, and notices sent home with children of local schools.

Written comments received from members of the public, and letters from agencies that require some form of response, have been included in the Staff Assessment.

STAFF'S ASSESSMENT

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

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation; and
- proposed conditions of certification.
- It is important to note that not all staff was able to incorporate the applicant's and agencies recent and planned changes regarding the project into their analysis, and that staff have additional data requests for the applicant, and are awaiting proposed changes by the City to its planned rezone of the project before the analysis can be completed. Thus, there will be a need to amend this Staff Assessment once data responses and City actions are completed.

ENVIRONMENTAL JUSTICE SUMMARY

In the **Socioeconomics** section, staff presents the results of their "environmental justice screening analysis." The purpose of the environmental justice analysis is to determine whether or not there is a low-income and/or minority population within the potential affected area of the proposed site.

Socioeconomics Figure 1 identifies census blocks within six-miles of the proposed project that have minority populations greater than 50 percent. Census 2000 data indicate that the minority population within the six-mile radius of the project site is 69 percent. The percent of population considered low-income or living below the poverty level is less than nine percent within a six-mile radius of the LECEF. Since there is a greater than 50 percent minority population, staff completed a focused Environmental Justice assessment.

Environmental Justice issues were examined in ten technical areas: air quality, public health, visual resources, noise, hazardous material handling, transmission line safety and nuisance, land use, water, waste disposal, and traffic and transportation. Each of these areas found no unmitigated significant impacts, and therefore no disproportionate environmental justice impacts associated with the LECEF.

SUMMARY OF STAFF'S CONCLUSIONS

With the mitigation measures proposed in the conditions of certification, staff believes that the project's potential adverse environmental impacts would be reduced to levels of less than significant in all areas except for Biological Resources. Some additional biological resource information is being provided by Calpine and will be analyzed in the Addendum to the Staff Assessment but we do not anticipate any adverse impacts that cannot be adequately mitigated.

Staff also believes that if the proposed conditions of certification are adopted, the project would conform to all federal, state, and local laws and ordinances, except for land use zoning. However, if the City of San Jose grants the change in zoning as has been requested by Calpine, the project would be in conformance.

Below is a summary of potential adverse environmental impacts and LORS compliance for each technical area.

Technical Discipline	Environmental / System Impact	LORS Conformance
Air Quality	Impacts mitigated	Yes
Biological Resources	Uncertain-additional info requested	Yes-with avoidance
Cultural Resources	Impacts mitigated	Yes
Power Plant Efficiency	Impacts mitigated	Yes
Power Plant Reliability	No impacts	N/A
Facility Design	No impacts	Yes
Geology	Impacts mitigated	Yes
Hazardous Materials	Impacts mitigated	Yes
Land Use	Impacts mitigated	Uncertain-City action to rezone pending
Noise	Impacts mitigated	Yes
Public Health	Impacts mitigated	Yes
Socioeconomics	No impacts	Yes
Traffic and Transportation	Impacts mitigated	Yes
Transmission Line Safety	Impacts mitigated	Yes
Transmission System Engineering	Impacts mitigated	Yes
Visual Resources	Impacts mitigated	Yes
Waste Management	Impacts mitigated	Yes
Water and Soils	Impacts mitigated	Yes
Worker Safety	Impacts mitigated	Yes

The following summarizes staff's position with respect to the technical areas listed as "Uncertain".

Biological Resources

With the mitigation measures proposed in the conditions of certification, staff believes that the project's potential adverse biological resource impacts would be reduced to levels of less than significant. However, some additional biological resource information is being collected and will be analyzed in the Addendum to the Staff Assessment. The additional information will be used to verify the adequacy of the proposed conditions of certification. Based on our understanding of the remaining issues, we do not anticipate any adverse impacts that cannot be adequately mitigated.

The following information is required from the applicant for us to complete the Addendum to the Staff Assessment.

- a complete description of biological resources along the temporary transmission line from the onsite substation to Zanker Road, and any pull and lay-down sites;
- a complete description of the wetlands and biological resources on the interior side of the levee wall at Coyote Creek;
- information on all population sites of Santa Clara County's listed serpentine plants potentially affected by the project;

Regarding LORS compliance and potential environmental impacts, the applicant and staff have discussed the project with USFWS. Based on preliminary information, the USFWS indicated that consultation may be necessary for the bay checkerspot butterfly and other serpentine endemics under the Endangered Species Act. However, their conclusion was made prior to the completion of this Staff Assessment and the recommended conditions of certification. The applicant believes that the impacts of the project on these biological resources are immeasurable and they do not intend to enter formal consultation with the USFWS. No federal permit authority has been confirmed for the project, so the decision to consult is voluntary.

Staff concludes that the project avoids impacts to the bay checkerspot butterfly and other serpentine endemics by using Best Available Control Technology (BACT) to limit air emissions (NO_x deposition on serpentine habitats) and will require that the applicant secure air quality offsets for incremental emissions. Staff believes this avoids impacts to the biological resources in question. Furthermore, staff proposed 17 conditions of certification for Biological Resources. One of which requires Calpine to purchase and set aside 40-acres of high-grade habitat to be managed in perpetuity for the improvement of the species. With these measures, staff believes the project meets federal, state and local laws and ordinances and avoids harm to sensitive and listed species in question.

Land Use

The project does not currently comply with City of San Jose zoning requirements. However, if the city approves calpine C*Power's request to rezone the site, the project would be in conformance with local laws and ordinances. The City plans to use the Staff Assessment as its environmental documentation for their decision. The City of San Jose has expressed its intent to complete the PDZ rezone requested by Calpine c*Power in January or early-February, 2002.

LOS ESTEROS CRITICAL ENERGY FACILITY (01-AFC-12)
FINAL STAFF ASSESSMENT

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INTRODUCTION

Robert Worl

PURPOSE OF THIS REPORT

The Staff Assessment (SA) is the California Energy Commission (Energy Commission) staff's independent analysis of the Los Esteros Critical Energy Facility Project's (LECEF) Application for Certification (AFC). The SA is a staff document. It is not a Committee document, nor is it a draft decision or proposed decision. The SA describes the following:

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

The analyses contained in this SA are based upon information from the: 1) AFC, 2) subsequent amendments, 3) responses to data requests, 4) the US DataPort Draft and Final EIR's, 5) supplementary information from local and state agencies and interested individuals, 6) existing documents, publications, 7) independent field studies and research, 8) comments at workshops. The analyses for most technical areas include discussions of proposed conditions of certification. Each proposed condition of certification is followed by a proposed means of "verification". The verification is not part of the proposed condition, but is the Energy Commission Compliance Unit's method of ensuring post-certification compliance with adopted requirements. The SA presents conclusions and proposed conditions that apply to the design, construction, operation and closure of the proposed facility.

The Energy Commission staff's analyses were prepared in accordance with Public Resources Code sections 25500 et seq. and Title 20, California Code of Regulations sections 1701 et seq., and the California Environmental Quality Act (CEQA). (Pub. Resources Code, §15000 et seq.).

ORGANIZATION OF THE STAFF ASSESSMENT

This **INTRODUCTION** section explains the purpose of the SA and its relationship to the Energy Commission's siting process.

The **PROJECT DESCRIPTION** section provides a brief overview of the project including its purpose, location and major project components.

The environmental and engineering evaluations of the proposed project follow the **PROJECT DESCRIPTION**. In the environmental analysis, the project's environmental setting is described, environmental impacts are identified and their significance assessed, and the project's compliance with applicable laws is reviewed. The mitigation measures proposed by the applicant are reviewed for adequacy and conformance with applicable laws; if any remaining unmitigated impacts are identified, staff proposes additional mitigation measures and project alternatives. Staff's conclusions and recommendations are discussed, and proposed conditions of certification are included, if applicable. In the engineering analyses, the project is evaluated in each technical area with respect to applicable laws and performance objectives. Staff proposed modifications to the facility, if applicable, are listed. Each technical section ends with a discussion of conclusions and recommendations. Proposed conditions of certification are included, if applicable.

ENERGY COMMISSION SITING PROCESS

The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, section 25500). The Energy Commission must review power plant AFCs to assess potential environmental impacts, including potential impacts to public health and safety, potential measures to mitigate those impacts, and compliance with applicable governmental laws or standards (Pub. Resources Code, §§25523 (d)), 25552.

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

In addition, staff must assess the completeness and adequacy of the measures proposed by the applicant in terms of applicable health and safety standards, and the reliability of power plant operations (Cal. Code Regs., tit. 20, §1743(b)). Staff is required to develop a compliance plan (coordinated with other agencies) to ensure that applicable laws, ordinances, regulations and standards are met (Cal. Code Regs., tit. 20, §1744(b)).

The Energy Commission's site certification program has been certified by the Resources Agency (Pub. Resources Code, §21080.5 and Cal. Code Regs., tit. 14, §15251 (k)). Thus, although the staff follows the general substantiation requirements of the California Environmental Quality Act (CEQA), no environmental impact report is proposed.

Instead, the staff prepares a Staff Assessment (SA) that presents staff's analysis, conclusions, and recommendations. Where staff believes it is appropriate, the SA may incorporate comments received from city, county, state, and federal agencies, the public and parties to the siting case. The SA serves, as staff's written testimony regarding the AFC.

There will be a comment and review period to resolve issues between the parties and to narrow the scope of issues prior to the evidentiary hearings. During the review period staff will conduct a workshop to discuss its conclusions, proposed mitigation, and proposed compliance-monitoring requirements. Based on the workshops and written comments, staff may amend its analysis, correct errors, and finalize conditions of certification to reflect areas where we have reached agreement with the parties.

The staff's assessment is not necessarily the evidence that will be considered by the assigned Committee (two commissioners) in reaching a decision on whether or not to recommend that the full Energy Commission approve the proposed project. At the public hearings, all parties have an opportunity to present evidence and rebut the testimony of other parties. The Committee allows all parties to argue their positions on disputed matters, if any, and it provides a forum for the Committee to receive comments from the public and other governmental agencies.

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

PROJECT DESCRIPTION

By Robert Worl

INTRODUCTION

On August 6, 2001 Calpine c*Power (applicant) submitted an Application for Certification (AFC) for a 180 megawatt (MW) power generation facility to be located in north San Jose, California, Santa Clara County. The project as proposed would consist of four simple cycle General Electric LM6000 Combustion Turbine Generators (CTG) and associated accessory equipment and linear facilities. The LECEF would operate as a simple-cycle peaker. An application to modify the project to combined-cycle would be submitted by the applicant within one year of licensing.

The LECEF project originated as a response to requests from the City of San Jose and the Energy Commission for a modern, clean energy facility that would take the place of the power facilities planned for the US DataPort (USDP) Proposed Development Zone (PDZ) and certified in the Environmental Impact Report (EIR) by the City Coucil of San Jose on March 14, 2001.[1]

The USDP Proposed Development Zone (PDZ) Project is a “Super Hub” server farm project which plans to make approximately 2.2 million square feet available for lease to clients. Server hubs need extremely reliable and consistent electrical energy. The approved USDP project includes four dual-fuel-fired 10 MW turbines and 89, 2-MW diesel generators for emergency power generation.

The USDP PDZ Project was approved with key conditions contained in the city’s final action:

- Elimination of the use of diesel generators as the source of backup power for the U.S. DataPort campus buildings.
- Implementation of environmentally superior technology for power generation reducing impacts to local and regional air quality to the extent such alternatives are available, reliable, and commercially feasible.
- Use of best commercially feasible available technology for cooling tower plume visibility reduction.

LOS ESTEROS CRITICAL ENERGY FACILITY

USDP and Calpine c*Power developed a proposal for a power plant, the Los Esteros Critical Energy Facility (LECEF), to meet these stated needs. **Project Description Figure 1** shows the regional location of the proposed project. The Los Esteros critical energy facility (LECEF) would be a nominal 180-megawatt (MW) natural-gas-fired simple cycle peaking facility. Electrical generation would be at 13.8 kilovolts (Kv), which

[1]U.S. DataPort PDZ DEIR and FEIR, which are located on-line at:
http://www.ci.san-jose.ca.us/planning/sjplan/eir/USDataport/US-Dataport-Text.htm
http://www.ci.san-jose.ca.us/planning/sjplan/eir/USDfinal/ftoc.htm

would be stepped up with a 115-kV switchyard. The preferred transmission line is an underground feeder, up to 400 feet in length, interconnecting the LECEF with PG&E's Los Esteros substation planned for construction adjacent to the north side of the LECEF and USDP project site. Final California Public Utilities Commission (CPUC) approval for that project was granted in December, 2001. **Project Description Figure 2** shows the approximate location of these planned facilities in relation to the proposed LECEF.

The facility is proposed for 15 acres of a 55 acre site at Township 6 South, and Range 1 West. The project site is owned by the applicant and is locally designated at 1515 Alviso-Milpitas Road. Alviso-Milpitas Road serves as an access road parallel to State Route (SR) 237 connecting McCarthy Boulevard and Zanker Road. The project location lies directly north of SR 237 and east of Zanker Road. To the west lies the Cilker farm property, the flood control dike and channel bordering Coyote Creek. The site, in turn, is a portion of a 174 acre property recently annexed by the City of San Jose from the unincorporated section of Santa Clara County that is scheduled to be the site of the Pacific Gas and Electric (PG&E) Los Esteros substation, and the US DataPort "Super Hub" facility. Maps of the area are included in **Figure 1** and **Figure 2**.

The LECEF would consist of four General Electric LM6000 Sprint Combustion Turbine Generators (CTG's) equipped with water injection to control oxides of nitrogen (NO_x) emissions, and for power augmentation. Each CTG would be equipped with selective catalytic reduction (SCR) to further control of NO_x. Each CTG would generate a nominal 45 MW at California Independent System Operator (ISO) conditions.

Associated equipment would include a two-cell cooling tower for inlet air chillers, and emission control systems necessary to meet emission limits. NO_x would be controlled to 5 parts per million by volume (ppmvd) corrected to 15 percent oxygen. This would be accomplished through water injection in the CTGs' SCR systems at the exhaust stack transition. Carbon monoxide would be controlled to 6 ppmvd at 15 percent oxygen in the CTG combustors with an oxidation catalyst system. Precursor organic compounds (POC's) would be controlled to 2 ppmvd at 15 percent oxygen. Continuous emissions monitoring (CEMS) would be employed to insure compliance, and to monitor system efficiency.

CTG combustion air would flow through the inlet air filters and chiller coils and the associated air inlet ductwork, be compressed, and then flow to the CTG combustion sections. Natural gas fuel would be injected into the compressed air in the combustion sections and be ignited. The hot combustion gases would expand through the turbine sections of CTG's, causing them to rotate and drive the electric generators and the CTG compressors. The hot combustion gases would exit the turbine sections and enter the empty heat recovery steam generation (HRSG) shells and exit to the atmosphere through the exhaust stacks, 90 feet in height. The HRSG shells would be in place, though no steam generation equipment would be installed for simple-cycle operation.

Each CTG would be contained in a metal acoustical enclosure with fire detection and suppression equipment installed. All four CTG's would be serviced with a single lube oil cooler, a diesel powered fire pump, and a 750 kW emergency natural gas-fired generator. The planned configuration of equipment and systems is shown on **Figure 3**.

A photographic simulation of the site with the proposed power plant and associated equipment is shown on **Figure 4.**

PROJECT DESCRIPTION FIGURE 1 thru 4

TRANSMISSION LINE AND NATURAL GAS FACILITIES

The LECEF plans to connect to the Los Esteros substation through underground cables from each of its four generating system transformers. Each of the four 13.8 kV outputs would be connected by isolated phase bus to individual oil-filled generator step-up transformers, which would increase the voltage to 115 kV. The high voltage side of each transformer would be connected to the substation via an open air 115 kV switchyard which would be located on the LECEF site.

Since LECEF would be constructed prior to the substation, a temporary connection has been reviewed and approved by PG&E and Cal-ISO. This temporary connection would be via an approximately 2000-foot above ground connection to the Nortech-Trimble 115 kV line near the intersection of Zanker Road and SR 237. The entire length of the temporary line would be on the LECEF property.

Natural gas for the CTG's would be supplied through a 10-inch line connection to the PG&E pipelines 101 and 109 at the southern end of the LECEF property near SR 237. The four CTG's would require approximately 45,397 MMBTUs per day (Higher Heating Value Basis). The project would connect to each of the two main PG&E pipelines for reliability purposes. Gas would be pressurized by onsite compressors as needed, and flow through scrubbing and filtering equipment to a gas pressure control and flow metering stations prior to entering the combustion turbines.

WATER SUPPLY AND WASTE WATER TREATMENT

Recycled water supplied from the San Jose/Santa Clara Water Pollution Control Plant (WPCP) through the South Bay Water Recycling program would be used for all cooling and combustion systems. Water would be supplied through a line of approximately 1000 feet connecting to an existing pipeline, at a point parallel to SR 237. Peak water consumption is expected to be 566 gallons per minute based on hot day full load operation. Peak water use under such conditions would be about 820,000 gallons per 24-hour day. Operating at 24 hours per day for a year would be equal to approximately 917 acre-feet per year.

Approximately 42 percent of the total water requirements would be for water injection to control NOx emissions. The balance would be used in the cooling towers as makeup water. Water would be filtered and demineralized in four skid-mounted units serving the CTGs. Water for N0x suppression would be further processed through mircofiltration and reverse osmosis systems and then flow to storage tanks for use. Water that would be used for cooling may have chemicals added for pH control, mineral scale dispersing, and corrosion control. Additionally, a biocide may be added to control microbial growth.

Potable water needs would be met through trucked water delivery. No potable water pipeline is planned for the LECEF project.

Water discharged from the treatment process would be returned through a 2,700 foot waste discharge line to be constructed along the proposed access road to an existing WPCP line at a point near Zanker Road.

CONSTRUCTION AND OPERATION

Construction would begin immediately upon Energy Commission approval with a construction schedule of approximately five months. Should the project be approved so that construction could begin in February 2002, completion and testing could begin as early as July, 2002. Full operation would commence upon completion of testing and sychronization to the electrical transmission grid.

FACILITY CLOSURE

The planned life of the facility is 30 years. However, unless the facility is converted to a combined-cycle plant, Public Resources Code 25552 requires that it be closed after three years. Calpine c*Power has stated intent to convert the facility to a combined-cycle plant, and Conditions of Certification (EFF-1) requires conversion within the three year time frame. Circumstances including natural events, economic circumstances could either lengthen or shorten that time frame.

Temporary Closure for maintenance, repair or through disruption to the natural gas supply would follow procedures which include security and maintenance on a 24 hour per day basis, with notification to the Energy Commission, as well as other affected agencies. Contingency plans which protect the environment and public safety would be implemented for short and long term closure.

Permanent Closure would follow plans which may range from “mothballing” to complete removal of all equipment and structures. The extent of the decommissioning activity would be determined based upon the conditions at that time. The decommissioning plan would be implemented after consultation with the Energy Commission, other affected agencies, and would be conducted to protect public safety and health, the environment, and in a manner which maximizes recycling of all facility components, complies with all laws, ordinances, regulations and standards (LORS), including the disposal of any hazardous wastes contained on site.

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AIR QUALITY

Testimony of Gabriel D. Behymer

INTRODUCTION

This Staff Assessment (SA) evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the construction and operation of the proposed Los Esteros Critical Energy Facility (LECEF). Criteria air pollutants are defined as those for which a state or federal ambient air quality standard has been established to protect public health. They include nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), precursor organic compounds (POC) and particulate matter less than 10 microns in diameter (PM_{10}).

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

1. Whether the project is likely to conform with applicable Federal, State and Bay Area Air Quality Management District (District or BAAQMD) air quality laws, ordinances, regulations and standards, as required by Title 20, California Code of Regulations, section 1742.5 (b);

2. Whether the project is likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, as required by Title 20, California Code of Regulations, section 1742 (b); and

3. Whether the mitigation proposed for the project is adequate to lessen the potential impacts to a level of insignificance, as required by Title 20, California Code of Regulations, section 1744 (b).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

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 Environmental Protection Agency (EPA) to the Bay Area Air Quality Management District. The 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.

STATE

Health and Safety Code section 41700 requires that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”

LOCAL

The project is subject to all applicable Bay Area Air Quality Management District (District or BAAQMD) 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 and Nitrogen Oxides. This section applies to projects with an emissions increase of 50 tons per year or more of organic compounds and/or NO_X. Offsets shall be provided at a ratio of 1.15 tons of emission reduction credits for each 1.0 ton of proposed project permitted emissions.
- Section 2-2-303 - Offset Requirements, Particulate Matter (TSP), PM_{10} and Sulfur Dioxide: If a Major Facility (a project that emits more than 100 tons per year of PM_{10}) has a *cumulative increase* of 1.0 ton per year (tpy) of PM_{10} 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 PM_{10} 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 PM_{10} 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 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 Emission. 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 three 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, 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.

ENVIRONMENTAL SETTING

METEOROLOGICAL CONDITIONS

The climate of the San Francisco Bay area is dominated by a semipermanent high pressure system off the Pacific Coast, known as the Pacific High. During the summer months, the Pacific High extends to and often over the western United States, causing low pressure systems to pass north of the Pacific High into Canada and strong northwesterly air flow around the north-eastern edge of the Pacific. This air flow causes colder water to accumulate close to the California coast, thus cooling the onshore air

flow further. The relatively cold air temperatures cause a high incidence of coastal fog and cloud cover along the northern California coast, but the brisk westerly winds blow throughout the afternoon and evening hours usually disperse the fog by late afternoon.

During the winter months, the Pacific High moves south, allowing low pressure systems to move through California. Cloud cover, precipitation, and generally strong winds prevail during this period. About 80 percent of the average annual rainfall (approximately 20 inches) in the area occurs between the months of November and March. Between storms, skies are fair, winds are light, and temperatures are moderate.

Temperatures in the general area of the proposed site are moderated by the proximity of the ocean and the San Francisco Bay. Local ambient temperatures range from the mid-50s to low-90s in the summer, fall and spring, and from the mid-40s to low-60s during the winter.

Specific local meteorological data was collected by the District at the Alviso Sewage Treatment Plant monitoring station located just northwest of the project site. The data sets from 1995 through 1999 were proposed for use by the applicant and approved by the district. These data sets include hourly measurements of ambient temperature, Pasquill air stability class, wind speed and wind direction. Monthly wind roses, which are graphical representations showing wind speeds and directions based on the collected data from all four years, are shown in Appendix A. The local winds blow almost solely from the northwest during the spring, summer and fall seasons but shift in the winter to blow mostly from the southeast.

Smith et al. (1984) reported that mixing heights in the area, which represent the altitudes to which different air masses mix together, have been estimated to range from a minimum of approximately 80 meters in the morning to a maximum of 2,300 meters in the afternoon. Higher mixing heights, normally associated with unstable conditions, can lead to greater dispersion of air contaminants and lower impacts. When the mixing height is low and the wind is calm, air contaminants can be trapped near the ground and impacts will be higher due to lower dilution.

EXISTING AIR QUALITY

The United States Environmental Protection Agency (EPA) and the California Air Resource Board (CARB) have both established allowable maximum ambient concentrations of air pollutants based on public health impacts, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more stringent) than the federal AAQS, established by EPA. The state and federal air quality standards are listed in **AIR QUALITY Table 1**. As indicated, the averaging times for the various air quality standards (the duration over which all measurements taken are averaged) range from one hour to one year (annual). The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per unit volume of air, in milligrams (10^{-3} g, 0.001 g or mg) or micrograms (10^{-6} g, 0.000001 g or μg) of pollutant in a cubic meter (m^3) of air.

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 $\mu g/m^3$)	0.09 ppm (180 $\mu g/m^3$)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	-
	1 Hour	-	0.25 ppm (470 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual Average	0.03 ppm (80 $\mu g/m^3$)	-
	24 Hour	0.14 ppm (365 $\mu g/m^3$)	0.04 ppm (105 $\mu g/m^3$)
	3 Hour	0.5 ppm (1300 $\mu g/m^3$)	-
	1 Hour	-	0.25 ppm (655 $\mu g/m^3$)
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	-	30 $\mu g/m^3$
	24 Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	-
Sulfates (SO_4)	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	1 Observation	-	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

In general, an area is designated as attainment for a specific pollutant if the concentrations of that air contaminant never exceed the AAQS. Likewise, an area is designated as non-attainment for an air contaminant if that standard is ever violated. Where not enough ambient data is available to support designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be classified attainment for one air contaminant and non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of a district is usually evaluated to determine the district's attainment status.

The Los Esteros Critical Energy Facility is located in the city of San Jose within the Bay Area Air Basin and is under the jurisdiction of the BAAQMD. All state and federal ambient air quality designations are presented in **AIR QUALITY Table 2** below (EPA 1999 & CARB 1999). Note that the region is classified as Non-attainment for both the State PM_{10} and State Ozone Ambient Air Quality Standards.

AIR QUALITY Table 2
Local Air Quality Classifications

Pollutant	State Designation	Federal Designation
NO_2	Attainment	Attainment
CO	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
SO_2	Attainment	Attainment
Ozone	Nonattainment	Nonattainment

Ambient air quality data has been collected extensively in the Bay Area Air Basin. CO, NO_2 and SO_2 are all classified as in attainment with both the State and Federal AAQS. **AIR QUALITY Table 3** below shows the maximum ambient concentrations of the three attainment pollutants measured by the BAAQMD over the past decade, and demonstrates that no violations of standards have occurred.

AIR QUALITY Table 3
BAAQMD Attainment Pollutant
Maximum Ambient Concentrations (ppm)

Pollutant	Averaging Time	1993	1994	1995	1996	1997	1998	1999	Limiting AAQS
CO	8-hour	7.88	8.75	5.84	7	6.11	6.27	6.28	**9**
	1 hour	14	12	10.1	8.8	10.7	8.7	9	**20**
NO_2	Annual	0.027	0.028	0.027	0.025	0.025	0.025	0.026	**0.053**
	1 hour	0.12	0.107	0.116	0.108	0.118	0.098	0.128	**0.25**
SO_2	24-hour	0.0125	0.0123	0.0117	0.0144	0.0141	0.0159	0.0382	**0.04**
	1 hour	0.11	0.074	0.047	0.063	0.099	0.062	0.098	**0.25**
Source: California Air Resources Board									

The following is a more detailed description of these three pollutants.

CARBON MONOXIDE (CO)

CO is generated from most combustion engines and activities. CO is considered a local pollutant as it will rapidly oxidize according to the following reaction:

$$2CO + O_2 \rightarrow 2CO_2$$

It is thus found in high concentrations only near the source of emissions. Automobiles and mobile sources are the principal source of the CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. Industrial sources, typically constitute less than 10 percent of the ambient CO levels in the Bay Area.

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

NITROGEN DIOXIDE (NO2)

Most combustion engines and activities emit significant quantities of NO_x, a term used in reference to combined quantities of NO and NO_2. Only NO_2 is a criteria pollutant, and approximately 90 percent of the NO_x emitted from combustion sources is NO, while the balance is NO_2. However, NO is oxidized in the atmosphere into NO_2. The formation of NO_2 in the presence of sunlight occurs with the help of ozone according to the following reaction:

$$NO + O_3 \leftrightarrow NO_2 + O_2$$

In urban areas, the ozone concentration level is typically high. That level will drop substantially at night as the above reaction takes place between ozone. This reaction explains why, in urban areas, ozone concentrations at ground level can be relatively low, while downwind rural areas (without sources of fresh NO emissions) are exposed to relatively high ozone concentrations as the reaction proceeds in reverse in the presence of sunlight.

SULFUR DIOXIDE (SO2)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur and in significant ambient quantities can lead to acid rain and environmental damage.

Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast fuels high in sulfur content such as lignite (a type of coal) emit large amounts of SO_2 when combusted. Sources of SO_2 emissions within the Bay Area Air Basin come from every economic sector and include a wide variety of gaseous, liquid and solid fuels.

The following sections discuss the specific ambient air conditions regarding the two nonattainment criteria pollutants, PM_{10} and Ozone.

Ambient PM10

PM10 can be emitted directly from a combustion process or it can be formed many miles downwind when various precursor pollutants chemically interact in the atmosphere. Gaseous emissions of pollutants such as NO_x, SO_2 and POC from turbines, and ammonia (NH_3) from NO_x control equipment can, given the right meteorological conditions, form particulate nitrates, sulfates, and organic solids. These pollutants are known as secondary particulates, because they are not directly emitted but rather are formed outside the facility through chemical reactions in the atmosphere.

The District has recorded violations of the state PM_{10} AAQS in the Bay Area Air Basin in all recent years. Though no violations of the federal PM_{10} AAQS were recorded, there were recorded violations of the state 24-hour PM_{10} AAQS in most recent years. **AIR QUALITY Table 4** reports the maximum recorded ambient 24-hour average concentrations and the number of ambient violations of the state AAQS each year. It should be noted that ambient PM_{10} measurements are only taken once every six days. Each recorded violation represents a six-day period during which the standard was violated.

AIR QUALITY Table 4
BAAQMD PM10 Maximum 24-hour Average Concentrations and Number of Measurement Periods (6-day periods) In Violation with the State AAQS

Station	PM10	1993	1994	1995	1996	1997	1998	1999	2000
Marin County Summary	24-Hour High Avg. (g/m^3)	69	72.4	74.2	50.3	72	52.4	75.6	39.5
	State Violations	1	4	1	0	2	1	2	0
SF County Summary	24-Hour High Avg. (g/m^3)	69	93	49.9	70.9	81	52.4	77.9	63.2
	State Violations	5	6	0	2	3	1	6	2
Alameda County Summary	24-Hour High Avg. (g/m^3)	84	96.9	51.7	71.1	64.7	62.7	87.9	71.2
	State Violations	4	4	2	1	2	2	3	2
Contra Costa County Summary	24-Hour High Avg. (g/m^3)	81	87	72.7	75.6	77.8	66.8	100.6	62.0
	State Violations	7	6	4	1	3	2	7	1
Santa Clara County Summary	24-Hour High Avg. (g/m^3)	101	92.6	59.7	76.1	95	92	114.4	76.1
	State Violations	9	9	4	2	3	3	7	7
San Jose 4th Street	24-Hour High Avg. (g/m^3)	92	92.6	59.7	76.1	78	92	114.4	76.1
	State Violations	8	7	4	2	3	3	5	7
San Jose Piedmont Road	24-Hour High Avg. (g/m^3)	NA	NA	57.4	58.7	55.3	54.4	NA	NA
	State Violations	NA	NA	1	2	1	1	NA	NA
San Jose Moorpark Avenue	24-Hour High Avg. (g/m^3)	76	66.6	54.5	58.4	60.7	42.5	NA	NA
	State Violations	3	4	1	1	3	0	NA	NA
San Jose Tully Road	24-Hour High Avg. (g/m^3)	101	90.2	48.6	66.8	95	88.5	96.5	68.5
	State Violations	7	7	0	1	3	1	4	2
Basin Wide Summary	24-Hour High Avg. (g/m^3)	101	96.9	74.2	76.1	95	92	114.4	76.1
	State Violations	11	10	7	3	4	5	12	7

Source: California Air Resources Board

State 24-Hour Ambient Air Quality Standard for PM10: 50 g/m^3
Federal 24-Hour Ambient Air Quality Standard for PM10: 150 g/m^3
NA = PM10 data is not available for these years at these sites.

Ambient Ozone

Ozone is not directly emitted from stationary or mobile sources; rather it is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. NO_x and POC react with oxygen in the presence of sunlight to form ozone. Collected air quality data indicates that ambient ozone is a regional pollutant and that violations occur primarily during the period of May through October.

In the Bay Area Air Basin, the maximum ambient ozone levels generally increase from west to east since the air coming onshore from the Pacific is generally clean. As air flows over regions of human activity, it accumulates pollutants. As the pollutants warm up, the chemical reactions that generate ozone accelerate and the ambient ozone levels increase. This atmospheric chemistry takes time to proceed however, so the secondary ozone impact from NO_x and POC emissions is generally miles down wind, to the south and east in the Bay Area Air Basin.

This pattern can be seen in the ozone data presented in **AIR QUALITY Table 5** below. Note how the highest one hour average and particularly the annual number of state AAQS violations increases from northwest to southeast.

AIR QUALITY Table 5
Maximum Concentration of O_3 (Ozone) and
Number of Days in which the State Ozone Standard was Violated

Station	Ozone	1993	1994	1995	1996	1997	1998	1999	2000
Marin County Summary	Highest 1 hour Average (ppm)	0.080	0.089	0.088	0.105	0.106	0.074	0.102	0.071
	State Violations	0	0	0	2	1	0	2	0
SF County Summary	Highest 1 hour Average (ppm)	0.080	0.055	0.088	0.071	0.068	0.053	0.079	0.058
	State Violations	0	0	0	0	0	0	0	0
Alameda County Summary	Highest 1 hour Average (ppm)	0.13	0.129	0.155	0.138	0.114	0.146	0.146	0.137
	State Violations	8	7	21	23	6	22	15	5
Contra Costa County Summary	Highest 1 hour Average (ppm)	0.130	0.121	0.152	0.137	0.108	0.147	0.156	0.138
	State Violations	10	6	12	15	4	16	8	2
Santa Clara County Summary	Highest 1 hour Average (ppm)	0.130	0.130	0.145	0.129	0.114	0.147	0.125	0.113
	State Violations	14	8	22	24	3	22	12	4
Gilroy	Highest 1 hour Average (ppm)	0.11	0.101	0.13	0.121	0.095	0.135	0.105	NA
	State Violations	6	3	10	15	1	10	3	NA
Los Gatos	Highest 1 hour Average (ppm)	0.13	0.118	0.141	0.129	0.097	0.133	0.117	0.080
	State Violations	8	2	13	10	1	5	4	0
Mountain View	Highest 1 hour Average (ppm)	0.11	0.084	0.116	0.106	0.114	0.097	0.114	NA
	State Violations	2	0	2	3	1	2	7	NA
San Jose 4th Street	Highest 1 hour Average (ppm)	0.11	0.112	0.134	0.11	0.094	0.147	0.109	0.073
	State Violations	3	2	14	5	0	4	3	0
San Jose Piedmont Road	Highest 1 hour Average (ppm)	0.11	0.116	0.145	0.118	0.095	0.129	0.116	0.096
	State Violations	5	3	15	5	1	5	2	1
San Martin	Highest 1 hour Average (ppm)	NA	0.13	0.128	0.115	0.091	0.144	0.125	0.113
	State Violations	NA	5	14	18	0	15	7	4
Basin Wide Summary	Highest 1 hour Average (ppm)	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152
	State Violations	19	13	28	34	8	29	20	12

Source: California Air Resources Board

State 1 hour Ambient Air Quality Standard for Ozone: 0.09 ppm (180 g/m^3)
Federal 1 hour Ambient Air Quality Standard for Ozone: 0.12 ppm (235 g/m^3)
NA = Ozone data is not available for these years at these sites.

PROJECT DESCRIPTION AND EMISSIONS

CONSTRUCTION

The Los Esteros Critical Energy Facility will include the following major components:

- Four 48.7 MW General Electric LM6000PC Sprint combustion gas turbines, and
- A two cell mechanical draft evaporative cooling tower.

In addition, the project will include the following major ancillary facilities:

- A 368 bhp diesel fire pump;
- A 600 kW natural gas emergency generator; and
- Offsite linear facilities including a natural gas pipe line, a process water pipeline and transmission lines.

Project Site

Facility construction is expected to take about 12 months. The power plant project construction consists of three major areas of activity: 1) the civil/structural construction 2) the mechanical construction, and 3) the electrical construction. The largest air emissions are generated during the civil/structural activity, where work such as grading, site preparation, foundations, underground utility installation and building erection occur. These types of activities require the use of large earth moving equipment, which generate considerable combustion emissions themselves, along with creating fugitive dust emissions. The mechanical construction includes the installation of the heavy equipment, such as the combustion and steam turbines, the heat recovery steam generators, condenser, pumps, piping and valves. Although not a large fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more emissions than other construction equipment onsite. Finally, the electrical equipment installation occurs, involving such items as transformers, switching gear, instrumentation and wiring, and is a relatively small source of emissions in comparison to the early construction activities.

The construction of these facilities will generate air emissions, primarily fugitive dust from earth moving activities and combustion emissions from construction equipment and vehicles. The projected maximum daily and annual emissions, based on the highest monthly emissions over the approximately 12 month construction period, are shown in **AIR QUALITY Table 6**.

AIR QUALITY Table 6
Estimated Maximum Construction Emissions

	NO_x	POC	PM_{10}	CO	SO_2
Maximum Daily Emissions (lb/day)	276.7	99.8	46.7	1154.1	7.8
Maximum Annual Emissions (tons/year)	10.6	3.7	5.6	41.5	0.25
Note: Estimate based on an eight hour workday and a five day work week.					

The largest percentage of the total construction emissions from **AIR QUALITY Table 6** will likely be emitted during the project site activity, most of it due to earth moving, grading activities and large equipment operations. The proposed linear facilities construction will produce a minor additional quantity of emissions, which have been included in the overall construction analysis.

Offsite Linear Facilities

The construction of the new transmission lines will include clearing and grading, welding, and clean-up.

OPERATION

Emission Controls

NO_x Controls

The combustion turbines will be equipped with water injection to minimize NO_x generation and the CTG exhaust will also be treated by a selective catalytic reduction (SCR) system before release to the atmosphere. Selective catalytic reduction refers to a process that chemically reduces NO_x to elemental nitrogen and water vapor by injecting ammonia into the flue gas stream in the presence of a catalyst and excess oxygen. The process is termed selective because the ammonia preferentially reacts with NO_x rather than oxygen. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or noble metals are also used. Newer catalysts (versus the older alumina-based catalysts) are more resistant to fuel sulfur fouling at temperatures below 770° F (EPRI 1990). Regardless of the type of catalyst used, efficient conversion of NO_x to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream and a catalyst surface large enough to ensure sufficient time for the reaction to take place.

POC and CO Controls

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

PM_{10} and SO_2 Controls

The exclusive use of an inherently clean fuel, natural gas, will limit the formation of SO_2 and PM_{10}. Natural gas contains very little noncombustible gas or solid residue and is thus a relatively clean-burning fuel. Natural gas does contain very small amounts of a sulfur based scenting compound known as mercaptan, which when combusted, results in sulfur dioxide emissions. However, in comparison to other fuels used in modern thermal power plants, such as fuel oil or coal, the sulfur dioxide emissions from the combustion of natural gas are very low. A fuel sulfur content limit of 0.25 grains per 100 scf will be applied to the project and is assumed for the SO_2 emissions calculations. Like SO_2, the emissions of PM_{10} from natural gas combustion are also very low compared to the combustion of fuel oil or coal.

Project Operating Emissions

The LECEF is proposed and thus permitted to operate continuously (8760 hours per year). The CTGs will burn only pipeline natural gas; there are no provisions for an alternative back-up fuel. The proposed project's criteria air pollutant emissions during short periods of time (approximately one hour or less) are shown in **AIR QUALITY Table 7**, below.

In general, higher emissions of NO_x, POC and CO will occur during the start up and shut down of large CTGs because the turbine combustors are designed for maximum efficiency during full load, steady state operation. During startup, combustion temperatures and pressures change rapidly, resulting in less efficient combustion and higher emissions. Also, flue gas controls, the catalysts discussed above, operate most efficiently when the turbine operates at or near full load temperatures. The unusually low NOx and POC emissions during start up shown here are due to the relatively fast start (~15 minutes) of the LM6000 model turbine. Since the transient period is minimized, the emissions rates are more quickly brought to steady state rates. The control technologies are also more quickly brought to full operation, thus further minimizing emissions.

The "4 Turbine, worst case" hourly emissions rate is based on the higher of two profiles listed. This corresponds to steady state operation for NO_x & POC, startup for CO and the emissions for PM_{10} and SO_2 are essentially equal in the two scenarios.

Both the Emergency Generator and the Diesel Fire Pump Engine are intended for emergency use only, however both need to be tested weekly for approximately one hour to ensure readiness.

AIR QUALITY Table 7
Individual Equipment Maximum Short-Term Emissions
(pounds per hour [lb/hr])

OPERATIONAL PROFILE	NO_x	POC	PM_{10}	CO	SO_2
1 CTG Startup	7.7	0.68	2.5	7.7	0.33
1 CTG Steady State, 100% load	8.55	1.18	2.5	6.24	0.33
4 Turbines, worst case	34.20	4.72	10.0	30.8	1.32
Cooling Tower	-	-	0.09	-	-
Emergency Generator	1.77	1.4	0.28	3.0	0.005
Diesel Fire Pump Engine	7.40	0.174	0.097	1.75	0.127
TOTAL MAXIMUM SHORT-TERM EMISSIONS	41.60	6.1	10.4	33.8	1.45

Note: The applicant has committed to not testing the Emergency Generator and the Diesel Fire Pump on the same day, thus the total value includes only the higher of the two for each pollutant. The applicant will further be prohibited by condition of certification from testing the two pieces of equipment concurrently.

The maximum daily emissions rates for NO_x, POC, PM_{10} and SO_2 were conservatively based on the worst case hourly emissions rate times 24 hours and are presented in **AIR QUALITY Table 8**. For CO, one start-up for each turbine was assumed with the remainder of operation at steady state. The applicant has committed to not testing the Emergency Generator and the Diesel Fire Pump on the same day, thus the total value includes only the higher of the two for each pollutant. The applicant will further be prohibited by condition of certification from testing the two pieces of equipment on the same day.

AIR QUALITY Table 8
Project Maximum Daily Emissions
(pounds per day [lb/day])

	NO_x	POC	PM_{10}	CO	SO_2
Four CTGs	820.8	113.28	240.0	604.9	31.68
Cooling Tower	-	-	2.16	-	-
Emergency Generator *	1.77	1.4	0.28	3.0	0.005
Diesel Fire Pump Engine *	7.40	0.174	0.097	1.75	0.127
Total Maximum Daily Emissions *	828.2	114.7	240.3	607.9	31.81

* The applicant will be prohibited by condition of certification from testing the Emergency Generator and Diesel Fire Pump Engine on the same day.

POC, PM_{10} and SO_2 are produced in proportion to fuel consumption, thus worst case scenarios of year round 100 percent operation are presented. To account for both testing and emergency use, one hundred hours per year of operation for both the diesel fire pump engine and emergency generator are also included. The applicant has requested that the projected maximum annual emissions for NO_x and CO be based on a 2.5 ppm NO_x limit and a 5.0 ppm annual CO limit as opposed to the short term 5.0 ppm NO_x and 6.0 ppm CO limits used in the hourly and daily calculations. The BAAQMD has agreed to these lower annual limits and indicated that to reach such low levels may

require reduction of the operating time to less then the assumed 8760 hrs/year. Please see the staff proposed mitigation section for further discussion. The proposed maximum annual emissions limits are summarized in **AIR QUALITY Table 9**.

AIR QUALITY Table 9
Project Maximum Annual Emissions
(tons per year [ton/year])

Operational Profile	NO_x	POC	PM_{10}	CO	SO_2
Four Turbines	74.9	20.8	43.8	94.6	5.8
Cooling Tower	-	-	0.394	-	-
Emergency Generator (100 hours/year)	0.09	0.07	0.014	0.15	0.00023
Diesel Fire Pump Engine (100 hours/year)	0.37	0.009	0.005	0.088	0.006
Total Maximum Annual Emissions	75.4	20.9	44.2	94.8	5.8

Ammonia Emissions

To control NO_x emissions, aqueous ammonia will be injected into the flue gas stream as part of the Selective Catalytic Reduction (SCR) system. Not all of this ammonia mixes in 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 LECEF has proposed (and the BAAQMD has agreed) to an ammonia slip no greater than 10 ppm. On a daily basis, ammonia slip of 10 ppmv from all four turbines combined will yield approximately 600 lbs total emitted to the atmosphere. It should be noted that ammonia slip of 10 ppm usually only occurs after significant degradation of the SCR catalyst, usually five years or more after commencing operations. At that point, the SCR catalysts are removed and replaced with new catalysts. During most of the operational life of the SCR system ammonia slip emissions would be significantly less, in the 1 to 5 ppm range.

PROJECT IMPACTS

MODELING APPROACH

While the emissions are the actual mass of pollutants emitted from the project, the impacts are the maximum concentration of pollutants from the project that people may be exposed to. When emissions are expelled at a high temperature and velocity through a relatively tall stack, the pollutants will be significantly diluted by the time they reach ground level. In contrast, the impacts from a source emitting at ground level (such as a car or lawnmower) can be much higher even though the emissions are clearly lower, because little dilution occurs between emission and impact. The emissions from the proposed project are analyzed through the use of air dispersion models to determine the impacts at ground level.

The applicant performed an air dispersion modeling analysis to evaluate the project's potential impacts on the existing ambient air pollutant levels, during both construction and operation. An air dispersion modeling analysis usually starts with a conservative screening level analysis. Screening models use very conservative assumptions and

meteorological conditions, which may or may not actually occur in the area. The impacts calculated by screening models, therefore, can be significantly higher than the actual or expected impacts. If the screening level modeling predicts significant impacts, a refined modeling analysis is performed. A major difference between the screening modeling and the refined modeling is that hour-by-hour meteorological data collected in the vicinity of the project site is used for the refined analysis. The applicant used the Industrial Source Complex Short Term model, Version 3, known as the ISCST3 model, for the refined modeling analysis of the LECEF. This is a generally accepted model for this type of project.

CONSTRUCTION IMPACTS

The applicant performed a refined air dispersion modeling analyses of the potential construction impacts at the project site using the same ISCST3 computer model and meteorological data from 1995 through 1999 used to model the project's steady state impacts. The analyses included fugitive dust generated from the construction activity and combustion emissions from the equipment.

The one hour NO_2 impact was calculated using the Ozone Limiting Method (OLM). The U. S. EPA (Appendix W of 40 CFR Part 51) and CARB recommends the use of OLM as a second level screening analysis for the determination of NO_2 impacts. This method basically assumes that the conversion rate of NO to NO_2 is limited by the amount of ozone (O_3) present in the atmosphere. This assumption is based on the fact that O_3 reacts rapidly with NO forming NO_2 and molecular oxygen.

The maximum 24-hour impacts were assessed using the emission rates for the month of maximum activity and annual impacts were assessed using the average emissions for the entire construction period. Most of the highest emissions are estimated to occur approximately halfway through the 12 month construction period. The results of this modeling effort are shown in **AIR QUALITY Table 10**.

AIR QUALITY Table 10
Maximum Construction Impacts ($\mu g/m^3$)

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	1 hour	228.4	241	467	470	99%
	Annual	1.1	49	50	100	50%
PM_{10}	24 hour	13.2	114	127	50	254%
	Annual Geo. Mean	1.9	25.4	27	30	90%
CO	1 hour	61.1	12,375	12,436	23,000	54%
	8 hour	17.7	6,978	6,996	10,000	70%
SO_2	1 hour	7.1	94	101	655	15%
	24 hour	0.8	18.4	19	105	18%
	Annual	0.04	5.3	5	80	6%

The construction of the Los Esteros Critical Energy Facility may result in ambient air quality impacts (one hour NO_2, 24 hour PM_{10} and annual PM_{10}), which the general public could be exposed to. Staff believes that this calculated impact may be unrealistically high due to excessively conservative (i.e. over predictive) modeling protocols. Nevertheless, staff believes that the emissions from the construction of the project could have a significant impact and must be mitigated. Staff will implement construction conditions of certification to mitigate all construction impacts to the maximum extent feasible. This is addressed under the "Staff Proposed Mitigation" section below.

INITIAL COMMISSIONING

New power generation facilities must go through an initial firing and commissioning phase before going fully on line. During this period, emissions may exceed permitted levels due to startups, shutdowns, extended periods of low load operation and periods of time when the low-NO_x burners and SCR systems are fine tuned for optimum performance.

Five stages of turbine commissioning were identified for the LECEF project: Full Speed No Load Tests, Part Load Tests, Full Load No SCR Operation Tests, Full Load Partial SCR Operation Tests, and Full Load Full SCR Operation Tests. The applicant assumed that only two of the turbines would be undergoing testing at any one time and applied conservative screening level modeling to each scenario. The worst case screening level impact predicted for both NO_x and CO are well below the most limiting AAQS and are presented in **AIR QUALITY Table 11**. Since the most conservative level of modeling shows no potential violation of AAQS, no refined modeling was performed on the initial commissioning activities.

AIR QUALITY Table 11
Maximum Screening Level Impacts from Initial Commissioning ($\mu g/m^3$)

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO2	1 hour	41	241	282	470	60%
CO	1 hour	35	12,375	12,410	23,000	54%

PROJECT OPERATION IMPACTS

While the construction and commissioning impacts are both relatively short lived, the operation impacts from the project will continue throughout the life of the facility. The operation impacts are thus subjected to a more refined level of analysis. The following sections discuss the air quality impacts of project operation under fumigation meteorological conditions, during combustion turbine startup and during steady-state operations.

Fumigation Impacts

Surface air is usually very stable during the early morning hours before sunrise. During such meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed and diluted. When the sun first rises, the air at ground level is

heated resulting in turbulent vertical mixing (both rising and sinking) of air within a few hundred feet of the ground. Emissions from a stack that enters this turbulent layer of air will also be vertically mixed, bringing some of those emissions down to ground level before significant dispersion occurs and possibly causing abnormally high impacts. As the sun continues to heat the ground, this vertical mixing layer becomes thicker and thicker, and the emissions plume becomes better dispersed. The early morning air pollution event, called fumigation, usually lasts approximately 30 to 90 minutes.

The applicant used the EPA approved SCREEN3 model for the calculation of fumigation impacts with a conservative shore line assumption. **AIR QUALITY Table 12** shows the highest modeled fumigation impacts in comparison with the one hour NO_2, SO_2 and CO standards. The worst case one hour emissions levels for each pollutant identified in **AIR QUALITY Table 7** were assumed. Since fumigation impacts will not typically occur for more than a one hour period, only the impacts on the one hour standards are shown. The results of the modeling analysis show that fumigation impacts will not violate any of the one hour standards.

AIR QUALITY Table 12
CTG Fumigation Modeling
Maximum One hour Impacts ($\mu g/m^3$)

POLLUTANT	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO2	10.5	241	251.5	470	54%
C0	7.7	12375	12382.7	23,000	54%
SO2	0.4	94	94.4	655	14%

Refined Modeling Analysis

The applicant provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during both steady state operation and startup conditions. The worst case (maximum) results of this modeling analysis are shown in **AIR QUALITY Table 13**.

This table shows that during worst case normal operations the facility will not cause a surface level violation of any ambient air quality standards, though it will contribute to the existing PM_{10} problem. In this case, the maximum impacts were dominated by the diesel fire pump engine's weekly testing. The high modeled NO_2 impacts from the pump engine are because the diesel engine emits at such a low stack height that minimal dilution occurs before the emissions reach the ground, very near the project site. Note also that this analysis conservatively assumes the highest single one hour ambient NO_x level (241 $\mu g/m^3$) from the past eight years as a background to which all project impacts are added to determine the final level of impact. Because such a high background level is extremely unlikely to occur at the same location as the maximum impacts from the project, these modeled conditions are considered worst case.

AIR QUALITY Table 13
LECEF Refined Modeling Maximum Impacts ($\mu g/m^3$)

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO2	1 hour	13.4*	241	254.4	470	54%
	1 hour	225.2*	241	466.2	470	99%
	Annual	0.18	49	49.18	100	49%
PM10	24 hour	1.32	114	115.32	50	231%
	Annual Geo. Mean	0.124	25.4	25.524	30	85%
CO	1 hour	246	12375	12621	23,000	55%
	8 hour	5.39	6983	6988.4	10,000	70%
SO2	1 hour	17.7	94	111.7	655	17%
	24 hour	0.08	18.4	18.48	105	18%
	Annual	0.01	5.3	5.31	80	7%

* The worst case 1 hour NO2 impacts are dominated by the emissions from the diesel fire pump engine during the weekly test. The maximum 1 hour NOx impact of the project turbines alone will be 13.4 $\mu g/m^3$.

Since the project's impacts do not cause a violation of any NO_2, CO or SO_2 ambient air quality standards under such conservative assumptions, staff considers the project impacts for those pollutants to be insignificant. However, all project emissions of PM_{10} are contributing to the existing PM_{10} problem in the Bay Area, and thus are considered significant.

Secondary Pollutant Impacts

The project's gaseous emissions of NO_x, SO_2, POC and ammonia can contribute to the formation of secondary pollutants, ozone and PM_{10}. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NO_x and POC emissions to ozone formation, it can be said that the emissions of NO_x and POC from the project do have the potential (if left unmitigated) to contribute to higher ozone levels in the region.

There is a known relationship between emissions of ammonia, NO_x and SO_2 and the formation of ammonium nitrate and sulfate based PM_{10}. Whether the ammonia, NO_x and SO_2 impacts are significant depends on the likelihood of ambient PM_{10} violations. The Bay Area Air Basin currently experiences violations of the state AAQS and is classified as a non-attainment area for the state PM_{10} AAQS. Staff thus considers both the primary and secondary PM_{10} emissions from the project to be a significant cumulative contribution to an existing problem.

VISIBILITY IMPACTS

A visibility analysis of the project's gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The LECEF project is

not subject to PSD permitting, because it does not trigger the emission limits for such a review, so no visibility analysis was completed for this project. The nearest Class I areas to the Los Esteros Critical Energy Facility are the Point Reyes National Seashore and the Pinnacles National Monument. Due to the distance to Class I areas and the fact that this project is not a major stationary source, the project's visibility impacts on Class 1 areas are considered insignificant.

CUMULATIVE IMPACTS

To evaluate reasonably foreseeable future projects as part of a cumulative impact analysis, staff needs specific information. The time in which a probable future project is well enough defined to have the information necessary to perform a modeling analysis is usually when that project applicant has submitted an application to the District for a permit. Air dispersion modeling required by the District would necessitate that the applicant develop the necessary modeling input parameters to perform a modeling analysis. Therefore, we evaluate those future projects that are currently under construction, or are currently under District review in our cumulative impact analysis. Projects located up to six miles from the proposed facility site usually need to be included in the analysis.

The applicant obtained an inventory from BAAQMD identifying all proposed facilities within six miles of the LECEF site that have not yet commenced operations. The inventory identified 33 projects, six of which had a total emissions of any pollutant in excess of five tons per year. The maximum modeled cumulative impacts of these six proposed sources combined with the LECEF are presented below in **AIR QUALITY Table 14**. The total impact in this case is conservatively estimated to be the maximum modeled impact plus the maximum existing background pollutant levels.

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

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO2	1 hour	234.3*	241	475.3	470	101%
	Annual	12.7	49	61.7	100	62%
SO2	1 hour	17.7	94	111.7	655	17%
	24 hour	1.6	18.4	20	105	19%
	Annual	0.2	5.3	5.5	80	7%
CO	1 hour	1905	12,375	14280	23,000	62%
	8 hour	560	6,983	7543	10,000	75%
PM10	24 hour	1.4	114	115.4	50	231%
	Annual Geo. Mean	0.4	25.4	25.8	30	86%

* The project contribution to the maximum combined impact is 0.0 μg/m^3 while the existing source contribution to the project's maximum impact is 0.2 μg/m^3.

The maximum modeled NO_2 impacts are caused by emissions from other proposed facilities which will not be exacerbated by the projects emissions and are thus not

significant. The prepared cumulative modeling used very conservative assumptions in an attempt to produce a worst case impact scenario and then to examine the effects of emissions from LECEF on that scenario. In particular, the one hour NO_2 maximum impact shown in **AIR QUALITY Table 14** was shown to be unaffected by the proposed emissions from the LECEF and the maximum one hour NO_2 impact reported from LECEF in **AIR QUALITY Table 13** (225.2 $\mu g/m^3$) was shown to be increased by 0.2 $\mu g/m^3$ due to cumulative impacts. The modeled PM_{10} violation is also predominantly due to the other modeled sources and not the LECEF. Nevertheless, this analysis again shows that the existing PM_{10} levels in the region are unacceptably high, and any further impact should be considered significant and be fully mitigated.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed LECEF (please refer to **Socioeconomics Figure 1** in this Staff Analysis), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. Based on this analysis, there are no unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no environmental justice issues related to this project.

MITIGATION

APPLICANT'S PROPOSED MITIGATION

Construction Mitigation

The applicant proposes a number of mitigation and emissions control measures for use during the construction of the project. The applicant specifically proposes the following measures to control exhaust emissions from heavy diesel construction equipment:

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

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

- Use either water application or chemical dust suppressant application to control dust emissions from unpaved road travel and unpaved parking areas;

- Use vacuum sweeping and/or water flushing of paved road surfaces to remove buildup of loose material to control dust emissions from travel on the paved access road (including adjacent public streets impacted by construction activities) and paved parking areas;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Use wheel washers to wash off tires of all trucks exiting the construction site that carry track-out dirt from unpaved roads; and
- Mitigate fugitive dust emissions from wind erosion of areas disturbed from construction activities (including storage piles) by application of either water or chemical dust suppressant.

Operations Mitigation

The applicant proposes to reduce the project's air pollutant emissions impacts by using emission control equipment on the project and by providing emission offsets.

NO_x Controls & Ammonia Slip

This NOx emissions control strategy will limit the NO_x emissions from the four CTGs to 5 ppm @ 15 percent O_2 on a three hour rolling average and to 2.5 ppm @ 15 percent O_2 on a rolling twelve month average. In addition, the applicant proposes, and BAAQMD supports, a maximum ammonia slip rate of 10 ppm.

PM10 and SO2 Controls

PM_{10} & SO_2 emissions will be limited by the use of natural gas with a maximum sulfur content of 0.25 grains per 100 scf as the only fuel.

POC and CO Controls

The proposed oxidation catalyst and efficient combustion controls will limit POC emissions to 2.0 ppmvd @ 15 percent O_2 on a three hour rolling average (confirmed through annual source testing) and CO emissions to 6.0 ppmvd @ 15 percent O_2 on a three hour rolling average.

Cooling Towers

Cooling tower drift consists of small water droplets, which can generate particulate matter that originates from the dissolved solids in the circulating water. To limit these particulate emissions, drift eliminators are installed in the cooling tower to capture these water droplets. The applicant intends to use drift eliminators on the cooling towers designed to limit drift to 0.0005 percent of the circulating water.

PM_{10} Mitigation

Although the Bay Area Air Basin is classified as nonattainment for the state PM_{10} AAQS, the project will not be required by the BAAQMD to provide offsets because the quantity emitted is below the district's Offset Threshold of 100 tons per year (as set by district rule). However, staff believes that the projects emissions constitute a significant addition to an existing problem, and thus must be fully mitigated.

At the data response workshop on November 6th, 2001, staff discussed the necessity for PM_{10} mitigation with the applicant, as first communicated in air quality data request #2. Though the applicant disagreed with staff regarding the significance of the PM_{10} emissions from the LECEF, the applicant committed to propose PM_{10} mitigation for the project. On December 6th, 2001, the applicant submitted a letter discussing their proposal for PM_{10} mitigation (Sierra Research; "Los Esteros Critical Energy Facility (01-AFC-12) PM_{10} Mitigation" ; December 6, 2001). On December 21st, 2001, the applicant submitted a letter containing supplemental information regarding the proposed PM_{10} mitigation (Sierra Research; "Los Esteros Critical Energy Facility (01-AFC-12) PM_{10} Mitigation – Supplemental Information"; December 21, 2001).

The applicant proposes "the payment of a mitigation fee, with the proceeds to be used for projects that will reduce PM_{10} emissions and ambient concentrations in the general vicinity of the project." The applicant initially proposed a mitigation fee of $7500 per tpy of PM_{10} emitted from the project, for a total of $331,500. This figure was based on the commission permit for the Otay Mesa project (specifically, condition of certification **AQ-75**). Staff conducted a preliminary review of the costs of recent PM_{10} emission reduction credit transactions within the BAAQMD, and proposed a cost per ton of $11,546.65 for a total of $510,361.93 (please see "Adequacy of Proposed Mitigation" section below). In their December 21, 2001 letter, the applicant agreed to this value pending verification of staff's calculations by all parties.

The applicant proposes that the funds could be used towards projects that would:

- Facilitate the replacement of diesel school buses with lower emitting diesel or natural gas-fueled buses under the Lower Emitting School Bus program;
- Replace high-emitting fireplaces and residential wood burning equipment with gas-fired equipment or fireplace inserts;
- Replace other low-elevation PM10 sources (such as commercial food-cooking equipment) with lower emitting equipment; and
- Facilitate the replacement of other diesel equipment with lower emitting diesel or natural gas-fueled equipment under the Carl Moyer program.

In their December 21 proposal, the applicant specifically, proposes that the funds be used in the following two programs:

- Lower-Emission School Bus Program, administered by the BAAQMD; and
- Residential Wood Smoke Program.

Emission Offsets

District Regulation 2-2-302 requires that the applicant provide emission offsets, in the form of banked Emission Reduction Credits (ERC), for the project's emissions increases of NO_x and Precursor Organic Compounds (POC). The projected emissions of PM_{10} and SO_2 are below the district's thresholds for requiring offsets. For facilities emitting more then 50 tons/year of NO_x, the district requires a trading ratio of 1.15:1 (i.e. for every one ton of NO_x emissions from the facility, 1.15 tons of NO_x emission reduction credits must be provided). District Regulation 2-2-302.2 allows POC credits to be used in place of NO_x credits on a 1:1 basis as either pollutant is considered a precursor pollutant to the formation of ozone. For facilities emitting between 15 and 50 tons/year of POC, the district requires a trading ratio of 1:1. A summary of the LECEF offset liability is presented below in **AIR QUALITY Table 15**.

AIR QUALITY Table 15
Emissions Offsets Liability (tons/year)

Pollutant	Emissions (tons/year)	Offset Ratio	POC Offsets Proposed
NO_x	75.4	1.15:1.0	86.7
POC	20.9	1.0:1.0	20.9
Total POC Emission Reduction Credits Proposed			107.6

The applicant is currently in possession of sufficient POC ERC certificates to fully satisfy these conditions. These certificate's numbers, the location of the sources they were derived from, and the amount of emissions reductions they represent are presented in **AIR QUALITY Table 16** below.

AIR QUALITY Table 16
Emission Reduction Credits

ERC Number	Source Location (City)	Date Banked	Source Type	Current Owner	POC (tpy)
#751	Quebecor (San Jose)	6/99	Printing	Calpine	53.3
#752	Quebecor (San Jose)	6/99	Printing	Calpine	25.1
#573	LSI (Milpitas)	9/98	Semiconductor fab	LSI Logic	15.9
#628	Owens Brockway (Antioch)	6/99	Glass Furnace	Owens Brockway	10.8
#605	Owens Brockway (Oakland)	1/95	Glass Plant	Owens Brockway	0.4
#287	Philips (Sunnyvale)	8/93	Semiconductor fab	Philips Semiconductor	2.6
#288	Philips (Sunnyvale)	7/93	Semiconductor fab	Philips Semiconductor	9.0
#393	Disk Systems (Sunnyvale)	7/94	Solvents	Anacomp Inc.	7.1
Total POC Emissions Reduction Credits Identified					124.2

ADEQUACY OF PROPOSED MITIGATION

Construction Mitigation

Because of the possible significant short term NO_x impact and predicted short term PM_{10} impact from the construction activities associated with the project, the proposed construction mitigation is not sufficient.

Operations Mitigation

The proposed emissions offsets will fully mitigate the POC emissions from the project. The CO emissions impacts from the project do not cause a violation of any CO AAQS as shown in **AIR QUALITY Table 13** and thus are not significant.

Emission Controls

AIR QUALITY Table 17 presents the applicant's proposed control levels in comparison to the BAAQMD and CARB recommended BACT levels.

All applicant proposed BACT levels are sufficient. The proposed cooling tower will produce a maximum of 0.09 lbs per day of PM_{10} and is thus not subject to the district BACT regulation. Nevertheless, considering the local PM_{10} issue, staff will propose a condition of certification enforcing the 0.0005 percent drift control level.

AIR QUALITY Table 17
Comparison of Proposed Mitigation Levels (@ 15 Percent O_2)

Emissions Source	Pollutant	Applicant Proposed BACT	District Proposed BACT *	CARB Recommended BACT **
CTG	NO_x	5.0 ppmvd, 3 hr rolling average	5.0 ppmvd, 3 hr rolling average	5 ppmvd, 3 hr rolling average
CTG	NO_x	2.5 ppmvd, 12 month rolling avg.	-	-
CTG	POC	2.0 ppmvd, 3 hr rolling average	2.0 ppmvd, 3 hr rolling average	2.0 ppmvd, 3 hr rolling average
CTG	PM_{10}	Fuel sulfur ≤0.25 gr/100 scf	Fuel sulfur ≤0.25 gr/100 scf	Fuel sulfur ≤1 gr/100 scf
Cooling Towers	PM_{10}	0.0005% Drift	-	-
CTG	CO	6.0 ppmvd, 3 hr average	6.0 ppmvd, 3 hr average	6.0 ppmvd, 3 hr average
CTG	SO_2	Fuel Sulfur ≤ 0.25 gr/100 scf	Fuel Sulfur ≤ 0.25 gr/100 scf	Fuel Sulfur ≤ 1 gr/100 scf

* BAAQMD, "Preliminary Determination of Compliance Engineering Evaluation Application No. 3213, Los Esteros Critical Energy Facility, Plant #13289", November 2001
** CARB, "Guidance for Power Plant Siting and Best Available Control Technology", 1999

NOx Controls

The permitted NO_x emissions level will be reached through water injection into the CTGs and a Selective Catalytic Reduction system with injected aqueous ammonia used to treat all exhaust. These controls will limit the NO_x emissions to 5 ppmvd on a three hour average which the BAAQMD has found to be BACT for this type of facility. The selected SCR system will further limit the NO_x emissions to 2.5 ppmvd on a rolling 12 month average, which is consistent with the quantity of ERC secured for the project. The applicant provided documentation (the December 21 submittal) that verified that the SCR system is going to be designed to meet a NO_x concentration of 2.5 ppm.

POC and CO Controls

The permitted POC and CO emissions levels will be reached through the use of an oxidation catalyst system to treat all exhaust gasses. The proposed controls will limit emissions to 2.0 ppmvd POC and 6.0 ppmvd CO. The BAAQMD has found that these levels are BACT and will sufficiently control these emissions from the project.

PM_{10} and SO_2 Controls

The sole use of natural gas fuel with a certified sulfur content not greater than 0.25 grains per 100 scf satisfies BACT requirements found by the BAAQMD for both PM_{10} and SO_2.

Cooling Towers

The applicant's use of drift eliminators with an efficiency of 0.0005 percent on the proposed cooling tower represents the state-of-the-art of drift eliminator design. This level of emissions control is thus considered adequate to minimize potential PM_{10} emissions.

PM_{10} Mitigation

If built as proposed, the project will add approximately 44.2 tons per year of PM_{10} to the Bay Area Air Basin, resulting in a maximum 24-hour average ground level ambient impact increase of 1.32 $\mu g/m^3$, as shown in **AIR QUALITY Table 13**. Since the air basin already experiences violations of the state PM_{10} AAQS (**AIR QUALITY Table 4**), and is thus classified as non-attainment for that standard, this addition will contribute to existing violations and is thus a significant impact requiring mitigation.

Staff has two goals with regard to the PM_{10} mitigation plan for the LECEF. First, the mitigation plan must be complete and in place at the beginning of construction, with all the mitigation (that is, actual PM_{10} emission reductions) measures realized within one year after the commencement of the initial commissioning phase. Second, the PM_{10} mitigation benefit must be directed as much as practical to coincide with the impacts from the project.

Staff has determined that the PM10 mitigation outline presented by the applicant contains sufficient information to proceed with the licensing process, however staff did not agree with the applicant's original cost calculations. The $7500 price per tpy calculated by the applicant was based on the Otay Mesa project mitigation fee. That fee was based on the cost required to produce an equivalent quantity of PM_{10} mitigation by paving a road near the Otay Mesa project site. Though this methodology may have been valid in the Otay Mesa project, staff believed that the cost per tpy in this case should be based on local conditions. Staff proposed a cost based on the average transaction costs for PM_{10} ERC in the Bay Area since January 2000. **AIR QUALITY Table 18** lists all such transactions in the Bay Area, and the average cost per tpy. Note that two transactions for less than two tons of PM_{10} were excluded from the calculations because overhead costs for such transactions tend to distort the actual cost per tpy.

The final PM_{10} Mitigation Plan will be submitted by the applicant for review and approval prior to the start of construction. Staff will propose conditions of certification necessary to ensure the plan is completed and implemented in a timely fashion.

AIR QUALITY Table 18
Bay Area Air Basin PM_{10} ERC Transaction Costs 2000-2001

Cost per Ton	Tons Purchased
$ 6,153.00	25.00
$ 6,500.00	12.33
$ 7,000.00	2.21
$ 8,800.00	7.64
$ 8,800.00	10.00
$ 9,650.00	28.00
$10,995.00	6.44
$12,245.00	7.70
$12,708.00	1.54
$13,000.00	209.90
Average Cost per Ton	**$11,546.65**
44.2 Tons at Average Cost	**$510,361.93**

Emissions Offsets

Staff is satisfied that the proposed ERC package will fully mitigate the project's POC and NO_x emissions.

STAFF PROPOSED MITIGATION

Construction Mitigation

The modeling assessment discussed earlier shows that the combustion sources used for heavy construction have the potential for causing significant air quality impacts, specifically on the one hour NO_2 and 24 hour PM_{10} AAQS. Staff has determined that a viable emissions control technology for all pieces of heavy diesel powered construction equipment that do not use a CARB certified low emission diesel engine and ultra-low sulfur content diesel fuel is the use of oxidizing soot filters.

In addition, staff proposes that prior to the commencement of construction, the applicant provide a Fugitive Dust Mitigation Plan (FDMP) that specifically spells out the mitigation measures that the applicant will employ to limit fugitive dust during construction. Please see the Conditions of Certification section of this analysis for proposed conditions.

FACILITY CLOSURE

Eventually the Los Esteros Critical Energy Facility will close, either as a result of the end of its useful life, or through some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, all sources of air emissions would cease and thus all impacts associated with those emissions would cease as well.

A Permit to Operate, issued by the District under Regulation 2-3-302, is required for operation of the facility. If the applicant chooses to close the facility and not pay the permit fees, then the Permit to Operate would be cancelled. In that event, the project

could not restart and operate unless the applicant complied with state and District requirements and paid the fees to renew the Permit to Operate.

When the applicant decides to dismantle the project, there will potentially be emissions associated with the dismantling effort. The Facility Closure Plan to be submitted to the Energy Commission Compliance Project Manager will include the specific details regarding how the applicant plans to comply with all local, state and federal rules and regulations during facility closure and demolition.

COMPLIANCE WITH LORS

FEDERAL

EPA has delegated full PSD authority to the District. The Final Determination of Compliance is expected to serve as the PSD permit for this project.

STATE

With full mitigation (emissions offsets, mitigation plans, and/or controls) of all significant emissions from the project, staff anticipates compliance with Section 41700 of the California State Health and Safety Code.

LOCAL

The BAAQMD issued a Preliminary Determination of Compliance for public comment on November 15, 2001 including a full set of permit conditions. The district finds the project in compliance with all district rules and regulations.

CONCLUSIONS AND RECOMMENDATIONS

Staff has concerns about the modeled construction impacts (for both NO_2 and PM_{10}). However, staff believes that with full implementation of all construction mitigation identified by the applicant in addition to the construction mitigation measures detailed in conditions of certification **AQ-SC1** through **AQ-SC3**, the possible impacts will be mitigated to a level of insignificance.

Staff proposes condition **AQ-SC4** to address the need for the applicant to submit a comprehensive PM_{10} mitigation plan and the implementation of that plan.

Assuming full compliance with all conditions of certification below, and based on the data provided and the analysis herein, staff has determined that the LECEF will cause no significant, unmitigated, air quality impacts. Staff recommends the following staff conditions **AQ-SC1** through **AQ-SC4** and conditions proposed by the BAAQMD as Conditions **AQ-1** through **AQ-46**. Staff will include the appropriate verification requirements to the District conditions in the Staff Addendum.

PROPOSED CONDITIONS OF CERTIFICATION

AQ-SC1 Prior to breaking ground at the project site, the project owner shall prepare a Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for the construction of the Los Esteros Critical Energy Facility and related facilities. The Fugitive Dust Mitigation Plan shall specifically identify measures to limit fugitive dust emissions from construction of the project site and linear facilities. Measures that should be addressed include the following:

1. the identification of the employee parking area(s) and the surface composition of those parking area(s);

2. the frequency of watering of unpaved roads and disturbed areas;

3. the application of chemical dust suppressants;

4. the use of gravel in high traffic areas;

5. the use of paved access aprons;

6. the use of posted speed limit signs;

7. the use of wheel washing areas prior to large trucks leaving the project site;

8. The methods that will be used to clean up mud and dirt that has been tracked-out from the project site onto public roads;

9. The use of windbreaks at appropriate locations;

10. The suspension of all earth moving activities under windy conditions; and

11. The use of on-site monitoring devices.

Verification: At least 30 days prior to breaking ground at the project site, the project owner shall provide the CEC Compliance Project Manager (CPM) with a copy of the Fugitive Dust Mitigation Plan (FDMP) for approval. Ground breaking shall not commence until the project owner receives written approval of the FDMP from the CPM.

AQ-SC2 The project owner shall mitigate, to the extent practical, construction related emission impacts from off-road, diesel-fired construction equipment. Available measures which may be used to mitigate construction impacts include the following:

- Catalyzed Diesel Particulate Filters (CDPF);
- Ultra-Low-Sulfur Diesel fuel, with a sulfur content of 15 ppm or less (ULSD);

- Diesel engines certified to EPA and CARB 1996 or newer off-road equipment emission standards.

Additionally, the project owner shall restrict idle time, to the extent practical, to no more than 10 minutes.

The use of each mitigation measure is to be determined in advance by a Construction Mitigation Manager (CMM), who will be available at the project site(s). The CMM must be approved by the CPM prior to the submission of any reports.

The CMM shall submit the following reports to the CPM for approval:

- Construction Mitigation Plan
- Reports of Change and Mitigation Implementation
- Reports of Emergency Termination of Mitigation, as necessary

Diesel Construction Equipment Mitigation Plan

The Construction Mitigation Plan shall be submitted to the CPM for approval prior to rough grading on the project site, and must include the following:

1. A list of all diesel fueled, off-road, stationary or portable construction-related equipment to be used either on the project construction site or the construction sites of the related linear facilities. Equipment used less than a total of 10 consecutive days need not be included in this list.

2. Each piece of construction equipment listed under item (1) must demonstrate compliance with the following mitigation requirements:

Engine Size (BHP)	1996 CARB or EPA Certified Engine	Required Mitigation
< or =100	Yes or No	ULSD
>100	Yes	ULSD
>100	No	ULSD and CDPF, if suitable as determined by the CMM

3. If compliance cannot be demonstrated as specified under item (2), then the project owner may appeal for relief to the CPM. However, the owner must demonstrate that they have made a good faith effort to comply as specified under item (2).

Report of Change and Mitigation Implementation

Following the initiation of construction activities, and if changes to mitigation measures are necessary, the CMM shall submit a Report of Change and Mitigation Implementation to the CPM for approval. This report must contain at a minimum the cause of any deviation from the Construction Mitigation

Plan, and verification of any Construction Mitigation Plan measures that were implemented.

The following is acceptable proof of compliance, other methods of proof of compliance must be approved by the CPM.

1. EPA or CARB 1996 off-road equipment emission standards:

    a. A copy of the certificate from EPA or CARB.

2. Purchase and use of ultra-low-sulfur fuel (15 ppm or less).

    a. Receipt or other documentation indicating type and amount of fuel purchased, from whom, where delivered and on what date; and

    b. A copy of the text included in the contract agreement with all contractors and sub-contractors for use of the ultra-low-sulfur fuel in diesel burning construction equipment as identified in the Construction Mitigation Plan.

3. Installation of CDPF:

    a. The suitability of the use of CDPFs is to be determined by a qualified mechanic or engineer who must submit a report to the CPM for approval.

    b. Installation is to be verified by a qualified mechanic or engineer.

4. Construction equipment engine idle time:

    a. A copy of the text included in the contract agreement with all contractors and sub-contractors to keep engine idle time to 10 minutes or less to the extent practical.

Report of Emergency Termination of Mitigation

If a specific mitigation measure is determined to be detrimental to a piece of construction equipment or is determined to be causing significant delays in the construction schedule of the project or the associated linear facilities, the mitigation measure may be terminated immediately. However, notification containing an explanation for the cause of the termination must be sent to the CPM for approval. All such causes are restricted to one of the following justifications and must be identified in any Report of Emergency Termination of Mitigation.

1. The measure is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or power output due to an excessive increase in back pressure.

2. The measure is causing or is reasonably expected to cause significant engine damage.

3. The measure is causing or is reasonably expected to cause a significant risk to nearby workers or the public.

4. Any other seriously detrimental cause which has approval by the CPM prior to the change being implemented.

Verification: The project owner will submit to the CPM for approval the qualifications of the CMM at least 45 days prior to the due date for the Diesel Construction Equipment Mitigation Plan. The project owner will submit the Diesel Construction Equipment Mitigation Plan to the CPM for approval 30 calendar days prior to rough grading on the project site or start of construction on any associated linear facilities. The project owner will submit the Report of Change and Mitigation Implementation to the CPM for approval no later than 10 working days following the use of the specific construction equipment on either the project site or the associated linear facilities. The project owner will submit a Report of Emergency Termination of Mitigation to the CPM for approval, as required, no later than ten (10) working days following the termination of the identified mitigation measure. The CPM will monitor the approval of all reports submitted by the project owner in consultation with CARB, limiting the review time for any one report to no more than twenty (20) working days.

AQ-SC3 The project owner shall require as a condition of its construction contracts that all contractors/subcontractors ensure that all heavy earthmoving equipment, including but not limited to bulldozers, backhoes, compactors, loaders, motor graders, trenchers, cranes, dump trucks and other heavy duty construction related trucks, have been properly maintained and the engines tuned to the engine manufacturer's specifications. The project owner shall further require as a condition of its construction contracts, that all heavy construction equipment shall not remain running at idle for more than five minutes, to the extent practical.

Verification: The project owner shall submit to the CPM, via the Monthly Compliance Report, a list of all heavy equipment used on site during that month including the owner of that equipment responsible for its maintenance and a letter from each owner indicating that the heavy equipment in question is properly maintained and tuned to manufacturer's specifications. The project owner shall maintain construction contracts on-site for six months following the start of commercial operation.

AQ-SC4 The project owner shall provide to the BAAQMD the sum of $510,362 to fund PM_{10} mitigation. The project owner shall provide the necessary funds to the BAAQMD to account for overhead and administrative costs that will occur for the BAAQMD to manage and implement the PM_{10} mitigation program. The applicant shall prepare a PM_{10} Mitigation Plan detailing how the funds shall be distributed and managed. The PM_{10} Mitigation Plan shall contain a detailed list of all mitigation opportunities, including at a minimum the following information for each mitigation opportunity:

1. A detailed description, including location;

2. An estimate of the quantity of all criteria pollutant reductions;

3. An estimated total cost;

4. A proposed schedule;

5. The name, address and phone number of a primary contact person;

6. Any additional information deemed pertinent (e.g. correspondence with the owner of the facility or equipment).

Full implementation (actual PM_{10} emission reductions) of the final PM_{10} Mitigation Plan must be completed within one year of the start of the Initial Commissioning Phase of the LECEF.

Verification: At least 30 days prior to the start of construction, the applicant shall submit a PM_{10} Mitigation Plan to the CPM for review and approval. The PM_{10} Mitigation Plan shall be approved by the CPM prior to the start of construction. The project owner shall submit quarterly progress reports of the implementation of the PM_{10} mitigation measures.

AQ-1 The owner/operator of the Los Esteros Critical Energy Facility shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-2, S-3 and S-4 Gas Turbine to the maximum extent possible during the commissioning period. Conditions **AQ-1** through **AQ-11** shall only apply during the commissioning period.

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the S-1, S-2, S-3 and S-4 Gas Turbine combustor shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides.

AQ-3 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the SCR Systems (A-2, A-4, A-6 & A-8) and OC Systems (A-1, A-3, A-5 & A-7) shall be installed, adjusted, and operated to minimize the emissions of nitrogen oxides and carbon monoxide from S-1, S-2, S-3 and S-4 Gas Turbine.

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 Gas Turbine (S-1, S-2, S-3 and S-4) shall comply with the NO_x and CO emission limitations specified in Conditions **AQ-19a** and **AQ-19c**.

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 and S-4 Gas Turbines describing the procedures to be

followed during the commissioning of the turbines. 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 no sooner than fourteen days after the District receives the commissioning plan.

AQ-6 During the commissioning period, the owner/operator of the Los Esteros Critical Energy Facility shall demonstrate compliance with conditions **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. 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 five years from the date of entry and made available to District personnel upon request.

AQ-7 The District-approved continuous monitors specified in condition **AQ-6** shall be installed, calibrated, and operational prior to first firing of the S-1, S-2, S-3 and S-4 Gas Turbine. After first firing of the turbine, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

AQ-8 The number of firing hours of S-1, S-2, S-3 and S-4 Gas Turbines without abatement by SCR or CO Systems shall not exceed 400 hours during the commissioning period. Such operation of the S-1, S-2, S-3 and S-4 Gas Turbine without abatement shall be limited to discrete commissioning

activities that can only be properly executed without the SCR or CO 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 400 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 Turbine during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition **AQ-22**.

AQ-10 The pollutant mass emissions from the S-1, S-2, S-3 and S-4 Gas Turbine shall not 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 Turbine.

a.	NO_x (as NO_2)	1224 pounds per calendar day	102 pounds per hour
b.	CO	1056 pounds per calendar day	88 pounds per hour
c.	POC (as CH_4)	114 pounds per calendar day	
d.	PM_{10}	240 pounds per calendar day	
e.	SO_2	32 pounds per calendar day	

AQ-11 Within 60 days of startup, the Owner/Operator shall conduct a District approved source test using external continuous emission monitors to determine compliance with condition **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 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 condition. The Owner/Operator shall be notified of any necessary modifications to the plan within 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 10 days prior to the planned source testing date. Source test results shall be submitted to the District within 30 days of the source testing date. These results can be used to satisfy applicable source testing requirements in condition **AQ-26** below.

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.

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

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.

AQ-15 Access to Records and Facilities: As to any condition 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.

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.

AQ-17 Operations: The gas turbine, emissions controls, CEMS and associated equipment shall be properly maintained and kept in good operating condition at all times when the equipment is in operation.

AQ-18 Visible Emissions: No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent 20 percent opacity.

AQ-19 Emissions Limits:

a. Oxides of nitrogen (NO_x) emissions from the gas turbine shall not exceed 5.0 ppmvd @ 15 percent O_2 (three-hour rolling average), except during periods of 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. Ammonia emissions from the gas turbine shall not exceed 10 ppmvd @ 15 percent O_2 (one-hour rolling average), except during periods of

startup and 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 NH_3/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. Carbon monoxide (CO) emissions from the gas turbine shall not exceed 6 ppmvd @ 15 percent O_2 (one-hour rolling average), except during periods of startup and 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. Precursor organic compound (POC) emissions from the gas turbine shall not exceed 2 ppmvd @ 15 percent O_2 (one-hour rolling average), except during periods of startup and shutdown as defined in this permit. The POC emission concentration shall be verified during any required source test. (basis: BACT)

e. Particulate matter emissions less than ten microns in diameter (PM_{10}) from the gas turbine shall not exceed 2.5 pounds per hour, except during periods of startup and shutdown as defined in this permit. The PM_{10} mass emission rate shall be verified during any required source test. (basis: BACT & cumulative increase)

f. Oxides of sulfur emissions (SO_x) from the gas turbine shall not exceed 0.33 pounds per hour, except during periods of startup and shutdown as defined in this permit. The SO_x emission rate shall be verified during any required source test. (basis: BACT & cumulative increase)

AQ-20 Turbine Startup: Startup of the gas turbine shall not exceed a time period of 60 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. The startup clock begins with the turbine's initial firing and continues until the unit meets the emission concentration limits. (Basis: Cumulative increase)

AQ-21 Turbine Shutdown: Shutdown of the gas turbine shall not exceed a time period of 30 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. Shutdown begins with initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. (Basis: Cumulative increase)

AQ-22 Mass Emission Limits: Total mass emissions from the S-1, S-2, S-3 and S-4 Gas Turbine shall not exceed the daily, and annual mass emission limits listed in Table 1 below.

Table 1 – Mass Emission Limits (Including Startups and Shutdowns)

Pollutant	Daily (lb.)	Annual (tons)
NO_x (as NO_2)	821	74.9
POC	113	20.8
CO	599	94.6
SO_x (as SO_2)	32	5.8
PM10	240	43.8
NH3	607	110.7

The daily mass limits are on a calendar day basis. The annual mass limits are on a consecutive 12-month basis. Compliance shall be based on calendar average one-hour readings through the use of process monitors (e.g., fuel use meters), CEMS, and source test results; and the monitoring, recordkeeping and reporting conditions of this permit. (Basis: Cumulative increase & record keeping)

AQ-23 Acid Limit: The sulfuric acid emissions (SAM) from S-1 through S-4 combined shall not exceed seven tons in any consecutive four quarters. (Basis: PSD)

AQ-24 Operational Limits: In order to comply with the emission limits of this rule, the owner/operator shall comply with the following operational limits:

a. The heat input to any gas turbine shall not exceed:
Hourly: 472.6 MMBtu/hr
Daily: 11,342 MMBtu/day

Four Turbines
Annual: 16,560,000 MMBtu/year

b. Only PUC Quality natural gas (General Order 58-a) shall be used to fire the gas turbine. The natural gas shall not contain total sulfur in concentrations exceeding 0.25 gr./100 scf.

c. The owner/operator of the gas turbine shall comply with the daily and annual emission limits listed in **Table 1** by keeping running totals based on CEM data. (Basis: Cumulative increase)

AQ-25 Monitoring Requirements: The owner/operator shall comply with the following monitoring requirements for each gas turbine:

a. The gas turbine exhaust stack shall be equipped with permanent provisions to allow 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 calibrated once every twelve months.

c. The gas turbine exhaust shall be equipped with continuously recording emissions monitor(s) for NO_x, 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 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).

e. The total sulfur content of the fuel gas shall be analyzed on a quarterly basis. (Basis: Monitoring & record keeping)

AQ-26 Source Testing/RATA: Within 60 days after startup of the gas turbines, and at a minimum on an annual basis thereafter, a relative accuracy test audit (RATA) must be performed 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 NO_x, 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 percent O_2 and LB/MMBtu (as NO_2);

b. Ammonia – ppmvd at 15 percent O2 (Exhaust);

c. CO – ppmvd at 15 percent O2 and LB/MMBtu (Exhaust);

d. POC – ppmvd at 15 percent O2 and LB/MMBtu (Exhaust);

e. PM10 – LB/hr (Exhaust);

f. SOx – 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 (SDCFM) calculated according to procedures in U.S. EPA Method 19.

j. Exhaust gas temperature (°F)

k. Ammonia injection rate (LB/hr or moles/hr)
(Basis: source test requirements & monitoring)

AQ-27 Within 60 days of start-up of the LECEF and on a semi-annual basis thereafter, the owner/operator shall conduct a District approved source test on exhaust points for S-1 through S-4 while each Gas Turbine is operating at maximum load to demonstrate compliance with the SAM levels in **AQ-12**. 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 low. (Basis: PSD Avoidance, SAM Periodic Monitoring)

AQ-28 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)

AQ-29 The owner/operator shall comply with the applicable requirements of 40 CFR Part 60 Subpart GG. (Basis: NSPS)

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

AQ-31 The District shall be notified 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)

AQ-32 Record Keeping: The owner/operator shall maintain the following records:

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)

AQ-33 All records required to be maintained by this permit shall be retained by the permittee for a period of five years and shall be made readily available for District inspection upon request. (Basis: record keeping)

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:

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, except for 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 and total sulfur content. (Basis: record keeping & reporting)

AQ-35 Emission Offsets: The owner/operator shall offset the project emissions in the amount and at the ratios outlined in Table 2 below.

Table 2 – Emission Offsets

Pollutant	Emissions Requiring Offsets (tons/yr.)	Offset Ratio	Total ERCs Required (tons/yr.)
NO_x (as NO_2)	75.4	1.15	86.7
POC	20.9	1.00	20.9

The ERC certificates must be delivered to the District ten days prior to the issuance of the ATC. (Basis: Emission Offsets)

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

AQ-37 Title IV and Title V Permits: The applications for modification of the Title IV and Title V permits must be delivered to the District prior to first-fire of the turbines. Also the acid rain monitors (Title IV) must be certified within 90 days of first-fire. (Basis: Regulation 2-6)

AQ-38 Final S-5 Fire Pump Engine selection or modification to meet BACT requirements, shall be submitted to the District prior to the Authority to Construct issuance. (BACT)

AQ-39 The S-5 Fire Pump Engine shall be fired exclusively on diesel fuel having a sulfur content no greater than 0.05 percent by weight. (Toxics, Cumulative Increase)

AQ-40 The S-5 Fire Pump Engine shall be operated for no more than one hour per day and 100 hours per year for the purpose of reliability testing and non-emergency operation. The testing of S-5 Fire Pump Engine shall not occur on the same day as the testing of S-6 Emergency Generator. (BACT)

AQ-41 The S-5 Fire Pump Engine shall be equipped with a non-resettable totalizing counter that records hours of operation. (BACT)

AQ-42 The following monthly records shall be maintained in a District-approved log for at least 5 years and shall be made available to the District upon request: (BACT)

a. Total number of hours of operation for S-5.

b. Fuel usage at S-5

AQ-43 The S-6 Emergency Generator shall be fired exclusively on natural gas. (Toxics, Cumulative Increase).

AQ-44 The S-6 Emergency Generator shall be operated for no more than two hours per day and 100 hours per year for the purpose of reliability testing or in anticipation of imminent emergency conditions. Emergency conditions are: (1) Failure of a regular power supply, or (2) involuntary curtailment of a power supply (where the utility that provides regular power has been instructed by the ISO to shed firm load, or where the utility has actually shed firm load). The testing of S-6 Emergency Generator shall not occur on the same day as the testing of S-5 Fire Pump Engine. (BACT, Cumulative Increase)

AQ-45 The S-6 Emergency Generator shall be equipped with a non-resettable totalizing counter that records hours of operation. (BACT)

AQ-46 The following monthly records shall be maintained in a District-approved log for at least five years and shall be made available to the District upon request: (BACT)

a. Total number of hours of operation for S-6

b. Fuel usage at S-6

APPENDIX A

WIND ROSE DIAGRAMS

ACRONYMS

APCO	Air Pollution Control Officer
BAAQMD	Bay Area Air Quality Management District (District)
BACT	Best Available Control Technology
bhp	Brake Horse Power
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
CPM	(CEC) Compliance Project Manager
DLN	Dry Low NOx (combustors)
DOC	Determination Of Compliance
ERC	Emission Reduction Credit
FDOC	Final Determination Of Compliance
gr	Grains (1 gr $\cong$ 0.0648 grams)
HRSG	Heat Recovery Steam Generator
ISCST3	Industrial Source Complex Short Term
MW	Megawatts (1,000,000 Watts)
NH_3	Ammonia
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
PDOC	Preliminary Determination Of Compliance
PM_{10}	Particulate Mater under 10 microns in diameter
POC	Precursor Organic Compounds
pphm	Parts Per Hundred Million
ppm	Parts Per Million
ppmv	Parts Per Million by Volume
ppmvd	Parts Per Million by Volume, Dry
PSD	Prevention of Significant Deterioration
LECEF	Los Esteros Critical Energy Facility
SA	Staff Assessment (this document)
scf	Standard Cubic Feet
SCR	Selective Catalytic Reduction
SO_2	Sulfur Dioxide
USEPA	United States Environmental Protection Agency

RESOURCES FOR FURTHER INFORMATION

California Energy Commission
http://www.energy.ca.gov/

California Energy Commission (Los Esteros Critical Energy Facility Fact Sheet)
http://www.energy.ca.gov/sitingcases/losesteros/index.html

California Energy Commission (Power Projects – An Overview)
http://www.energy.ca.gov/sitingcases/backgrounder.html

California Air Resources Board
http://www.arb.ca.gov/homepage.htm

California Air Resources Board (Air Quality, Emissions, and Modeling)
http://www.arb.ca.gov/html/aqe&m.htm

Bay Area Air Quality Management District
http://www.baaqmd.gov/

REFERENCES

BAAQMD, “Evaluation of the 1995 and 1996 Ozone Seasons (With a Summary of the 1997 Season) in the San Francisco Bay Area, October 1997

BAAQMD, “Preliminary Determination of Compliance Engineering Evaluation Application No. 3213, Los Esteros Critical Energy Facility, Plant #13289”, November 2001CARB, “Guidance for Power Plant Siting and Best Available Control Technology”, 1999

CARB, “California Ambient Air Quality Data 1980-1999 (CD# PTSD-00-014-CD)”, Planning and Technical Support Division, Air Quality Data Branch, 2000

CARB, “Emission Reduction Offsets Transaction Cost Summary Report for 2000”, March 2001

Calpine-Bechtel, Application for Certification: Los Esteros Critical Energy Facility, May 2001

Calpine-Bechtel, Supplement to the AFC for the LECEF, June 2001

Calpine-Bechtel, AFC: LECEF Additional Information, August 2001

Calpine-Bechtel, AFC: LECEF Response to CEC Staff Data Requests, August 2001

National Weather Service, 1961-1990 Normal Monthly Precipitation (California), http://www.nws.mbay.net/ca_pcpn.html

BIOLOGICAL RESOURCES

Testimony of Natasha Nelson and Julie Colyer

INTRODUCTION

This section provides the California Energy Commission staff's analysis of potential impacts to biological resources from Calpine c*Power (applicant's) proposal for the construction and operation of the Los Esteros Critical Energy Center (LECEF). This analysis is primarily directed toward impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological concern. This document presents information regarding the affected biotic community, the potential environmental impacts associated with the construction and operation of the proposed project, and where necessary, specifies mitigation planning and compensation measures to reduce potential impacts to non-significant levels. This document also determines compliance with applicable laws, ordinances, regulations and standards (LORS), and specifies conditions of certification.

This analysis is based, in part, on information provided on August 6, 2001, from Calpine's Application For Certification (Calpine c*Power 2001a), Calpine's supplement to Data Adequacy submitted September 14, 2001 (Calpine c*Power 2001b), Calpine's responses to staff's October 10 and 12, 2001, Data Requests submitted on November 1, 16 and 19,2001, and December 11,2001 (Calpine c*Power 2001c,d,e), site visits on October 4, November 5 and 21, 2001, pre-demolition surveys (Heady and Frick 2001), a discussion with U.S. Fish and Wildlife Service (USFWS) on September 7, 2001, and a discussion with California Department of Fish and Game (CDFG) on October 18, 2001. The LECEF site has been the subject of two previous Environmental Impact Reports (EIRs). The analyses and mitigation found in the *City of San Jose: U.S. DataPort Draft and Final EIR* (City of San Jose 2000 and 2001) and the *California Public Utilities Commission: Northeast San Jose Reinforcement Project EIR* (CPUC 2000) were used in preparing this testimony. Because of the similarity of the LECEF and the Metcalf Energy Center (MEC) projects, information from the MEC staff analysis and applicant submittals regarding nitrogen deposition and noise impacts were used for this project.

LAWS, ORDINANCES, REGULATION AND STANDARDS

The applicant will need to abide by the following laws, ordinances, regulations, and standards during project construction and operation.

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, prohibits the take of migratory birds.

STATE

California Endangered Species Act of 1984

Fish and Game Code sections 2050 et seq. protects California's rare, threatened, and endangered species.

Nest or Eggs-Take, Possess, or Destroy

Fish and Game Code section 3503 protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

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. designates state rare, threatened, and endangered plants.

Streambed Alteration Agreement

Fish and Game Code section 1600 et seq. requires CDFG to review project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions, and other disturbances.

California Code of Regulations

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

Regional Water Quality Control Board

To verify that the federal Clean Water Act permitted actions comply with state regulations, the project owner possibly will need to get a Section 401 certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Regional Board provides its certification after reviewing the federal Nationwide Permit(s) that is provided by the U.S. Army Corp of Engineers.

LOCAL

Santa Clara County General Plan

Policy R-RC19 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.

Santa Clara County Tree Ordinance

NS-1203.107, Sec. C16-2(c) and (j), and Sec. C16-3 define Heritage and ordinance trees and prohibits removal without a permit.

City of San Jose 2020 General Plan

Woodlands, Grasslands, Chaparral and Scrub Policies

Number 8: Serpentine grasslands should be preserved and protected to 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 2: Development projects should include the preservation of ordinance-sized trees, and other significant trees.

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.

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).

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 6B: Vegetation Removal

Vegetation removal in riparian areas should be performed only for floodway maintenance or to remove undesirable exotic plants. Herbicides should only be used where manual and mechanical methods are infeasible. If vegetation removal is required as a part of project design, tree removal should be reviewed with the City Arborist. A 3:1 habitat replacement ratio is required and revegetation plans should be reviewed by the City.

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 6E: Non-native Plant Removal

Invasive, non-native plants should be removed and replace with native plants in the portion of the riparian corridor adjacent to the property to be developed.

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 be directed away from direct entry to

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, Title 13.28.330-13.28.360 defines and protects 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

SETTING

REGIONAL

The proposed LECEF project site is located in Santa Clara County within the Urban Service Area of north San Jose and just west of the town of Milpitas. The 174 acre parcel containing the project site was formally annexed by the City of San Jose in October of 2001, with the entire Urban Service Area proposed for annexation within the year. LECEF is bounded by the Santa Clara Valley to the south, the Diablo Range to the east, the Santa Cruz Mountains to the west and San Francisco Bay to the north. Existing land use types of Santa Clara County consist of residential, commercial, industrial, agriculture, and open space.

Habitats present in the region are identified as Northern Coastal Salt Marsh, Northern Coastal Brackish Marsh, Seasonal Wetland, Central Coast Cottonwood-Sycamore Riparian Forest, Non-Native Annual Grassland, Alkali Grassland, Agricultural Areas, and Developed Areas.

Marshlands generally occur to the north and west of the project site, transitioning from sewage disposal ponds to salt evaporators, to the marshlands of the bay approximately eight miles northwest of the site. Seasonal wetlands occur along Coyote Creek in a bypass channel and at the upper edges of the marsh zones. Riparian corridors include Coyote Creek and the Guadalupe River. They lie approximately 1,000 feet to the east and approximately two miles west respectively of the proposed LECEF site.

Several plant and animal species listed under state and/or federal Endangered Species Acts are known to inhabit the project region. For a complete list of sensitive species actually observed and with a potential to occur in the proposed project site region, refer to **BIOLOGICAL RESOURCES Table 1** and **Table 2** (respectively), below. 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. For a complete list of the serpentine species, refer to **BIOLOGICAL RESOURCES Table 3**, below.

BIOLOGICAL RESOURCES Table 1
Special Status Species found on the LECEF site and on contiguous parcels
(Calpine c*Power 2001a,b,c)

Species Name	Regulatory Status[#]	Suitable Habitat for the Species	Known Occurrence In Project Area*
American White Pelican *Pelecanus erythrothynchos*	CSC	Wetland habitat; fresh and/or brackish; Sloughs, slow moving water, lake	Species observed on the project site.
Loggerhead Shrike *Lanius ludovicianus*	SC, CSC	Annual grassland, Riparian habitat along Coyote Creek	Species observed on the project site. Potential suitable foraging and nesting habitat on site.
Northern Harrier *Circus cyanus*	CSC	Wetland habitat; fresh and/or brackish, Cropland, Annual grassland	Species observed foraging over project site. Potential suitable foraging and nesting habitat on site.
White-tailed kite *Elanus leucurus*	FP	Annual grassland; Riparian habitat along Coyote Creek	Species observed foraging and nesting adjacent to project site. Potential suitable foraging habitat on site and 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 on site.
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.

[#] Federal-, state-, and 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.
1A: Extinct.
1B: CNPS rare or endangered in California and elsewhere.
2: CNPS rare or endangered in California, more common elsewhere.

* Prior to demolition of site structures for the U.S. DataPort site preparation (October through December, 2001).

BIOLOGICAL RESOURCES Table 2
Special Status Species potentially occurring on the LECEF site and on contiguous parcels*
(Calpine c*Power 2001a,b,c, H.T. Harvey & Associates 2000, and City of San Jose 2001c)

Species Name	Regulatory Status#	Suitable Habitat for the Species	Known Occurrence In Project Area*
Plants			
Contra Costa goldfields *Lasthenia conjugens*	1B, FE	Annual grasslands mesic, Vernal pool	Species has been extirpated from most of Santa Clara County. Potentially suitable habitat in the vicinity of the site is highly degraded.
Birds			
White-tailed kite *Elanus leucurus*	SC, FP	Annual grasslands, Riparian habitat along Coyote Creek	Kites have nested along Coyote Creek in adjacent properties. Kites forage over the buffer lands property and may nest in trees along the north edge of the Cilker property.
Western burrowing owl *Athene cunicularia* ssp. *hypugea*	SC, CSC	Annual grasslands	CDFG-protocol level surveys for U.S. DataPort (June 2000) found no sign and the 174 acres appears to be unoccupied. Habitat is consistent with potential nesting and foraging habitat.
Mammals			
Yuma myotis bat *Myotis yumanensis*	SC, CSC	Riparian habitat along Coyote Creek, Chaparral	Potential habitat along Coyote Creek riparian corridor.
Fish			
Fall-run Chinook salmon *Oncorhynchus tshawytscha*	PE	Ocean, Freshwater streams	Migrate from the ocean to spawning sites in Coyote Creek.
Steelhead trout *Oncorhynchus mykiss*	FT	Ocean, Freshwater streams	Migrate from the ocean to spawning sites in Coyote Creek. Adults migrate upstream from January through April and smolts migrate downstream from March through May. Juveniles may remain in deep pools throughout the year.

See footnote for Biological Resources Table 1.

* Prior to demolition of site structures for the U.S. DataPort site preparation (October through December, 2001).

BIOLOGICAL RESOURCES Table 3
Special Status Species found on Serpentine Soils
In Santa Clara County
(USFWS 1998a)

Species	Regulatory Status[#]	Distribution and Life History
Plants		
Santa Clara Valley dudleya *Dudleya setchellii*	FE, 1B	Several occurrences from San Jose south to San Martin (20 km); restricted to rocky outcrops within serpentine grasslands.
Smooth lessingia *Lessingia micradenia var. glabrata*	SC, 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, 1B	Suitable habitat at Anderson Dam, Kirby Canyon, and 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, 1B	Occurrences from San Jose south to Anderson Lake (30 km); endemic to serpentine outcrops.
Mt. Hamilton thistle *Cirsium fontinale var. campylon*	SC, 1B	Several occurrences in Santa Clara county and other counties; found in serpentine seeps.
Tiburon paintbrush *Castilleja affinis* ssp. *neglecta*	FE, ST, 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, 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 in 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 ResourcesTable 1.

Critical Habitat

Early in 2001, the USFWS designated approximately 24,000 acres of habitat in 15 Units within San Mateo and Santa Clara Counties as critical for the survival of the bay checkerspot butterfly (USFWS, 2001c) which depends on host plants growing on serpentine soils. The two closest units to the LECEF are Communication Hills (Unit 6) and Silver Creek (Unit 12). Communication Hills covers 443 acres of mostly undeveloped land and is approximately 6 miles south of LECEF. Although recent surveys have not detected the butterfly on the hill, the USFWS believes this Unit functions as habitat for the butterfly, more precisely it acts as a "stepping stone" to other suitable areas. It also represents the northwestern most remnants in the Santa Clara metapopulation. The City of San Jose specific plan has between 2,500 and 4,000 new residential units, additional commercial activities, parks, and schools proposed within the Communication Hills Unit. The Silver Creek Unit includes nearly 1,000 acres of contiguous serpentine soils, other scattered serpentine outcrops, and habitat less suitable for breeding, but needed for nectar-feeding or dispersal. This Unit is approximately 9 miles southwest of LECEF. The Unit includes the non-profit Silver Creek Preserve owned by William Lyon Homes (formerly Presley Homes). A small population of bay checkerspot has been documented in the Unit, but some areas are in degraded condition. This is the northernmost unit of the Santa Clara metapopulation.

In March 2001, the USFWS designated four million acres of California as critical habitat for the California Red-legged Frog (USFWS 2001b). The California red-legged frog requires both aquatic and upland habitats. The closest unit to LECEF is Unit 15, about 8-miles to the east. Unit 15 (East Bay-Diablo Range Unit) covers one million acres of watersheds within eight central coast counties. All of Santa Clara County's eastern edge is within Unit 15.

Recovery Plans

Fourteen federally listed species and fourteen species of concern are included in the *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* (USFWS 1998a). The USFWS Recovery Plan delineates the reasonable actions which are believed to be required to recover and/or protect these species.

The draft recovery plan for the California red-legged frog was released in May 2000 (USFWS 2000). The goals of the plan are to delist the species by protecting known populations and reestablishing others, protecting habitat (core, migrating), and promoting management actions which stop threats.

Habitat Conservation Plans

Construction of about 1,500 homes and a golf course on more than 1,500 acres in the Silver Creek Valley led to the establishment of the Silver Creek Preserve in 1991 (USFWS 2001c). The preserve is owned by William Lyon Homes and is actively managed by the non-profit Silver Creek Preserve. This preserve is now part of USFWS' critical habitat for bay checkerspot butterfly (see section above).

A regional habitat conservation plan for serpentine soil management is foreseen by USFWS, but no formal plans have been implemented. Shea Homes has deposited

$100,000 to an account dedicated to regional conservation of the bay checkerspot butterfly for use at the direction of the USFWS (USFWS 2001c). At one point, Metcalf Energy Project had proposed $50,000 with the same intention.

The PG&E Metcalf-Edenvale/Metcalf-Monte Vista Habitat Conservation Plan (HCP) provided funds for a 10-acre preserve in the Santa Teresa Hills (USFWS 2001c). This preserve is now part of USFWS' critical habitat for bay checkerspot (see section above). This HCP covered temporary and permanent impacts to bay checkerspot butterfly habitat from rewiring of existing lines and the installation of a 4th circuit on existing poles. The HCP gives the permit holder incidental take coverage during construction along these two circuits, and expired in November 2001 (USFWS 1998b).

LOCAL

The property is located north of State Route 237 (Alviso-Milpitas Road), west of Highway 880, and east of Zanker Road. The proposed LECEF would be located on 18 acres within Calpine's 55-acre property north of downtown San Jose within Santa Clara County. The 55-acre property was used mainly as a plant nursery. It contained several greenhouses and included approximately 10 structures (including trailers, modular structures, and wood framed buildings) used for residential purposes. The property had not been used in several years and open areas were overgrown with tall grasses and non-native weedy species. From October to December 2001, at the City of San Jose's request, all buildings and most of the vegetation was removed, and this left the entire 55-acre parcel (including the 18 acres of the LECEF site) as bare ground. Staff's analysis will cover the pre-demolition and post-demolition impacts.

Current proposals for the remainder of the 55-acre property include the Los Esteros substation proposed by PG&E (analyzed in the *CPUC: Northwest San Jose Reinforcement Project EIR*) to the north and the U.S. DataPort Building 9 (analyzed in *City of San Jose: U.S. DataPort EIR*) to the south. The agricultural lands to the east and north (Cilker property/U.S. DataPort property) of the 55-acre parcel are proposed for development as part of the U.S. DataPort buildout. The San Jose/Santa Clara Water Pollution Control Plant (WPCP) buffer lands to the east are also proposed for U.S. DataPort buildout. However, at the same time, the City of San Jose has released a Request for Qualifications seeking power generating firms to build and operate power plants on the WPCP's buffer lands to the west of the project site (Calpine c*Power 2001a). Staff has analyzed two build-out scenarios in this analysis. One, construction of the 174 acres for U.S. DataPort, including the west side of the 55-acre parcel. Second, a future of no U.S. DataPort and all lands remaining in agricultural or buffer land (undeveloped) uses.

The LECEF site is located approximately 750 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. Directly adjacent to the east, lies the Santa Clara Valley Water District's (SCVWD's) access road. At its closest, the levee is an estimated five feet from the creek's riparian vegetation (near the HWY 237 overpass) and at its furthest, approximately 40 feet. At the southern one-third of the Cilker property (U.S. DataPort property), the Coyote Creek riparian corridor borders the in-board side of the levee. Stormwater runoff from the site

will be pumped into a storm drain system to an existing 24-inch culvert and flap gate (or a replacement pipe) in the levee. The 24-inch culvert is only passively used to drain Cilker lands, and is not at capacity. In order to avoid impacts to the SCVWD's access road, the applicant is designing a storm drain outfall to the creek channel (proper) approximately 100-feet from the levee. The construction may be able to avoid riparian trees. Construction is scheduled from July 1st to October 15th in order to avoid the bird nesting season and this timeframe would also avoid the fall-run Chinook salmon and steelhead trout migration periods. The construction will likely utilize a single construction crew, of approximately six workers, an excavator, and a loader. Existing roads will be used to access the site and act as a staging area Staff is still awaiting information from the applicant regarding the potential for wetlands in the construction area.

Within the flood control levee, Coyote Creek (approximately 1,000 feet from the proposed LECEF site) flows in a rock-sided, low-flow channel north to the South San Francisco Bay. Coyote Creek is an area vegetated with typical native riparian vegetation including Fremont cottonwood, red willow, box elder, coast live oak, arroyo willow, western sycamore, and black walnut. Shrub and herbaceous species throughout the riparian corridor include blue elderberry, mulefat, snowberry, California blackberry, poison oak, mugwort, and wild cucumber. Non-native vegetation present along this reach of the creek include Himalayan blackberry, milk thistle, curly dock, and fumaria. Coyote Creek is a wildlife corridor and contains several hundred species including birds, mammals, amphibians, and reptiles. Several species (including the white-tailed kite, a fully protected species) has the potential to nest in this area.

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 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 may use the LECEF site or adjacent properties as part of their foraging grounds.

Common native bird species observed on the LECEF 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. For special status species observed and with a potential to be observed on the LECEF site and on contiguous parcels, refer to **BIOLOGICAL RESOURCES Table 1** and **Table 2**, respectively.

Power Plant Site

Prior to demolition and vegetation removal at the request of the City of San Jose, the LECEF site consisted primarily of abandoned living quarters, greenhouses, pesticide storage sheds, a paved road, and parking areas (9.5 acres). Vegetation included agricultural land and agricultural land reverted to disturbed grassland (with ruderal

species, 8.5 acres). This habitat was dominated by non-native herbaceous species including mustard, anise, cheeseweed, wild radish, bristly ox-tongue, Italian thistle, charlock, wild radish, harding grass, red foxtail chess, and red-leaf filaree.

The site was tested for soil quality concerns in July 2000 (Calpine c*Power 2001a) following a Phase I assessment (documents preliminary environmental concerns related to current and historical chemical use) of the property. The evaluation found elevated concentrations of metals and pesticides in the shallow soil. Lead and arsenic concentrations were higher than typical background levels, but well below Total Threshold Limit Concentrations (TTLC). The TTLC is the level above which solid waste is considered hazardous. Concentrations of the pesticide DDT were reported above the 1,000 ppb hazardous waste threshold, but below the EPA's health-based Preliminary Remediation Goal (PRG) of 12,000 ppb. PRG's are chemical concentrations that correspond to fixed levels of risk to human health and are used to screen if the EPA needs further evaluation.

While leaking artesian wells had produced a wetland area to the south of the LECEF site, these were capped during the demolition for U.S. DataPort, and the vegetation removed. There are no wetlands or sensitive plant species on the proposed project site although sensitive wildlife species, such as the loggerhead shrike, northern harrier, burrowing owl, and white-tailed kite have been known to forage either on or in the immediate vicinity of the site. Three mature trees on site were identified as having the potential for nesting by medium sized raptors, but none were observed utilizing them during field surveys (Calpine c*Power 2001c). The loss of any mature tree(s) (see Biological Resources Item E) would result in a temporary impact of nesting and roosting loss for at least five years (the time between the tree removal and the self sufficiency of the replaced trees). There are several potential nesting and roosting trees along the Coyote Creek corridor that may have the same nesting and roosting qualities that could be used in the interim and the removal of the mature trees will have a less than significant impact. One building was occupied by Yuma myotis bats, but this was demolished at the request of the City of San Jose (Heady and Frick 2001) and is no longer part of the baseline conditions.

Surveys for burrowing owls found that they were not present on the LECEF site (Calpine c*Power 2001a), or on the Cilker property (U.S. DataPort property; H.T. Harvey 2000). The surveys for U.S. DataPort found nearby properties did have sign of nesting birds, including the WPCP's buffer lands (H.T. Harvey 2000). Burrowing owls were observed along the U.S. DataPort proposed potable water line alignment west of Zanker Road and at a burrowing owl relocation area within a bus maintenance facility, just south of SR 237 and east of Zanker Road (City of San Jose 2001). The LECEF site and adjacent properties are consistent with potential nesting and foraging habitat for burrowing owls.

The City of San Jose Tree Removal Controls serve to protect all trees having a trunk measuring 56 inches or more in circumference (18 inches in diameter) at the height of 24 inches above the natural grade of slope. The ordinance protects both native and non-native species. The loss of any significant tree(s), which are neither irreversibly diseased, dead, or dying nor are substantially damaged from natural causes requires a removal permit from Santa Clara County and/or the City of San Jose. Several trees on

the 55-acre parcel were identified as meeting the criteria of a significant tree, and demolition may have removed several of them. The arborist report is currently being validated, so staff's analysis on the number of trees on site may change based on future submittals. For any remaining trees which meet the classification of significant, a permit application must be submitted by the applicant to the City of San Jose.

The City of San Jose Riparian Corridor Policy notes that projects near riparian areas should remove non-native vegetation. The landscaping plan for LECEF would include weed control as part of its prescriptions. Without the build-out of U.S. DataPort, the landscaping at LECEF could reach Coyote Creek and cause potential harm to the community structure. Staff has asked to review the applicant's draft Landscaping Plan prior to construction.

Linear Facilities

Readers should note that some linear facilities to serve the site are shared by the PG&E Los Esteros substation and U.S. DataPort. The CEC analyses of this application will cover the potential impacts of all linear facilities, regardless of eventual ownership. For the most part, linear facilities for the LECEF project would occur on agricultural land and/or agricultural land reverted to disturbed grassland (with ruderal species).

Transmission Lines

The proposed interconnect to the electrical grid is through the PG&E Los Esteros substation. In this case, the transmission lines (approximately 220 feet) would be buried underground to connect the LECEF switchyard to PG&E's Los Esteros substation which will abut the north end of the proposed site. These interconnects would be an extremely short point of connection and occur on land already disturbed during construction of the two facilities. No biological resources would be effected under this scenario. Since it appears likely that LECEF will be constructed prior to the PG&E Los Esteros substation, the existing lines to the south of the site will be used for interconnection to the grid. The interconnection may involve a temporary line being installed along the access road to Zanker Road. Potential pull sites or staging areas are assumed to be placed on the 55-acre parcel. Though this alternative was the least preferred according to the applicant, it is the route selected, and for which an alternative interconnect study was completed by PG&E. No biological surveys were supplied by the applicant for this route, and several sensitive areas, including wetlands, were identified as part of the U.S. DataPort baseline (H.T. Harvey & Associates 2000). Installation and reconductoring of transmission lines outside of the temporary connection are not anticipated (see Transmission System Engineering in this document).

Storm Water Drain

A new storm water discharge pipe will travel east to west (approximately 750 feet) across the northern boundary of LECEF out to the Flood Control Project levee, and enter Coyote Creek through an existing outfall structure in the levee wall. The pipeline will require the construction of a two-foot wide, one-foot deep trench. The construction right-of-way will temporarily disturb approximately 0.07 acres of agricultural land to the west of the levee and 0.05 acres of riparian/wetland land to the east of the levee. Permanent disturbance at the outfall structure (pipe or concrete riser) will remove 0.005 acres of riparian habitat. The proposed construction of a flood conveyance pipe and an

outfall to the low-flow channel of Coyote Creek is currently being designed by the applicant, so all acreage numbers are approximate.

The Coyote Creek flood control channel and surrounding riparian habitat acts as a wildlife corridor and has the potential to provide habitat for several sensitive wildlife species. Sensitive fish species such as the fall-run chinook salmon and steelhead rainbow trout are likely to occur in Coyote Creek during migration to and from spawning sites upstream (see **BIOLOGICAL RESOURCES Table 2**). This riparian corridor also provides a potential breeding habitat for the white-tailed kite and the saltmarsh common yellowthroat. The western pond turtle, found in ponds, marshes, rivers, and streams also has the potential to occur in this area of Coyote Creek. Although surveys in the vicinity of the site have not detected the California red-legged frog, this area provides potential habitat since it is within its historic range (H.T. Harvey 2000).

Natural Gas Line

A new natural gas pipeline (approximately 550 feet) will travel on a north south axis from the southwest portion of the LECEF project site to the existing natural gas pipelines near Alviso-Milpitas Road, at the southwest corner of c*Power's property. This pipeline will require the construction of a two-foot wide, one-foot deep trench. Vegetation communities in the natural gas pipeline route include agricultural land and agricultural land reverted to disturbed grassland (with ruderal species). These habitats provide potential habitat for several sensitive raptor species mentioned above under the Power Plant section. Significant trees may have to be removed during installation.

Roads

The primary access road (approximately 2,700 feet) will cross west-east from Zanker Road to just north of Alviso-Milpitas Road and State Route 237. The secondary access road (approximately 100 feet) will run north south and connect the primary access road to State Route 237. The emergency access road will cross west to east from Zanker Road and then south to the southwestern portion of the PG&E Los Esteros Substation. Grading and paving the roads will require a construction zone of approximately 80-feet in width, resulting in the permanent loss of five acres. This area contains small trees, agricultural land, and agricultural land reverted to disturbed grassland (with ruderal species). Such habitat has the potential to provide nesting, foraging, and roosting habitat for several raptor species mentioned above under the Power Plant section. The road avoids the wetland delineated for U.S. DataPort (H.T. Harvey & Associates 2000).

Waterlines

LECEF will use reclaimed water from and return wastewater to the WPCP. A new recycled water line (approximately 1,000 feet) and a new wastewater line (approximately 2,700 feet) will run east to west entirely along the northern shoulder of the proposed primary access road. The vegetation and wildlife present are described in the previous section.

Worker Parking and Staging Areas

The worker parking and staging areas will occur in the northwest section the applicant's 55-acre property. Vegetation communities included agricultural land and/or agricultural

land reverted to disturbed grassland (with ruderal species). As a result of the demolition work ordered by the City of San Jose, no significant trees or vegetation communities remain. Wildlife species include those species that can be found in the Power Plant section.

ANALYSIS AND IMPACTS

ALTERNATIVES

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES -- Would the project or related facilities:				
a) Have an adverse effect, either directly, indirectly, or cumulatively, on any species identified as a candidate, sensitive, or special status species in federal, state, local or regional plans, policies, or regulations (including those by the California Department of Fish and Game, National Marine Fisheries Service, U.S. Bureau of Land Management, U.S. Forest Service, or U.S. Fish and Wildlife Service) or habitat used by the above?		X		
b) Have an indirect or direct adverse effect on any riparian habitat or other sensitive natural community identified in federal, state, local or regional plans, policies, and regulations (including those by the California Department of Fish and Game or U. S. Fish and Wildlife Service)?			X	
c) Have an adverse effect on surface or ocean waters (including those considered by National Marine Fisheries Service as essential fish habitat), or on local aquatic resources, or on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, tidal and freshwater marshes, vernal pools, etc.) either through direct removal, filling, hydrological interruption, pollution (thermal, particulate, or chemical) or other means?		X		

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES -- Would the project or related facilities:				
d) 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?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as 1) a tree preservation policy or ordinance, or 2) a native landscape requirement?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?				X
g) Create an adverse change in commercial or recreational species' distribution or population size, or harvesting opportunities for these species?			X	
h) Facilitate the introduction, population growth, or spread of weedy plant species that are difficult to control (such as those classified by the California Department of Agriculture as List A, List B, or Red Alert species) or other invasive or non-native aquatic or terrestrial wildlife species (such as nest parasites)?				X

A. To Sensitive Species: LESS THAN significant Impact WITH MITIGATION Incorporated

Projects in developed areas typically have less of an impact on sensitive biological resources because of the lack of suitable habitat on site. However, such projects are evaluated for the indirect impacts they could have on any surrounding areas that remain in natural conditions and support biological resources. Staff evaluated several direct impacts associated with the proposed including:

- permanent loss of upland foraging habitat;
- temporary loss of upland foraging habitat;
- potential bird collisions with the new transmission line or facility stacks; and,
- water quality degradation to Coyote Creek due to stormwater discharge.

Power Plant

LECEF is proposed on a parcel where the City of San Jose requested Calpine to dismantle and remove the abandoned greenhouses and buildings. Calpine c*Power will subsequently use this space for the new simple-cycle plant and switchyard. The dismantling did not cause significant impacts to state- or federally-listed species. A colony of Yuma myotis bat (state- and federal- species of concern) was removed from a building on November 7, 2001, prior to demolition (Heady and Frick 2001). This species usually has several alternative roost sites, and no significant impact is expected. The parcel will permanently remove 18 acres of habitat (see **BIOLOGICAL RESOURCES Table 4**) from potential foraging by raptors and small mammals, but this is a less than significant impact for these wide ranging species which have large amounts of undeveloped WPCP bufferlands within 0.25 mile.

BIOLOGICAL RESOURCES Table 4
Habitat Loss (acreage) from Construction of LECEF
(Calpine c*Power 2001a,b,c)

Project Component	Permanent	Temporary
Power plant	18 (8.5[1] +9.5[2])	0
Access road and wastewater return line	5 [3]	5[3]
Stormwater discharge	0.005[4]	0.12 (0.05[4] + 0.07 [3])
Parking and construction laydown area	0	20[1]
Natural gas pipeline	00	1.5[1]
Recycled water line	(same impacts as access road)	2[3]
TOTAL	**23.005**	**28.62**

[1] Agricultural land reverted to disturbed grassland (with ruderal species)
[2] Lite industrial and residential facilities
[3] Agricultural land
[4] Riparian habitat, estimate only

Chemicals used during greenhouse operation included DDT and other pesticides and herbicides which have saturated into the soils (Calpine c*Power 2001a). These chemicals need to be controlled so they remain on-site and are not carried off by wind or rain to off-site locations where sensitive species occur. The contaminated soils are being remediated as a result of the demolition, and LECEF will be placed on uncontaminated soils. No additional conditions of certification are required to protect off-site resources.

LECEF proposes to build a 90-foot combustion exhaust stack. Bird collisions with exhaust stacks and other tall structures can result in significant bird losses when these structures are located in areas where suitable habitat attracts bird populations. Most bird collisions/deaths occur during migration in inclement weather. The site and immediate surrounding areas do not contain attractive habitat (e.g., freshwater marsh or ponds) for low-flying flocking birds on either side which would create a large "cross-over" effect, increasing the chances of collision. Therefore, the proposed 90-foot stack (lighted or unlighted) is unlikely to increase bird collisions or otherwise cause harm to wildlife. The U.S. DataPort buildings are likely to be approximately 45-feet high. This would further discourage low-flying birds from entering the power plant site. Therefore, staff concludes that this potential concern is not applicable to LECEF, and no mitigation is recommended by staff.

Impacts to burrowing owls could occur if construction activities occurred near (within a 250-foot buffer) of active nests or if foraging habitat next to nesting sites is permanently removed. These types of impacts are typically mitigated by avoidance, and if this cannot be done, then mitigated by acquiring (either by direct purchase or conservation easement) suitable burrowing owl habitat. No sign of burrowing owls has been found during the 2000 and 2001 surveys (H.T. Harvey and Associates 2000, Calpine c*Power 2001a), however the species may move into the area at any time. Surveys should be performed to verify the presence or absence of this species prior to site mobilization, and the survey results should be sent to the CDFG (Biological Resources condition of certification **BIO-11**). The burrowing owls seen during surveys for the U.S. DataPort linears would not be directly impacted by LECEF or its linear facilities. Cumulative losses of this species habitat is discussed in a separate section following Analysis and Impacts.

Linear Facilities

Electrical lines will need to be installed to connect the proposed plant's substation to PG&E's Los Esteros substation. Two lines would be placed underground in PVC conduit encased in concrete duct banks and all construction occurs within the boundaries of the existing power plant complex. Because there is no infrastructure being built outside of the existing lot, and almost no linear facilities will be built above ground, the construction avoids impacts to state- and federally-listed species and no mitigation is necessary. If the applicant is required to install a temporary distribution line between the site and the lines along Zanker Road, impacts to avian species are expected to be less than significant. The east to west transmission line right-of-way (poles and road) is bordered by Highway 237 to the south and the WPCP's bufferlands to the north, and low-flying bird flights in between these two features is unlikely. There is an existing distribution to connect Agnew Electric Generating Plant to the Nortec-Trimble Substation circuit. Instead, most species travel north from the WPCP bufferlands to the WPCP treatment ponds or Don Edwards NWR. Thus, installation of additional lines are unlikely to increase bird electrocutions or collisions.

Primary access to LECEF will be from the construction of a 2,700 foot long road within the WPCP buffer lands, west of the site. The construction of the road surface would cause the permanent removal of potential burrowing owl foraging habitat (see Biological Resources Table 4) which is discussed under cumulative impacts. The construction of the wastewater line in the shoulder of this road would not cause additional impacts to sensitive species beyond those already identified for the primary access road. Access roads from a second site on Zanker Road and on Alviso-Milpitas Road are also proposed. The access road from Zanker Road is proposed on potential burrowing owl foraging and nesting habitat, and if this species is found prior to site mobilization, construction would result in a significant impact to this species which could be mitigated by Biological Resources condition of certification **BIO-11**. The access road to Alviso-Milpitas Road would have little or no impact. During operation, these roads would receive use only by LECEF's plant employees or PG&E employees, and no biological impacts are expected.

Construction of the stormwater outfall pipeline would place equipment and personnel within 250 feet of Coyote Creek. Noise and activity associated with construction could

disturb avian species and cause them to disperse or avoid the construction area. Construction disturbance during the breeding season of several sensitive birds species (including the loggerhead shrike and white-tailed kite) is considered a potentially significant impact. Disturbance near foraging habitat would be temporary and less than significant as other areas are still available for foraging. Implementation of Biological Resources condition of certification **BIO-7** would adequately protect sensitive avian species, resulting in non-significant impacts. Coyote Creek provides important habitat for numerous aquatic species, including a migration path for the federal threatened steelhead trout (Central California Coast Evolutionary Significant Unit) and the federal candidate Fall-run chinook salmon. Construction activities in or immediately adjacent to Coyote Creek for construction of the permanent concrete outfall could result in some level of sedimentation in the stream. These impacts would be reduced to the extent possible by following the best management practices described in the Soil and Water Resources section of this document and by limiting construction from July to October.

Construction of the gas line is along the western edge of the 55-acre parcel. This parcel was developed in a mixture of residential and greenhouse buildings prior to demolition, and no sensitive species or habitat has been identified within the parcel. Agricultural land reverted to disturbed grassland (with ruderal species) is located directly west of the 55-acre parcel, but would only be temporarily disturbed by construction crews and equipment.

The recycled water line would parallel the gas line along the western edge of the 55-acre parcel and then extend west to its connection point with an existing recycled water line buried in the WPCP buffer lands. As noted above, the potential for impacts to sensitive species on the 55-acre parcel is low, but the likelihood increases as the line leaves the site and enters agricultural land reverted to disturbed grassland (with ruderal species). The impacts to burrowing owl foraging and nesting habitat in this area is temporary and can be reduced by implementing avoidance measures if owls are located in future survey efforts (Biologcial Resources condition of certification **BIO-9**).

Worker Parking and Staging Areas

Parking and equipment staging areas required during the site preparation and construction periods would be located on the 55-acre parcel, although exact locations have not been identified. The 55-acre parcel is recently disturbed, and no sensitive species or their habitats were identified on the parcel. The 55-acre site is surrounded with agricultural lands and the noise and lights from construction crews and storage areas are unlikely to cause harm to peripheral biological resources. Disturbance would be temporary in nature, and similar to those from the construction on the power plant site. Mitigation used on the power plant site will be applicable here and will reduce all impacts to less than significant levels.

Indirect Effects

Staff evaluated several indirect impacts associated with the proposed LECEF including:

1. nitrogen deposition;

2. the effluent discharged from the Wastewater Pollution Control Plant; and,

3. noise and light on the sensitive species in adjacent land during operation.

Nitrogen Deposition

The operation of the proposed facility will emit several air pollutants, including nitrogen dioxide and ammonia slip, into the atmosphere. These chemical components often react with the atmosphere to form fertilizing agents (NH_3 and HNO_3). Nitrogen deposition is the amount of nitrogen that converts to particulates and accumulates on soil or other surfaces. The modeling of nitrogen deposition is based on several conservative assumptions regarding chemical conversion rates, weather conditions, and minimum loss of mass. The nitrogen deposition rate considered sufficient to affect ecosystem structure and diversity is 3 to 10 kg/ha/yr depending on vegetation type (Fox et al. 1989). The current best estimate of nitrogen deposition in the vicinity of San Jose is 8.4 kg/ha-yr (Sierra Research 2000).

Modeling of nitrogen deposition from the proposed project estimates that nitrogen deposition would concentrate at the north end of a 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. For example, the average nitrogen deposition at USFWS Silver Creek Critical Habitat Unit is modeled to be 0.0283 kg/ha/yr and at the USFWS Kirby Critical Habitat Unit to the southwest, the average deposition is 0.0168 kg/ha/yr (Calpine c*Power 2001d). The serpentine soils in Santa Clara County support many state- and federally- listed species as well as species of concern (see Biological Resources Table 3).

Staff concludes that the project may have minor effects on the soils that support the host plants for these butterflies, but the cause-and-effect to show an indirect impact was occurring would be difficult to prove for several reasons:

- The large distance between the 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 continually alter the expected amount of nitrogen deposition.

A final analysis and proposed mitigation of impacts to the bay checkerspot butterfly and Opler's longhorn moth are covered below under the heading Cumulative Impacts.

The plant species identified in *the Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* are serpentine endemics or near endemics, which are limited to small localized areas where conditions give them an advantage over non-native species. Staff has requested the applicant provide more information on serpentine plant locations. The populations of these species are threatened by development pressures in the greater San Jose area, and for some populations, recreational disturbance or cattle grazing. The recovery plan does not identify nitrogen deposition or invasion by

non-native grasses (or weeds) as a threat to the Santa Clara County plant populations, but staff has requested the applicant perform this analysis. At this time, no indirect impacts have been identified and staff does not recommend any conditions of certification for the benefit of these species directly. Mitigation for bay checkerspot butterfly, as proposed under Cumulative Impacts, may aid these species.

Wastewater Pollution Control Plant Effluent

The cooling and process water supply for the project will be recycled water provided by the WPCP and wastewater disposal will be conveyed to the City of San Jose sewer system for treatment at the WPCP. The average and peak influent needs of LECEF are 0.50 million gallons per day (mgd) and 0.82 mgd. LECEF is expected to discharge on average 0.18 mgd and at peak operation 0.30 mgd. The largest component of the industrial waste is the cooling tower blowdown, which is discharged after three cycles of concentration. The effluent discharge from the WPCP goes into Artesian Slough on City of San Jose property. Artesian Slough is hydrologically connected to Coyote Creek, which is part of the Don Edwards Wildlife Refuge, and is an area designated to be part of the refuge in the future (Don Arnold, pers. comm. 2001). The 1998 WPCP's National Pollution Discharge Elimination System (NPDES) permit limits the effluent discharge to 120 million gallons per day due to concerns about converting the habitat of two endangered species, the salt marsh harvest mouse and California clapper rail, from salt marsh to brackish or freshwater marsh (Calpine c*Power 2001a). The LECEF discharge, when combined with the current discharge, is not expected to change the current conditions at Don Edwards NWR, or habitat for the two identified species, because the project's discharges do not result in a measurable change in the WPCP's permitted discharge amounts or chemical limits. No mitigation would be required of the applicant.

Noise and Light

Sensitive species such as the burrowing owl and white-tailed kite were identified as using the parcels adjacent to LECEF. Noise and light during the construction of the project can result in disturbance to these species which would result in the loss of use of the surrounding habitat for several months. Indirect impacts from noise and light from the operation of the power plant will continue if the U.S. DataPort is not built since there would be no intervening buildings to shield these disturbances from neighboring wildlife habitat. In this case, operational impacts from light and noise from LECEF would be adverse. If U.S. DataPort is built to completion, and completely surrounds the site, then no impact from LECEF's light and noise would be apparent. Impacts to biological resources from U.S. DataPort construction are covered under their own EIR (City of San Jose 2001).

Critical Habitat and Recovery Plan Goals

As modeled, all of the critical habitat units established for bay checkerspot butterfly would receive nitrogen deposition as result of LECEF operation. The USFWS identified in the serpentine recovery plan (USFWS 1998a), that invasion of native grasslands by non-native species was a major cause of decline of the bay checkerspot butterfly. The LECEF nitrogen emissions (as discussed previously) could increase the ambient nitrogen deposition levels, but would not threaten recovery plan goals directly. Many of the plant species (including Santa Clara Valley Dudleya) were threatened by new

development, quarry and landfill expansions, road construction, and off-road vehicles. The growth of San Jose is independent of the availability of power, and much of the growth that threatens plant populations has already been permitted. Therefore, LECEF is not seen as having a direct impact on the recovery plan goals set for listed and sensitive plants.

In the California red-legged frog recovery plan, the USFWS proposed to protect existing core and migration habitat. Although Coyote Creek does not have standing water suitable for breeding, the riparian corridor can assist in dispersal of this species. LECEF will install an outfall in an area of potential red-legged frog dispersal habitat, and this will cause the permanent loss of 0.005 acres of riparian habitat. This level of loss is not considered significant because the area is currently low-quality for breeding, and removal does not preclude dispersal movement. If individuals were present in Coyote Creek, the pre-construction surveys and avoidance measures suggested in Biological Resources condition of certification **BIO-15** should avoid impacts to this species.

B. Riparian and Sensitive communities: Less than significant Impact

The City of San Jose's *Riparian Corridor Policy Study Guidelines* requires projects adjacent to riparian corridors to be designed to minimize potential noise impacts to wildlife. Guideline 1A requires noises to be oriented toward non-riparian property edges. Guideline 2F requires the operation of mechanical equipment within or adjacent to riparian corridors not to exceed noise levels for open space (as specified in the Noise Element of the City of San Jose's General Plan) [60 DNL (Day-Night Sound Level)] or exceed background noise levels. Guideline 2F requires the location of noise sources as far as necessary from riparian corridors to preclude exceeding the ambient noise level in the corridors.

Existing dominant noise sources east of the project property line, bordering the Coyote Creek riparian corridor include traffic, rustling trees, and occasional aircraft (Calpine c*Power 2001a, Table 8.5-3). The existing noise level at the project property line riparian corridor is 59 DNL. It is estimated that the plant noise level would be 54 DNL with a cumulative noise level of 60 DNL at the project property line bordering the Coyote Creek riparian corridor (Calpine c*Power 2001a, Table 8.5-12).

High levels of noise can cause hearing loss and other adverse physiological effects to wildlife. Continuous noises that mask the effective communication of meaning sounds (e.g. bird mating songs or warning calls) can interfere with behavioral functions. Both mammals and birds can suffer temporary hearing impairment from 24-hour exposure to noise levels of 80-110 dB (CDT et al. 1995). All vertebrates habituate or adapt behaviorally and physiologically to repeated exposure to noise either through sensitization or avoidance (Bowles 1995). Continuous sound pressure levels at 70 dB are considered a safe limit to wildlife (Bowles 1995). Wildlife use of Coyote Creek is moderate and intermittent noise is currently generated by road traffic on SR-237 and I-880. While noise levels of 60 DNL will exceed ambient levels by 1 DNL, it will not exceed levels that can result in adverse effects on animal hearing or other physiological functions (80 dB; CDT et al. 1995). Staff concludes that no significant adverse impacts

are expected although construction noise will likely temporarily reduce diurnal wildlife activity (e.g. birds) in the area.
The City of San Jose adopted Ordinance No. 26248 which states illumination in the outdoor areas of new private development must be directed away from riparian areas. The applicant has designed the facility such that all lights would be non-glare to reduce light reaching off-site receptors (Calpine c*Power 2001a), and thus reaching the riparian corridor. Staff believes that this design will reduce any adverse impacts to nocturnal wildlife (see Biological Resources Condition of Certification BIO-17).

Indirect impacts from noise and light from the operation of the power plant will continue if the U.S. DataPort is not built since there would be no intervening buildings to shield these disturbances from neighboring wildlife habitat. In this case, operational impacts from light and noise from LECEF would be adverse. If U.S. DataPort is built to completion, and completely surrounds the site, then no impact from LECEF would be apparent.

For potential indirect impacts due to water quality degradation to the Coyote Creek riparian corridor, please refer to Biological Resources Item C below or the Soil and Water Resources section of this document.

C. Surface waters: Less than significant Impact with mitigation incorporated

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. Although the exact amounts of pollutants carried by stormwater to the by-channel and eventually to Coyote Creek is unknown, over time, the amount could accumulate. Because of the sensitive resources present, or potentially present in Coyote Creek, pollution is a significant impact. Restrictions on herbicides and pesticides within the Landscaping Plan would reduce this impact to less than significant levels (Biological Resources condition of certification **BIO-17**). While pollution from LECEF in comparison to U.S. DataPort would be dwarfed, the impacts to Coyote Creek are considered probable, and mitigation would be necessary. The impact to resources in Coyote Creek would be minimized to less than significant after implementation of the City of San Jose Grading Ordinance and specific measures proposed by the applicant (see **Soil and Water Resources** conditions of certification).

The existing site contained underground storage tanks for diesel fuel and several pesticide mixing/storage areas. Shallow soil samples from around the contaminated areas showed detectable levels of lead, arsenic, and DDT. Soil samples from deeper cores show concentrations do not increase with depth. The soil study concluded that the concentrations detected do not appear to pose a significant threat to human health in a commercial or industrial setting, and the planned remediation after demolition of the greenhouse buildings would remove all remaining contamination. Since the proposed project would result in a site largely capped with buildings and associated concrete pads and parking areas, the risk to the environment would be significantly reduced.

The construction of a stormwater drain to the low-flow channel of Coyote Creek would potentially require the trenching of a pipeline for approximately 100 feet through the berm of the stream channel, the removal of a riparian trees (or avoidance of trees), and the construction of a concrete outfall on the bank of Coyote Creek's low-flow (perennial) channel. These actions will require construction equipment and personnel within the 100-year floodplain of the Creek, some bank disturbance, and work in or near perennial waters at the concrete outfall, thus, permits by the CDFG and possibly USACE will be required to complete this work. Staff has requested the applicant identify if wetlands are in the construction area. Designs would also be reviewed by the Santa Clara Valley Water District which maintains this levee system. Adverse impacts could occur to the waters and vegetation surrounding Coyote Creek as a result of this work. While erosion- and pollution-control measures would be required as part of the permit process, additional mitigation may be required to protect biological resources (Biological Resources condition of certification **BIO-15**). The applicant has not developed plans for the construction work, and permitting has not begun, thus a final analysis of impacts cannot be completed at this time.

The discharge of industrial and sanitary waste from the site, and into the sewer system returns the water to the WPCP (see discussion in Biological Resources Item A). Once combined with the current WPCP's water, impacts to wetlands and riparian habitat from this discharge are not expected because there are no measurable increases in the amount of effluent or its chemical components in the WPCP's discharges to Artesian Slough.

D. Migration corridors: Less Than Significant Impact

The nearest wildlife corridor is Coyote Creek which is approximately 1,000 feet away from the eastern edge of the LECEF site. This distance is further than the City of San Jose's minimum setback limit of 100 feet from the edge of the riparian corridor (or top of bank, whichever is greater). Sensitive fish species such as the fall-run chinook salmon and steelhead rainbow trout are likely to occur in Coyote Creek during migration to and from spawning sites upstream. The Coyote Creek riparian corridor also acts as a migration route for neotropical migrant bird species, and provides potential breeding and migration habitat for other sensitive species such as the California red-legged frog. The impacts of construction in this corridor is contained under Biological Resources Item A.

Due to the distance from the project site, LECEF 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. For potential indirect impacts to biological resources due to water quality degradation of Coyote Creek, please refer to Biological Resources Item B, and the Soil and Water Resources section in this document.

E. Ordinance and native mature trees: Less than significant Impact with mitigation incorporated

Any and all trees designated as significant by ordinance, as well as mature but not designated as significant trees, provide potential nesting and roosting sites for sensitive species including the white-tailed kite (fully protected) and the loggerhead shrike. The U.S. DataPort (and LECEF) have already removed at least six trees (four red willows on

the northern boundary of the LECEF site, one red willow on the southern boundary of the LECEF site, and one plum in the southwest portion of c*Power's 55-acre parcel). The removal of any and all ordinance and native mature trees will add to the cumulative impacts to these sensitive bird species by reducing potential roosting and nesting habitat. See impacts for foraging loss in Biological Resources Item A.

Although the applicant is not required by City of San Jose to replace non-riparian, non-significant trees, they will be required to replace the loss of any and all significant trees at a ratio of 4:1 (mitigation:impacts). At this time, the applicant is not sure which trees removed thus far were considered significant, non-significant, immature, or mature. The applicant is currently in the process of revising the aborist's report for review by staff. Staff has mitigated the potential impacts of all ordinance and native mature tree loss by requiring replacement (Biological Resources conditions of certification **BIO-12** and **BIO-13**). The number of trees to be replaced will be incorporated into the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).

F. Adopted HCPs: No Impact

The two approved HCPs in the San Jose area are operated by a private developer and the other by PG&E. These HCPs established preserves within serpentine habitat of Santa Clara County. Because the HCP's are ensuring the recovery of the bay checkerspot butterfly by mitigating their own impacts, but are not regional in nature, the development of LECEF does not conflict with the provisions of these plans. There is current funding for a regional plan, but none has been approved by USFWS, and no further analysis is provided in this document.

G. Commercial And Recreational species: Less Than Significant Impact

There are no significant biological resources of commercial or recreational value on the LECEF project site. Species along the Coyote Creek riparian corridor are of recreational value to the occasional observer. Several trails exist, or are planned near the proposed LECEF site. These trails are acknowledged in the Alviso Master Plan, the San Jose 2020 General Plan, and the County of Santa Clara's Trails Master Plan. In most cases, these trails are intended to be used by both pedestrians and bicyclists, but will also likely increase the use of the creek by recreational fishermen. To the north, bordering the WPCP sludge drying ponds and buffer lands, there is the San Francisco Bay Trail. To the east, the Coyote Creek/Llagas Creek Trail is planned along the west side of Coyote Creek and one is planned along the east side of Coyote Creek. There is also a trail on the south side of the property, just north of HWY 237. Construction in the area of the trails during installation of the outfall pipe could temporarily disturb species that are of recreational value to trail users.

Impacts to recreational fish species have the potential to occur due to increased erosion and sedimentation from construction activities. For more information about potential indirect impacts due to water quality degradation to biological resources to the Coyote Creek riparian corridor, please refer to Biological Resources Items A and C. General erosion and sediment issues have been covered by **Soil and Water Resources** in this document.

H) Weeds: No Impact

There will be a temporary disturbance of approximately 20 acres of disturbed grassland (with ruderal species) for the parking and laydown area. The applicant states that it will be revegetated with like species after construction (Calpine c*Power 2001a). Prior to the use of this area, topsoil will be salvaged from the site and stockpiled at one end of the site. After construction, the laydown area will be stripped of any armoring material, the surface scarified, and top soil restored. The applicant anticipates that the 20-acres will be revegetated with barley seed during the winter following construction. It is expected that the barley will provide a temporary cover crop to hold soil and allow seeds in the native topsoil to sprout and restore a cover similar to that which existed prior to construction. The length of time between disturbance and restoration could vary with construction schedules and take up to two years for full restoration (Calpine c*Power 2001c). Prior to full restoration of like species, invasive, non-native plants could dominate the 20-acre laydown and parking site, potentially resulting in an overall slight increase in invasive, non-native species. This is not expected to result in a significant impact because there already is a high percent of ruderal species that exist within these 20 acres and surrounding areas.

By following the Biological Resources Condition of Certification BIO-17, the introduction and spread of weedy plant species (such as those classified by the California Department of Agriculture as List A, List B, or Red Alert species) most likely be avoided. Potential indirect impacts to sensitive species associated with the spread of non-native grasses is discussed in Biological Resources Item A.

CUMULATIVE IMPACTS

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

If the PG&E Los Esteros substation, as part of the Northeast San Jose expansion, or U.S. DataPort are constructed at the same time as LECEF, dust and noise from heavy equipment could have a combined impact on nearby biological resources larger than if they were built at separate times. Although difficult to quantify for individual species, the general trend is for species to leave an area once a threat (perceived or actual) reaches a threshold. Individuals of each species also have their own threshold levels for human disturbance which cannot be predicted. Because both projects are taking place on disturbed land, the actual disturbance is to those species living or using the surrounding areas. The projects are directly adjacent to or on agricultural lands, WPCP buffer lands, and Coyote Creek which provide foraging and nesting habitat for sensitive species. The combined impact of constructing one or both of these projects at the same time as LECEF would be significant. Measures to prevent impacts have been suggested in the environmental documents for both of these projects, and LECEF should follow these as well as Biological Resources condition of certification **BIO-15** to ensure impacts are mitigated to less than significant levels.

It is reasonably foreseeable that as a result of this project, additional infrastructure will be added to the site to convert the combustion generators' exhaust into energy through a heat recovery steam generator. The infrastructure, by design, is directly connected to existing facilities, and thus only impacts the areas disturbed during construction of the simple cycle plant. The disturbance during construction of a combined cycle would be restricted to the site or the previous worker staging and parking area. All linears would already be in place, and no further work is foreseeable. Because impacts to the entire 15-acre site and 20-ace laydown area were assumed for construction of the simple-cycle plant, no future incremental (cumulative) habitat losses are expected as a result of LECEF. Like the LECEF simple-cycle plant, the disturbance to surrounding biological resources would be likely during construction from lights and noise, but would be temporary and less than significant, and would not take place at the same time as the simple-cycle construction. Operational impacts of a combined cycle plant would be evaluated separately for their potential impacts to off-site biological resources, but because the simple cycle is decommissioned as a result of a combined cycle plant, no significant cumulative impacts would result from operation.

Construction of LECEF will result in an impact to burrowing owls for its permanent removal of 13.5-acres (8.5+5 acres) of potential foraging and nesting habitat (see Biological Resources Table 4). The continued loss of such foraging habitat is a significant cumulative impact that jeopardizes the continued existence of burrowing owls in the Santa Clara Valley. For the 110-acres of habitat disturbance from U.S. DataPort (60-acres of the 174-acre site were considered as developed), the analysis calculated 55-acres of foraging habitat was necessary to reduce cumulative impacts to less than significant levels (City of San Jose 2001). However, the City of San Jose adopted the EIR without mitigating for the cumulative loss of burrowing owl foraging habitat, and it remains a significant and unmitigated impact if U.S. DataPort is built (City of San Jose 2001). LECEF power plant site, but not the linears, were part of the 60-acres removed from the City of San Jose habitat loss calculation. Staff estimates that part of the power plant site (8.5 out of 18-acres) and all linears are potential habitat for burrowing owls. To avoid a significant and unavoidable impact as a result of LECEF, staff recommends 6.75 acres of land be preserved on the 55-acre parcel or on the Cilker property (U.S. DataPort property) as part of Biological Resources condition of certification **BIO-11**.

As noted in the U.S. DataPort EIR (City of San Jose 2001), replacement habitat for nesting and foraging burrowing owls is not available in northern Santa Clara County except on city-owned lands, and the City does not permit its lands for mitigation of privately-operated projects (City of San Jose 2001). In response to the Draft EIR, CDFG requested the City require U.S. DataPort to acquire burrowing owl habitat outside of northern Santa Clara County, but this was not adopted. There is no conclusive evidence that mitigating habitat losses outside of the county would benefit the species inside of Santa Clara County. If burrowing owls are found on or near the site and on-site mitigation cannot be obtained, staff cannot suggest a mitigation that will fully reduce this significant cumulative impact to Santa Clara County's burrowing owls to less than significant levels; although acquiring off-site habitat would reduce impacts to this species on a state-wide basis to less than significant levels (Biological Resources condition of certification **BIO-11**).

The location of other power plants under development or with applications near completion in the vicinity of the proposed project include MEC, Gilroy, and Spartan. The approved MEC will be using recycled water from San Jose, but withdrawal from this source does not directly impact plant or wildlife habitat. The other two proposed projects (Gilroy and Spartan) do not use the same water supply or discharge facility, are geographically isolated from the proposed plant, but do contribute air pollutants to the same air basin. In reviewing the projects above, staff would not expect any overlapping, or additive, impacts from water pollution, traffic, noise, or lighting, but did review the potential for cumulative air quality impacts.

NITROGEN DEPOSITION

The emissions from the proposed project could result in nitrogen deposition on serpentine soils in Santa Clara County above the ambient conditions. In a recent siting case [Metcalf Energy Center (MEC)], extensive air modeling was done to precisely identify the location and amount of nitrogen deposition resulting from that energy facility. In addition, a cumulative air impact analysis was done on two proposed projects, Coyote Valley Urban Reserve and Coyote Valley Research Park. Both of the proposed projects would require vehicle trips along Highway 101 between Metcalf Canyon and South Coyote. The end result of the modeling concluded MEC could deposit 0.28 kg/ha-yr on Coyote Ridge above ambient conditions and the vehicles on Highway 101 were unlikely to result in deposition. The impact levels of LECEF are compared with the previous modeling results for MEC and Highway 101 Vehicles in Biological Resources Table 5.

The same model and model assumptions were used in LECEF as in the MEC siting case, but additional polygons were added for the LECEF analysis as a result of the USFWS establishing critical habitat for the bay checkerspot butterfly in April 2001 (USFWS 2000v). Thus, instead of the approximately 4,000 acres of butterfly habitat used in MEC, the modeling for LECEF assumed approximately 22,000 acres of butterfly habitat. Where possible, developed lands were removed from the 22,000 acres designated in Santa Clara County. The USFWS notes that only currently undeveloped areas supporting the primary constituent elements of bay checkerspot butterfly habitat would be subject to regulatory oversight by the USFWS (USFWS 2001c). Unoccupied areas were included when they were deemed by USFWS to be essential to the conservation of the subspecies (USFWS 2001c). In LECEF there is no physical proximity of serpentine soil areas (the distance between the facility and the nearest USFWS Critical Habitat Unit is six miles) and there are a number of other point sources of nitrogen occurring in the intervening air basin. However, LECEF is similar to MEC in that it has relatively low elevation and absence of intervening land masses. The end result of the modeling concluded that LECEF could result in some level of nitrogen deposition on serpentine soils above ambient conditions, but the level is far less than that modeled for MEC (see **BIOLOGICAL RESOURCES Table 5**).

BIOLOGICAL RESOURCES Table 5
Comparison of Nitrogen Emissions between LECEF, Metcalf Energy Center, and Highway 101 Vehicles (Calpine c*Power 2001a,c)

Parameters	LECEF	Metcalf Energy Center[1]	Highway 101 Vehicles[1, 2]
Maximum Daily Emissions (lb/day)	820.8 (four combustion gas turbines)	1,362.6 (two combustion gas turbines with duct burners)	706.5
Annual Emissions (tons per year)	74.9 (for four turbines) to 79.6 (for facility)	185.0	117.2
Maximum Annual Emissions from Emergency Generator (tons per year)	0.18 (diesel, 200 hours of operation per year)	0.2 (natural gas fired)	Not Applicable
Maximum Annual Emissions from Fire Pump (tons per year)	0.37 (diesel, 100 hours of operation per year)	0.4 (diesel)	Not Applicable
Maximum Modeled Nitrogen Deposition at Coyote Ridge/Kirby Critical Habitat Unit (kg/ha-yr)	0.0392	0.28	Deposition expected to remain on valley floor

[1] Data from MEC's Informal Data Request and Response (99-AFC-3), dated April 28, 2000 and the Section 8.1 of the Metcalf Energy Center's AFC

[2] For highway travel along Highway 101 between Metcalf Canyon and South Coyote (approximately 5 km, directly adjacent to Coyote Ridge) resulting from vehicles to Coyote Valley Urban Reserve and Coyote Valley Research Park (future projects), southeast of MEC

Recent work on bay checkerspot found air pollution on Coyote Ridge (which includes the Silver Creek and Kirby Critical Habitat Units) is already likely to be at levels adversely affecting serpentine plant communities, with negative effects on the bay checkerspot butterfly (Weiss 1999). Opler's longhorn moth is even more host specific, and would be harmed by the loss of its host plant. The USFWS is having ongoing consultation with the U.S. Army Corps of Engineers (USACE), Federal Highway Administration, City of San Jose, and Santa Clara County to address the risk posed by nitrogen deposition. To improve conditions for the butterfly, most federal (Section 7) and Habitat Conservation Plan (Section 10) consultations result in the applicant purchasing areas to be managed as preserves (USFWS 1998). Well-managed, moderate grazing must be maintained at the preserve sites that are expected to support the butterfly (Weiss 1999).

The potential impacts from the nitrogen deposition could be reduced if the proposed project could reduce overall nitrogen in the vicinity of serpentine habitat. Offsets in the form of Emission Reduction Credits (ERCs), are required for NO_x at a ratio of 1.15:1 in order to assure that LECEF would not interfere with the Bay Area Air Quality Management District's (BAAQMD's) future "attainment" of the standards for ozone. The applicant has presented two proposals to reduce nitrogen emissions (McBride 2001), and the Air Quality section of this document should be consulted for further information. In the first proposal, the existing turbine at Calpine Giloy Cogeneration Plant (Gilroy,

California) could be retrofitted to reduce nitrogen emissions from that plant. As a result of this retrofit, the applicant will have offset 88 tons per year pending the BAAQMD's approval of the credits. As a second choice, the applicant could purchase ERCs from several certificates available in the basin (150+ credits are identified). Depending on the proximity of the ERCs to San Jose, there could be no net change in the ambient nitrogen levels at the serpentine soil areas as a result of LECEF.

The effects of this deposition, when combined with the ambient conditions and with an additional three power facilities, could cause significant harm to several state- and federally-listed species unless deliberate management actions are taken. Because of the concern for these species, and an identified need to improve conditions for these species, the applicant should purchase and manage lands for the benefit of the state- and federally-listed species (Biological Resources condition of certification **BIO-16**). Impacts to these species would be less than significant after mitigation.

MITIGATION

APPLICANT PROPOSED MITIGATION

Project Construction

The following measures will be implemented in all LECEF project construction areas:

- Provide worker environmental awareness training for all construction personnel that identifies the sensitive biological resources and measures required minimizing project impacts during construction and operation
- Avoid sensitive habitat and species during construction by developing construction exclusion zones and silt fencing within 500 feet of sensitive areas
- Pesticides or herbicides will not be used in project areas

Prepare construction and compliance reports that analyzes the effectiveness of the mitigation measures (See Appendix 8.2C [of the AFC] for a draft of the biological monitoring and mitigation implementation plan).

Special Biological Resources

Specific mitigation/protective measures were developed to minimize project impacts for the sensitive habitats of the Coyote Creek riparian corridor, and for the loss of significant/heritage trees in Santa Clara County and San Jose. The following paragraphs describe additional mitigation/protective measures that will be implemented for these sensitive areas.

Coyote Creek Riparian Corridor

The following protective measures are proposed to avoid impacts to the potential habitats of biological resources in the Coyote Creek corridor.

- Avoid Coyote Creek habitats.
- Implement erosion control in the temporary impact areas, especially near wetlands and waterways.
- Revegetate temporary disturbance areas with like species (i.e. grassland species in grassland areas).

Significant Trees

The following mitigation measures would reduce impacts to significant trees to less than significant.

- Minimize the number of significant trees removed from the LECEF project site for construction and operation activities.
- Construction vehicles, equipment, and materials will be restricted from the drip line of the remaining trees.
- Provide replacement trees at a ratio of at least 4:1 (replace three trees for every tree removed) with tree species as agreed upon with City of San Jose.
- Plant replacement trees as close to the original location as possible
- Design proposed linear facilities to avoid drip lines and removal of significant and heritage trees.
- Have the mitigation and monitoring plan reviewed and authorized by the San Jose City arborist before construction activities begin.

Revegetation

Prior to use of the 20-acre laydown area, topsoil would be salvaged from the site and stockpiled at one end of the site. After construction, the laydown area would be stripped of any armoring material, the surface scarified, and topsoil restored. It is anticipated that the 20-acres would be revegetated with barley seed during the winter following construction. The barley would provide a temporary cover crop to hold soil and allow seeds in the native topsoil to sprout and restore a cover similar to that which existed prior to construction. The length of time between disturbance and restoration could vary with construction schedules, but in no case would be greater than two years between construction and restoration. Because grasslands can grow in one wet season, functional revegetation will occur rapidly once us of the construction laydown area is complete.

Purchase of Habitat Compensation for Serpentine Endemics

Although the applicant believes that the nitrogen deposition impacts from LECEF are immeasurable and insignificant, they are committed to participate in reducing cumulative effects that result from the addition of nitrogen emissions to the air basin(Calpine c*Power 2001d). The applicant will place 19-acres of suitable serpentine habitat from Kirby Canyon in a conservation easement to be maintained in perpetuity for the protection of bay checkerspot butterfly and other serpentine species. Based on output from the Center for Natural Lands Management Property Analysis Record (PAR), the applicant will provide an endowment sufficient to pay for the management of the

easement area in perpetuity. The applicant will authorize a third party to implement an adaptive management strategy to promote habitat for bay checkerspot butterfly and other serpentine species. The grazing prescription proposed is one cow per 10-acres and the applicant will create a contingency plan for fencing if other landowner's livestock affects this prescription. As part of the applicant's habitat management efforts for MEC, nitrogen deposition monitoring stations within serpentine habitats of Coyote Ridge will be installed to collect information about actual levels of deposition. This data will be used as part of the adaptive management of LECEF's preservation lands.

STAFF PROPOSED MITIGATION

Replacement of Ordinance and Native Mature Trees

Staff's objectives for an ordinance and native mature tree replacement plan include the following:

- A qualified arborist or biologist should identify appropriate locations for mitigation on-site.
- The replacement tree(s) should be installed in an environment suitable for their establishment and growth.
- Replacement tree(s) should be propagated from specimens within the Coyote Creek watershed.
- Ordinance Tree(s) should be replaced at a 4:1 (mitigation:impacts) ratio with 24-inch box specimens.
- Native mature tree(s) should be replaced at a 1:1 (mitigation:impacts) ratio with a one-gallon or larger specimen.
- All planting should be done from November to January.
- Replacement tree(s) should be irrigated and maintained for a period of not less than three years.

In addition, staff recommended the replacement tree(s) be the same native species as those removed. Also, the replanting location(s) should avoid any distribution line right-of-ways in which the mature tree might come into contact with live wires (in order to prevent potential electrocution of roosting birds). The replanting location(s) should also avoid the loudest areas and those areas that are immediately down wind of the cooling tower drift. In addition, staff concurs with the CDFG (CDFG 2001, pers. comm.) that all replacement trees should be monitored for a minimum of 5 years. Staff has included a condition of certification to monitor replacement trees as part of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) (Biological Resources condition of certification **BIO-12**).

Landscaping Objectives

Staff's objectives for a landscaping plan included the following:

- Remove invasive, non-native plants (e.g., yellow star thistle) from LECEF whenever possible to avoid the spread of weeds to the riparian corridor buffer zone.
- Select a drought tolerant mix of native species. Trees may include coast live oak, blue elderberry, red willow, and box elder or others, as found in the San Jose Riparian Corridor Policy.

Purchase of Habitat Compensation for Burrowing Owls

When the proposed LECEF project is combined with other development in northern Santa Clara County there is a significant cumulative loss of foraging habitat for burrowing owls. In addition, if nesting burrowing owls are found on the site or along ancillary linears during pre-construction surveys, and their nests cannot be avoided, then there is a significant direct impact to this species. To mitigate this impact, staff recommends habitat compensation be purchased and preserved following the protocol shown below in **BIOLOGICAL RESOURCES Table 6**.

Off-site habitat mitigation would be less effective than on-site habitat mitigation. If lands must be acquired off-site, mitigation ratios should follow the guidelines from the California Burrowing Owl Consortium (1993). For example, if the habitat purchased is off-site, contiguous to occupied habitat but not itself occupied, then the replacement ratio should be increased by 1.5 times (e.g., 6.5 would become 9.75). If habitat purchased is off-site, isolated from other populations, and suitable but currently unoccupied habitat, then replacement ratio should be increased by three times (e.g., 6.5 would become 19.5).

BIOLOGICAL RESOURCES Table 6
Burrowing Owl Habitat Compensation (Mitigation:Impact)

	Nesting Habitat that is Occupied	Foraging Habitat next to Nesting Habitat that is Occupied
In Northern Santa Clara County	6.5:1	0.5:1
In Contiguous County or Southern Santa Clara County	9.75:1	0.75:1
All other counties	19.5:1	1.5:1

Purchase of Habitat Compensation for Serpentine Endemics

When the project is combined with other facilities in the Santa Clara Valley, the cumulative impact to serpentine endemic species is significant. Staff proposes habitat compensation lands be acquired, either by purchase or by easement, to offset impacts. Staff proposes to follow the MEC model for calculation of impacts. For example, average deposition of 0.0138 kg-ha/yr on Communication Hills Critical Habitat Unit represents 0.16 percent of the ambient levels (8.4 kg-ha/yr) (Calpine c*Power 2001e). Multiplying 0.16 percent by the 442-acres of the Unit yields 0.71-acres. Calculation for all of the remaining USFWS Critical Habitat Units should result in between 40 and 45-acres of habitat impacted (Calpine c*Power 2001e) without taking into account the habitat quality of the Units. As recognized in the MEC proceedings, and in the

designation of Critical Habitat, some of the Units are in degraded condition and/or currently unoccupied by bay checkerspot butterfly (USFWS 2001c). However, the Critical Habitat Units have the physical and biological features that are essential to the conservation of the bay checkerspot butterfly and therefore even unoccupied Units were included when they were essential to the conservation of the butterfly (USFWS 2001c, page 21462). Staff will be requesting the applicant mitigate LECEF's impact with the purchase of lands within occupied Unit(s) in Biological Resources condition of certification **BIO-16** to offset the cumulative loss of habitat for the serpentine endemic species .

COMPLIANCE WITH LORS

The federal Endangered Species Act, as amended (Act), and the Fish and Wildlife Coordination Act, requires federal agencies to consult with the USFWS and the agency exercising administration over wildlife resources of the particular state wherein the proposed project is to be constructed or action taken (e.g., CDFG). The simple-cycle power plant does not require any federal permitting, and therefore coordination is left to the state administrating agency and the project applicant. If either of these two parties wanted coverage for actions which result in the incidental take of federally-listed species, then a Section 10 consultation would need to be initiated and formalized by a Habitat Conservation Plan. The Act does not require applicants who do not anticipate incidental take to apply for permit protection, however if take were to occur without a permit, then penalties could be issued by the USFWS. Based on the nitrogen deposition modeling data from the November 2, 2001 Data Response (Calpine c*Power 2001c), the USFWS wrote the Energy Commission recommending consultation by the applicant or USEPA be pursued (USFWS 2001d). . However, their conclusion was made prior to the completion of this Staff Assessment and the recommended Conditions of Certification. The applicant is not pursuing consultation and the USEPA is not considered an active federal agency in this project. The USFWS could file an action under the Act against the applicant alleging "take" any time during project operation. The USFWS would need to argue that nitrogen deposition is causing a habitat modification or degradation which has killed or injured the bay checkerspot butterfly. In light of the small amount of nitrogen deposition, lack of a clear cause-and-effect, and the applicant's use of Best Available Control Technology (BACT) and purchase of ERC's under the BAAQMD's air quality regulations, this would be difficult to prove, but nonetheless could delay or stop operation until resolved.

The applicant may require City permits for the future removal of any and all ordinance-sized trees (see Biological Resources LORS). This permit is addressed in the Biological Resources conditions of certification **BIO-12** and will be obtained at least ninety (90) days prior to the start of construction activities for LECEF. Several trees on the LECEF site that were initially considered ordinance-sized were removed as part of the U.S. DataPort site preparation. At this time, the applicant is not sure which trees removed thus far were actually ordinance trees. The applicant is currently in the process of revising the aborist’s report for review by staff. Staff concurs with the City of San Jose that all ordinance-sized trees be replaced at a ratio of 4:1 (mitigation:impacts) and has proposed mitigation to offset impacts to nesting birds from the loss of mature trees (Biological Resources condition of certification **BIO-12**).

The City of San Jose has several policies that address development requirements in riparian areas (see Biological Resources LORS and Land Use). Retaining ambient noise levels and lighting in riparian policies are not strictly adhered to by the LECEF design (see Project Description in this document). The City of San Jose also has a setback policy which prohibits construction within 100-feet from a riparian corridor. The applicant must comply with this policy and submit any future plans for any potential riparian corridor construction to staff for review.

Construction on the interior side of the levee will require a Streambed Alteration Agreement by the CDFG, and possibly a permit by the USACE and Regional Water Quality Control Board if the applicant cannot keep all project components outside of the ordinary high-water-mark (see Soils and Water Resources section). As designed, the USACE and Regional Water Quality Control Board permits would not be needed. The CDFG permit is typically delayed until the adoption of the California Environmental Quality Act (CEQA) document by the lead agency. The applicant would not be allowed to begin construction without obtaining this permit. The applicant plans to turn in their CDFG Streambed Alteration Agreement application in February 2002.

FACILITY CLOSURE

The region surrounding the proposed project, upon completion of the U.S. DataPort complex, would be industrial in character, and is expected to remain so for years to come. The closure of the power plant and ancillary features (either temporary or permanent) would not have an impact to biological resources, and no measures are necessary unless U.S. DataPort (or similar facility) construction has not started at the time of closure.

Sometime in the future, LECEF will experience either a planned closure, or be unexpectedly (either temporarily or permanently) closed. When facility closure occurs, it must be done in such a way as to protect the environment and public health and safety. To address facility closure, an “on-site contingency plan” will be developed by the project owner, and approved by the Energy Commission Compliance Project Manager (CPM). Facility Closure mitigation measures will also be included in the BRMIMP prepared by the applicant.

PLANNED OR UNEXPECTED PERMANENT FACILITY CLOSURE

The planned permanent or unexpected permanent closure plan is addressed in Biological Resources condition of certification **BIO-8**.

UNEXPECTED TEMPORARY CLOSURE

Staff does not have any biological resource facility closure recommendations in the event of an unexpected temporary closure of LECEF. However, in the event that the Energy Commission CPM decides that the facility is permanently closed, the facility closure measures provided in the on-site contingency plan and the BRMIMP would need to be implemented.

RESPONSES TO PUBLIC AND AGENCY COMMENTS

CDFG has only given verbal comments on the AFC.

The public has not submitted comments related to biological resources on this project to staff.

U.S. FISH AND WILDLIFE SERVICE

USFWS questions and comments were shared with Energy Commission biological resource staff and applicant at a meeting on September 7, 2001 and in a letter dated November 30, 2001. Questions were specific to the Endangered Species Act of 1973 as amended (Act) regarding impacts from potential nitrogen deposition to serpentine habitat. Serpentine soils support the federally threatened bay checkerspot butterfly, and federally endangered Santa Clara Valley dudleya, Metcalf Canyon jewelflower, Coyote ceanothus, and Tiburon paintbrush.

USFWS 1: The USFWS' position is that "[w]hile the contribution of nitrogen from LECEF Phase I alone is relatively low, any incremental increase in nitrogen deposition to an already stressed ecosystem would affect the habitat further."

Response: The position of the USFWS has been noted in this document.

USFWS 2: The USFWS' position is that indirect "take" is likely to occur in the form of harm from habitat degradation. To be exempt from the Act, the USFWS requires consultation through Section 7 of the Act or a Habitat Conservation Plan per Section 10 of the Act.

Response: The decision of whether a project causes "take" is strictly between project proponents, federal agencies, and the USFWS; the Energy Commission can not make this determination. The applicant is not pursuing consultation and the presence of a federal permitting authority has not been confirmed.

USFWS 3: The USFWS cannot approve projects that do not have coverage for incidental "take" of listed species. The USFWS will only review the applicant's proposal to mitigate "take" with habitat and air pollution credits (i.e., emission reduction credits or ERCs) purchases under a consultation. USFWS further believes that "a temporary net increase of ambient air pollution will still result from this project."

Response: Staff agrees with the USFWS that there is a potential net increase in nitrogen deposition in conjunction with other existing sources. Staff has requested habitat and air pollution credits (i.e. ERCs) purchases as mitigation to compensate for that significant cumulative impact. The applicant decision to consult for coverage under the Act is voluntary and the presence of a federal permitting authority has not been confirmed.

USFWS 4: The USFWS' understanding is that the Environmental Protection Agency (EPA) would consult on the effects to listed species during (an anticipated but yet-to-be proposed) Phase II of the LECEF project; a conversion to a combined cycle power plant. The USFWS states that consultation at this phase "…has the effect of foreclosing the formulation or implementation of reasonable and prudent alternatives which would avoid violation of Section 7(a)(2) of the Act." As a result, USFWS suggests that the Energy Commission require the applicant to obtain permits from the Bay Area Air Quality Management District (BAAQMD) for both phases of the project so that "EPA can consult with the [USFWS] on the entire project". The USFWS further states their understanding that the "…BAAQMD will issue air quality credits that will mitigate the impacts to air quality. If a permit cannot be issued, [the USFWS] request[s] that Calpine be required to have EPA consult on the issuance of air quality credits for this project."

Response: The applicant has not given the Energy Commission information on the combined cycle power plant project, and the project being permitted has no EPA involvement. If a federal agency consults on a future project related to this same applicant, the development of alternatives based on types of technology or time of operation is possible. The issuance of air pollution credits (i.e., ERCs) for the simple-cycle plant does not require approval by the EPA since only the BAAQMD has this authority (see Air Resources section of this document). The Energy Commission cannot require an applicant to take actions on a power plant project that is not under our review. Thus, staff has not required the applicant to obtain a permit for "take" on the future combined cycle power plant as requested.

USFWS 5: The USFWS requests that a revised data response should be submitted which "…list[s] all critical habitat units on Coyote Ridge, as well as any other units which will be affected by the LECEF, and all population sites of Santa Clara County's listed serpentine plants which may be affected by this project."

Response: The applicant submitted a table showing all Critical Habitat Units in their December 11, 2001 Data Response (Calpine c*Power 2001e). This information was forwarded to the USFWS. Information on Santa Clara County's listed serpentine plants is requested in the Conclusions and Recommendations section.

CITY OF SAN JOSE

The City of San Jose (City) provided clarifications, comments, and questions regarding several areas of the LECEF project based upon the AFC, and referenced to the Final Environmental Impact Report for the U.S. DataPort project (FEIR). The letter to staff was dated November 2, 2001, and covered many areas of the project. In addition to the written letter, City staff attended the Informational Hearing, and the Data Request and Issues Workshop held November 5 and 6, 2001. The City input is enumerated by referenced section.

Biotics

(BIO) City 6: The City would like the AFC to include an expanded discussion (within the environmental setting section) of the ruderal and agricultural habitat as it provides foraging and nesting habitat for the burrowing owl.

Response: Staff cannot comment on the AFC on behalf of the applicant.

(BIO) City 7: The staff assessment should include the information that the Northern Harrier, a Special Status species, nests and forages in the vicinity.

Response: Staff discussed this information in Biological Resources Table 1 and in the Local Setting of this document.

(BIO) City 8: The staff assessment should include a discussion regarding the possible "take" of burrowing owl and northern harrier and, reductions in habitat. The discussion should include a discussion of possible impacts from LECEF and mitigation where appropriate.

Response: Staff discussed these species in Item A of the Analysis and Impacts section and Cumulative Impacts section. Mitigation is proposed in the Mitigation section of this document and in the Proposed Biological Resources Condition of Certification BIO-11.

(BIO) City 9: A further analysis, including specific alignment routes and proposed grading plans, regarding any new trenching to support stormwater runoff improvements and possible biotic impacts (AFC page 8.2-13) is needed in the AFC.

Response: In response to staff's October 10 and 12, 2001 Data Requests, additional information on a permanent outfall design was provided (Data Response #17). A grading plan has been submitted in response to Data Request #96.

(BIO) City 10: Further documentation is needed in the AFC to demonstrate the conclusions regarding the amount of nitrogen deposition on Coyote Ridge (AFC page 8.2-13).

Response: In response to staff's October 10 and 12, 2001 Data Requests #147 to 154, additional information on nitrogen deposition has been provided. This information is found under Item A of the Analysis and Impacts section and Cumulative Impacts section of this document.

(BIO) City 11: The City wants text in the AFC to discuss the avoidance of the City's 100 foot Riparian Setback area as defined in the City's Riparian Corridor Policy.

Response: Staff cannot comment on the AFC on behalf of the applicant.

(BIO) City 12: "Any ordinance-sized trees removed by the project, as defined by the City of San Jose Ordinance, shall require replacement with 24 [inch] box specimens at a 4:1 ratio." Reference to AFC page 8.2-17 is made.

Response: Staff informed the applicant during the Data Request Workshop (November 6, 2001) that the City requires ordinance-sized trees be replaced at a 4:1 ratio (mitigation:impact), not a 3:1 ratio. The applicant provided the correct 4:1 ratio in an updated response to of Data Request #12 (Calpine c*Power 2001c).

(BIO) City 13: The biology assessment "should evaluate possible potential impacts to nesting raptors or any special status bat species due to the removal of trees or demolition of existing structures". Appropriate mitigation should be included for any possible significant impacts.

Response: Staff discussed this information in Item A of the Analysis and Impacts section and Proposed Conditions of Certification section of this document.

(BIO) City 14: The biology assessment to should evaluate the potential for increased bird collisions with the proposed 90-foot tall exhaust stacks.

Response: Staff discussed this information in Item A of the Analysis and Impacts section of this document.

(BIO) City 15: The biology assessment should evaluate any impacts to the proposed Coyote Creek Riparian Corridor from the LECEF lighting plan.

Response: Staff discussed this information in Items A and B of the Analysis and Impacts section, in the Cumulative Impacts section, and in the Compliance with LORS section of this document.

CONCLUSIONS AND RECOMMENDATIONS

The Applicant has successfully reduced construction-related impacts to biological resources to a very low level of likelihood by siting the proposed simple-cycle plant on a previously disturbed site and in a location where linears would be short. However, indirect impacts to sensitive species on the contiguous parcels are likely. In particular, both CDFG and the City of San Jose have expressed that impacts to burrowing owls should be reviewed and mitigated in this Staff Assessment. The City of San Jose in the U.S. DataPort EIR, which is a closely related project, determined the loss of burrowing owl habitat cannot be mitigated to less than significant levels because of the lack of lands available for purchase. To date, multiple surveys (June 14, 20, and 27, 2000 and October 12, 2001) have not found burrowing owls on site, along linears, or on the 55-acre parcel, and the likelihood of a direct impact to this species is unlikely. Staff

recognizes that burrowing owls could move onto the site at any time, but pre-construction surveys and avoidance should be adequate to mitigate all potential direct or indirect impacts. Staff agrees with previous analyses, and concludes LECEF is contributing to a cumulatively significant impact to a population of burrowing owls, but the impact to this species on a statewide basis can be mitigated by Biological Resources condition of certification **BIO-11**.

Direct or indirect impacts to serpentine endemics is difficult to detect because of LECEF's low emission levels and the distances between the power plant and the nearest serpentine soils area. Research has shown that nitrogen deposition at ambient levels is an impact to bay checkerspot butterfly, and management of these lands is needed to protect this species (Weiss 1999). In light of the need to protect and manage lands for this species, and the potentially significant cumulative impact the project in combination with others could have on the butterfly through nitrogen deposition, staff has recommended that the applicant purchase lands as habitat compensation (Biological Resources condition of certification **BIO-16**). The establishment of a preserve with a management plan is the best way to ensure that land is permanently preserved for the butterfly in the future and to ensure the proper grazing to benefit the host plant of the butterfly is being implemented. Implementation of such a measure would reduce impacts to bay checkerspot butterfly to less than significant levels.

Construction of a permanent outfall on the interior side of the Coyote Creek levee has the potential to disturb avian species and degrade water quality. This portion of Coyote Creek supports many state and federally protected species. Measures have been proposed by staff to reduce these impacts to less than significant levels (see Biological Resources conditions of certification **BIO-10** and **BIO-15** and Soils and Water Resources section). Staff has requested information on wetlands in the construction area and will present our analysis in an addendum to this Staff Analysis.

The USFWS has taken a position that consultation is necessary for the “take” of bay checkerspot butterfly and other serpentine endemics under the Endangered Species Act as amended (Act). The applicant has taken the position that the impacts are immeasurable and they do not intend to enter consultation. No federal permit authority has been confirmed for the project, so the decision to consult is voluntary. Operation of the simple-cycle power plant could result in the USFWS filing and action in court that the applicant is in violation of the Act. Such a filing would be based on the emission calculations presented in the applicant's November 20 and December 11, 2001 Data Responses. The USFWS has only recently begun review of the December 11, 2001 Data Response and staff is uncertain if they will change their current position based on the new data.

Overall, impacts in biological resources have been reduced to less than significant levels. The items which remain outstanding could result in adverse impacts, but staff is confident these can be adequately mitigated to less than significant levels. The items needed prior to the biology staff issuing a final conclusion include:

- A complete description of biological resources along the temporary line from the onsite substation to Zanker Road and any pull and laydown sites;

- A more complete description of wetland and biological resources on the interior side of the levee wall at Coyote Creek;and,
- Information on all population sites of Santa Clara County's listed serpentine plants which may be affected by this project.

PROPOSED CONDITIONS OF CERTIFICATION

Staff recommends the applicant be held to the following 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 shall not begin until an Energy Commission CPM approved Designated Biologist is available to be on-site.

Protocol: The Designated Biologist must meet the following minimum qualifications:

1. 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 is on-site.

Verification: At least 30 days prior to the start of any site and related facilities mobilization activities, the project owner shall submit to the CPM for approval the name, qualifications, address, and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement as specified in the Condition must be submitted in writing at least ten (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:

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.

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 project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

DESIGNATED BIOLOGIST AUTHORITY

BIO-3 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist to ensure conformance with the Biological Resources Conditions of Certification.

Protocol: The project owner's Construction/Operation Manager shall halt, if necessary, all construction or operation activities in areas specifically identified by the Designated Biologist as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist shall:

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 two working days of a Designated Biologist 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, are informed about sensitive biological resources associated with the project.

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 is made available to all participants;

2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

3. Present the reasons for protecting these resources;

4. Present the meaning of various temporary and permanent habitat protection measures; and

5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

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

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 60 days prior to the start of any site and related facilities mobilization, the project owner shall provide two copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the 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. 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 of the interior side of the levee the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement. 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 necessary.

Verification: No less than 30 days prior to the start of any site or related facilities mobilization activities of 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 necessary. 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 subsequent to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;

9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

11. All performance standards and remedial measures to be implemented if performance standards are not met;

12. A discussion of biological resources related facility closure measures; and

13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: At least thirty (30) days prior to start of any site or related facility mobilization activities, the project owner shall provide the CPM with two (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 forty-five (45) days of receipt. The project owner shall notify the CPM no less than five (5) working days before implementing any modifications to the BRMIMP to obtain CPM approval.

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, 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 unless the mitigation measures conflict with mitigation required by the USFWS Biological Opinion.

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 applicable);

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. Fence will be hardware cloth or similar materials that are approved by the USFWS and CDFG;

9. Inspect trenches each morning for entrapped animals prior to the beginning of construction. Construction will be allowed to begin only after trapped animals are able to escape voluntarily;

10. Inspect all construction pipes, culverts, or similar structures with a diameter of 4-inches or greater for sensitive species (such as foxes) prior to pipe burial. Pipes to be left in trenches overnight will be capped;

11. Provide a post-construction compliance report, within forty-five (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. Avoid the use of pesticides or herbicides in project areas; and

15. Implement erosion control in the temporary impact areas, especially near wetlands and waterways.

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 55-acre parcel and along all ancillary linears 30 days 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 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 ancillary linears, 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). 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: At least ninety (90) days prior to the start of any site and related facilities mobilization, the project owner shall provide the CPM with the final version of the BRMIMP, and the CPM will determine if the plan includes this measure. All modifications to the approved BRMIMP must be made only after consultation with Energy Commission staff, the USFWS, and CDFG. The project owner shall notify the CPM five working days before implementing any modifications to the BRMIMP. At 30 days prior to the expected start of any project-related ground disturbance activities, 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.

REPLACEMENT OF ORDINANCE AND NATIVE MATURE TREES

BIO-12 Prior to the start of any site mobilization, 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 90 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 MatureTree 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 ordinance trees from the site. The number of trees removed will be minimized and construction equipment and linears in the dripline 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 the start of any site and related facilities mobilization. A copy of the permit(s) should be included as an appendix to the BRMIMP.

Revegetation of Temporary Disturbance

BIO-14 Prior to use of the 20-acre laydown area, topsoil will be salvaged from the site and stockpiled at one end of the site. 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 submitted at least (90 days prior to 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 and USFWS.

Verification: Within one month of project certification, 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.

Protocol: The Landscaping Plan must include measures which:

1. limit the amounts of pesticide and herbicide used and limit the selection of products to those specifically labeled for use adjacent to waterways;

2. direct landscaping lights away from the riparian area;

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;

4. select a drought tolerant mix of native species;

5. avoid or limit irrigation;

6. avoid landscaping species/design(s) which would require initial and/or future maintenance equipment that contribute to noise and/or air pollution; and

7. avoid the use of non-native ground cover (e.g., bark, rocks, soils).

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.

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CULTURAL RESOURCES

Testimony of Robin Palmer and Gary Reinoehl

INTRODUCTION

In the Cultural Resources section, staff discusses potential impacts of the proposed Los Esteros Critical Energy Facility (LECEF) in San Jose to prehistoric, historic, and ethnographic cultural resources. Significant historic resources are defined in PRC section 5020.1 as, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." This assessment provides a brief historic overview of the proposed USDP and LECEF project areas, an analysis of selected California Environmental Quality Act (CEQA) checklist items used to assess potential impacts, a discussion of potential impacts, and a list of proposed conditions of certification. The primary goal is to ensure that all potential project-related impacts have been identified and that conditions have been set forth that will reduce any potential impacts to significant cultural resources to a less than significant level.

In light of the recent USDP EIR evaluation, and the applicant's request that this analysis be tiered with the findings of that EIR, this analysis is based on technical data previously acquired and analyzed. To better analyze the potential impacts to cultural resources, staff has reviewed a supplemental survey of the LECEF project site conducted by James Bard on June 22, 2001, and existing Historic and Architectural reports were given additional Peer review by Cal Trans.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431 et seq.) and subsequent related legislation, policies, and enacting responsibilities, e.g., federal agency regulations and guidelines for implementation of the Antiquities Act. The following laws, ordinances, regulations, standards, and policies apply to the protection of cultural resources in California. Projects licensed by the Energy Commission are reviewed to ensure compliance with these laws.

FEDERAL

- National Environmental Policy Act (NEPA): Title 42, United States code, section 4321-et seq., requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.
- Federal Register 44739-44738, 190 (September 30, 1983): Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards

and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.

- National Historic Preservation Act, 16 USC 470, commonly referred to as Section 106, 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. Regulations revised in 1997 (36 CFR Part 800 et. seq.) set forth procedures to be followed for determining eligibility for nomination, the nomination, and the listing of cultural resources in the National Register of Historic Places (NRHP). The eligibility criteria and the process are used by federal, state, and local agencies in the evaluation of the significance of cultural resources. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the State Register of Historic Resources. Recent revisions to Section 106 in 1999 emphasized the importance of Native American consultation.
- Executive Order 11593, "Protection of the Cultural Environment," May 13, 1971 (36 Federal Register 8921) orders the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.
- American Indian Religious Freedom Act; Title 42, United States Code, Section 1996 protects Native American religious practices, ethnic heritage sites, and land uses.
- Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code Section 3001, et seq. Defines "cultural items", "sacred objects", and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

STATE

- Public Resources Code, Section 5000 establishes a California Register of Historic Places; determines significance of and defines eligible properties; makes any unauthorized removal or destruction of historic resources on sites located on public land a misdemeanor; prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn; defines procedures for the notification of discovery of Native American artifacts or remains, and; states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. The code also discusses the procedures to follow in the event that human remains are discovered.
- Public Resources Code, Section 5097. Public Resources code, Section 21000, et seq, California Environmental Quality Act (CEQA) This act requires the analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.
- Public Resources Code, Section 21083.2 states that if a project may affect a resource that has not met the definition of an historical resource set forth in section

21084.1, then the lead agency may determine whether a project may have a significant effect on ”unique” archaeological resources. If a potential for damage to unique archaeological resources can be demonstrated, reasonable effort must be made to leave them undisturbed, or other mitigation measures shall be required. The law also discusses excavation as mitigation; limits the costs of mitigation for several types of projects; sets time frames for excavation; defines “unique and non-unique archaeological resources; provides for mitigation of unexpected resources; and sets financial limitations for this section.

- Public Resources Code, Section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a “historic resource” and describes what constitutes a “significant” historic resource.
- CEQA guidelines, Title 14, California Code of Regulations, Section 15126.4 “Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects” sub-section (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource. Subsection (b) also discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.
- CEQA Guidelines, Title 14, California Code of Regulation, Section 15064.5 “Determining the Significance of Impacts to Archaeological and Historical Resources”. Subsection (a) defines the term “historical resources.” Subsection (b) explains when a project may be deemed to have a significant effect on historic resources and defines terms used in describing those situations. Subsection (c) describes CEQAs’ applicability to archaeological sites and provides a bridge between the application of the terms "historic” resources and a “unique” archaeological resource.”
- CEQA Guidelines, Title 14 California Code of Regulations, Section 15064.7 “Thresholds of Significance.” This section encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term “cumulatively significant.”
- CEQA Guidelines, Appendix “G” Issue V: Cultural Resources. Lists four questions to be answered in determining the potential for a project to impact archaeological, historic, and paleontologic resources.
- California Penal Code, Section 622.5. Anyone who willfully damages an object or thing of archaeological or historic interest can be found guilty of a misdemeanor.
- California Health and Safety Code, Section 7050.5. If human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

City of San Jose

The General Plan of the City of San Jose 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 (SJ 1999b, pp. 83-85).

SETTING

The USDP/LECEF project footprint, including all linears, construction laydown areas, and access routes, is located within the Alviso area of the City of San Jose, California. The site is surrounded by Coyote Creek to the east, SR 237 to the south, and a Water Pollution Control Plant and buffer lands to the west and north.

In pre-historic times, the area 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. For this reason, the potential to discover buried archaeological deposits throughout the adjacent floodplain of Coyote Creek is very high (CH2M Hill, 2001:8.3-3).

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. The Costanoan aboriginal lifeway apparently disappeared by 1810 due to its disruption by new diseases, a declining birth rate, and the impact of the mission system, during which the Costanoan were transformed from a hunter-gatherer society into agricultural laborers, until mission secularization (Bard and Sharpe, 2001:10-12).

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 (www.cachis.com/alviso/historicalnotes.html, 11/16/01). Greatly influenced by the boom of the California Gold Rush (1848), and the completion of the transcontinental railroad (1869) Alviso was, at its peak, the major commercial shipping depot in Northern California (Bard and Sharpe, 2001:13).

In 1876 an early farmer-settler named William Boots owned over 650 acres in the area, including the easternmost portion of the proposed USDP/LECEF 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 (CH2M Hill, 2001:8.3-8). Buried historical remains such as privies, trash dumps, and wells associated with this structure could potentially exist on site.

Currently, the site is comprised of the remnants of a large Chinese flower-growing complex built in the 1970's, and the Cilker Orchards, which is now barren with only a warehouse complex and the Cilker residence remaining. In total there are three residences located within the USDP project site. They include the Cilker residence at 1657 Alviso-Milpitas Road built in 1923, 1591 Alviso-Milpitas Road, built in the 1940's which is located in the Cilker Orchard warehouse complex, and 1515A Alviso-Milpitas

Road built in the 1940's which is located in the southwestern corner of the project site. The residence at 1515A has been recently demolished along with structures left over from the flower-growing complex.

ANALYSIS AND IMPACTS

Due to dual nature of this analysis, the Impacts section consists of two parts; The U.S. Dataport, which is inclusive of the LECEF project area, and the LECEF project area as it stands alone. This has been done to reflect the independent analysis given to the LECEF as an independent project.

CULTURAL RESOURCES
U.S. DATAPORT PROJECT AREA

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

A. Cause adverse change in the significance of historical resources

1. Three residences within the USDP project site were constructed prior to 50 years ago. 1657 Alviso-Milpitas Road built in 1923; 1515A and 1591 Alviso-Milpitas Road built in the 1940's. These residences were evaluated by Randall Dean in May 2000 and were found to be "non-significant". Peer review of this analysis conducted by Cal Trans, November, 2001 confirmed those results. Based on historic and architectural evaluations on file with the City of San Jose, Department of Planning, Building and Code Enforcement, these residences are not eligible for listing in the California Register of Historic Resources (CRHR), or the National Register of Historic Places (NRHP). In addition, they have been found to be "non-significant" under the City's criteria for inclusion in the San Jose Historic Resources Inventory. It is therefore anticipated that there will be no project-related impacts to these resources.

2. The field survey of the USDP project site by Holman and Associates as reported by Wiberg (2000) resulted in non-significant findings. No significant historic

archaeological remains were detected from surface examination of exposed soils. No historically or architecturally significant buildings or structures are present (Calpine c*Power, CH2M Hill, 2001: 8.3-14).

3. Discrete filled-in features such as privies, wells, and trash pits could exist that might contain household refuse associated with use of the property by the Boots family or subsequent residents (Calpine c*Power, CH2M Hill, 2001: 8.3-14). Implementation of the proposed mitigation measures and Conditions of Certification **Cul-1** through **Cul-11** would reduce potential impacts to those resources to less than significant.

4. In the event of an unanticipated discovery of any archaeological remains, implementation of the proposed mitigation measures and Conditions of Certification **Cul-1** through **Cul-11** would reduce potential impacts to those resources to less than significant.

B. Cause adverse change in the significance of archaeological resources

1. A literature search performed for the USDP EIR revealed that no archaeological resources were recorded within the USDP Project area (Wiberg, 2000:2).

2. Several prehistoric archaeological sites have been recorded in the vicinity of the USDP Project area, including CA-SCL-528 located immediately adjacent to the project site. CA-SCL-528, is recorded as containing a Native American burial. Implementation of the proposed mitigation measures and Conditions of Certification **Cul-1** through **Cul-11** would reduce potential impacts to those resources to less than significant.

3. No significant prehistoric archaeological deposits were identified during on-foot reconnaissance of the proposed USDP Project area. Despite the negative findings for significant prehistoric cultural resources, the results of the archive review show that the Coyote Creek corridor is particularly sensitive for the presence of buried prehistoric archaeological remains, therefore additional research on the USDP Project area is recommended (Wiberg, 2000:8-9). Implementation of the proposed mitigation measures and Conditions of Certification **Cul-1** through **Cul-11** would reduce potential impacts to those resources to less than significant.

4. In the event of an unanticipated discovery of any archaeological remains, implementation of Conditions of Certification **Cul-1** through **Cul-11** would reduce potential impacts to those resources to less than significant.

C. Disturb human remains

1, Research of the LECEF Project site and its vicinity has indicated that human remains have been recorded in areas adjacent to the proposed project site, and that the potential to discover previously unrecorded archaeological remains is high. In the event of an unanticipated discovery of human remains, State law will apply and implementation of the proposed mitigation measures and Conditions of

Certification **Cul-1** through **Cul-11** will reduce potential impacts to less than significant.

CULTURAL RESOURCES
LOS ESTEROS CRITICAL ENERGY FACILITY PROJECT AREA (LECEF)

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

A. Cause adverse change in the significance of historical resources

1. Portions of the LECEF Project footprint were not surveyed by Holman and Associates for the USDP EIR. These uninspected areas were subsequently surveyed by CH2M Hill on June 22, 2001, using the same field methodology used by Wiberg (2000) (Bard and Sharpe, 2001:17). The CH2M Hill field survey resulted in non-significant findings. No historically or architecturally significant buildings were found to be present other than those addressed in the US Dataport Project Area impacts section of this report.

2. In the event of an unanticipated discovery of any archaeological remains, implementation of the proposed mitigation measures and conditions of certification **Cul-1** through **Cul-11** will reduce potential impacts to those resources to less than significant.

B. Cause adverse change in the significance of archaeological resources

1. The June 22, 2001supplemental survey of the LECEF conducted by CH2M Hill resulted in non-significant archaeological findings. No significant prehistoric cultural resources are present other than those addressed in the US Dataport Project Area impacts section of this report.

2. In the event of an unanticipated discovery any archaeological remains, implementation of the proposed mitigation measures and conditions of certification **Cul-1** through **Cul-11** will reduce potential impacts to those resources to less than significant.

C. Disturb Human Remains

1. Research of the LECEF Project site and its vicinity has indicated that human remains have been recorded in areas adjacent to the proposed project site, and that the potential to discover previously unrecorded archaeological remains is high. In the event of the unanticipated discovery of human remains, State law will apply and implementation of the proposed mitigation measures and conditions of certification **Cul-1** through **Cul-11** will reduce potential impacts to less than significant.

CUMULATIVE IMPACTS

The USDP/LECEF project site is located in an area that has been established in the above review as being highly sensitive for buried prehistoric and historic archaeological remains. Due to the rapid encroachment of commercial and residential development occurring in the San Jose area resulting in the loss of open space and research potential, there is a strong possibility that this site will yield archaeological information important to San Jose history. With the proper implementation of the proposed mitigation measures, and conditions of certification **Cul-1** through **Cul-11**, any cumulative impacts to known and previously unknown archaeological resources and the loss of knowledge that comes with the destruction of those resources, will be reduced to less than significant.

MITIGATION

The US Dataport Draft EIR (2000) required the implementation of proposed mitigation measures to avoid or reduce impact to cultural resources. These measures must be implemented prior to any ground disturbance associated with the LECEF project takes place:

1. Prior to any ground disturbance, a subsurface mechanical testing program for archaeological materials will be conducted over the entire site. Subsurface testing will look for buried or obscured prehistoric deposits. Backhoe trenches will be excavated systematically at 30-meter intervals, and samples of excavated soils will be regularly screened. Soil logs and/or stratigraphic profiles for each trench will be maintained.

2. 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.

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.

CONCLUSIONS

Based on the above review of the proposed USDP/LECEF project site, it is the conclusion of CEC Staff that any potential impacts associated with this project to known and previously unknown historic or cultural resources will be reduced to less than significant with the implementation of proposed mitigation measures and conditions of certification **Cul-1** through **Cul-11**. Should any historic or cultural resources be identified during construction, implementation of the proposed mitigation measures and conditions of certification **Cul-1** through **Cul-11** will reduce impacts to those resources to less than significant.

PROPOSED 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 one alternate CRS, if an alternate is proposed, who will be responsible for implementation of all cultural resources conditions of certification.

Protocol: 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.

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.

The background of the CRS shall include at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California;

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.

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.

3. Prior to implementation of additional phases of the project, current maps and drawings shall be submitted to the CPM.

4. At a minimum, the CRS shall consult weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed. 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 written approval a Cultural Resources Monitoring and Mitigation Plan (CRMMP) identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

The CRMMP shall be submitted to the CPM for review, and must approve the plan in writing, 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.

Protocol: 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.

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 (2000).

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 30 days prior to the start of project construction related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall provide the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist, to the CPM for review and written approval.

CUL-4 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 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.

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, of any incidents of non-compliance with any cultural resources conditions of certification within 24hrs. 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 a Native American archeological site is 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 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 a Native American archeological site is 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 specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; 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 Prior to the start of project construction related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall implement the archeological testing program. If resources are found, the applicant will notify the CPM in accordance with **CUL-6**. A complete DPR 523 form will be prepared. All testing and data recovery will be completed prior to the start of construction related ground disturbance.

Verification: Seven days prior to implementing the testing program, the project owner shall provide the CPM with letter indicating the schedule of the proposed testing, including maps showing were test trenches will be placed.

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 all 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.

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 (ARMR) 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 regarding 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 SHPO 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 surveys 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.

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HAZARDOUS MATERIALS

Testimony of Alvin Greenberg, Ph.D. and Rick Tyler

INTRODUCTION

The hazardous materials sections of this Staff Assessment provide a discussion of staff's evaluation of the potential for impacts of the proposed Los Esteros Critical Energy Facility (LECEF) associated with the handling of hazardous materials issues. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts during project construction, operation and closure. Energy Commission staff has determined that all CEQA checklist items for hazardous materials are either "less than significant impact" or "no impact". A brief overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to these subject items. The section concludes with the staff's proposed monitoring, mitigation measures, and conditions of certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

A framework, based on environmental laws, ordinances, regulations and standards (LORS), exists to reduce risks of accidents and reduce routine hazards. The following federal, state, and local laws generally apply to the protection of public health and **Hazardous Materials Management**. Their provisions have established the basis for staff's determination regarding the significance and acceptability of the Los Esteros Critical Energy Facility project.

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.

The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. The pipeline classes are defined as follows (Title 49, Code of Federal Regulations, Part 192):

- Class 1: Pipelines in locations with ten or fewer buildings intended for human occupancy.

- Class 2: Pipelines in locations with more than ten but fewer than 46 buildings intended for human occupancy. This class also includes drainage ditches of public roads and railroad crossings.
- Class 3: Pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (The days and weeks need not be consecutive).

The natural gas pipeline will be designed for Class 3 service and will meet California Public Utilities Commission General Order 112-D & E and 58-A standards as well as various PG&E standards. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192:

- Title 49, Code of Federal Regulations, Part 190 outlines the pipeline safety program procedures;
- Title 49, Code of Federal Regulations, Part 191, Transportation of Natural and Other Gas by Pipeline; Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days;
- Title 49, Code of Federal Regulations, Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. This part contains regulations governing pipeline construction, which must be, followed for Class 2 and Class 3 pipelines.

STATE

The California Accidental Release Prevention Program (Cal-ARP) - 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 new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

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 Santa Clara County. 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 insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Title 8, California Code of Regulations, section 458 and sections 500 – 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 California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit. A further discussion of these requirements is provided in the **Facility Design** portion of this document.

The City of San Jose has the responsibility for administering hazardous materials requirements and ensuring compliance with federal and state laws. The site is currently being annexed into San Jose. In addition, the county has requirements over all cities in some areas. Therefore, the laws and enforcement procedures of both entities are applicable.

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was adapted in 1997 (UFC, 1997). These articles contain minimum setback requirements for the outdoor storage of ammonia. The administering agency is the Central Fire Department Santa Clara County and the City of San Jose Fire Department.

SETTING

Calpine c*Power proposes to design, construct, and operate an electrical energy generating station within a portion of the City of San Jose, Santa Clara County, California. This facility is designated as the Los Esteros Critical Energy Facility (LECEF). It is proposed as mitigation for a Planned Development Zoning (PDZ) Project approved for U.S. DataPort by the City Council of San Jose. As proposed, the LECEF will be constructed in three phases, comprised initially of four, natural-gas-fired, simple

cycle combustion turbines to produce a nominal 180 megawatt (MW) generation output. The subsequent phases still under evaluation are proposed to add steam-generating capabilities that will increase the project's nominal output to 260 MW, as well as modifications to enhance reliability and availability.

The proposed project site for the LECEF is a 55+/- acre property owned by c*Power and located near the northwest corner of the intersection of Highway 237 and Coyote Creek at 1515 Alviso-Milpitas Road. The site is in an agricultural, residential, and commercial area bounded by properties maintaining those uses as well as vacant land. It was recently annexed by the City of San Jose from Santa Clara County with a Light Industrial zoning; a designation that will be modified in the PDZ process. The San Jose-Santa Clara Water Pollution Control Plant (WPCP) is situated to the northwest of the proposed site. WPCP buffer land exists to the west, and the facility's sludge drying ponds exist to the north of the proposed project site. Please refer to the **Project Description** section for more detail.

ANALYSIS OF IMPACTS

HAZARDOUS MATERIALS

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport or use of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X

DISCUSSION OF IMPACTS

The basis for designations provided in the checklist are discussed below.

A. Hazard to the public through transport or use of Hazardous Materials

A variety of hazardous materials are proposed for storage and use during the construction of the project and for routine plant operation and maintenance. All hazardous materials to be used during operation of the facility are included in the AFC in Tables 8.12-2. Most of these hazardous materials are stored in smaller quantities, such as corrosion inhibitors and water conditioners, will be present at the proposed facility. However, these materials pose no significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, and/or their environmental mobility. Large quantities of aqueous ammonia (19 percent solution), sulfuric acid, sodium hypochlorite, lubricating and mineral oils will be stored on-site. Of these, only aqueous ammonia has sufficient vapor pressure to potentially cause off-site impacts. Although no natural gas is stored, the project will also involve the construction and operation of a natural gas pipeline and handling of large amounts of natural gas. The hazard characteristics of ammonia and natural gas and their proposed use during the operation of the plant pose the principle risk of off-site impacts. The potential threats from the other hazardous materials are not significant. In order to ensure the lack of potential for an off-site impact from these other hazardous materials, the applicant will be restricted to the use, strength, and quantity of the hazardous materials identified in the AFC (see condition of certification **HAZ-1**).

Additionally, the accidental mixing of sodium hypochlorite with acids or aqueous ammonia could result in toxic gases. Given the large volumes of both aqueous ammonia (10,000 gallons) and sodium hypochlorite (8,000 gallons) proposed for storage at this facility, the chances for accidental mixing of the two – particularly during transfer from delivery vehicles to storage tanks –should be reduced as much as possible. Thus, measures to prevent such mixing are extremely important and will be required as an additional section within a Safety Management Plan for delivery of aqueous ammonia (see condition of certification **HAZ-3**). Approximately 6,000 gallons of 93 percent sulfuric acid will be used and stored on-site. This material does not pose a risk of off-site impacts, because it has relatively low vapor pressures and thus spills would be confined to the site. Because of public concern at another proposed energy facility in 1995, staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation. Staff found no hazard would be posed to the public. However, in order to protect against risk of fire, an additional condition of certification (see **HAZ-5**) will require the project owner to ensure that no combustible or flammable material is stored, used, or transported within 100 feet of the sulfuric acid tank.

Aqueous Ammonia

Selective Catalytic Reduction (SCR) is proposed to reduce nitrogen oxide (NO_x) emissions to meet the plant's air quality permit requirements. Aqueous ammonia reacts with a catalyst to convert the NO_x into inert water vapor and nitrogen in the SCR process. The aqueous ammonia proposed for use is a solution 19 percent ammonia

and 81 percent water. Use of aqueous ammonia significantly reduces the risks that would otherwise be associated with use of the more hazardous anhydrous form of ammonia. The aqueous form eliminates the high internal energy associated with the more lethal anhydrous form, which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release that can rapidly introduce large quantities of the material to the ambient air where it can be transported in the atmosphere and result in high down-wind concentrations. Spills associated with the aqueous form are also much easier to contain than those associated with the anhydrous form. In addition, relatively slow mass transfer from the free surface of the spilled aqueous solution limits emissions from a spill of aqueous ammonia. Indeed, evaporation of ammonia from a 19 percent solution is so slow and thus presents a very small risk to off-site receptors that aqueous solutions of ammonia concentrations less than 20 percent are exempt from the US EPA RMP regulation and the Cal-ARP regulation (under certain specified conditions). Thus, an RMP may not be required by LORS. Nevertheless, the Applicant did conduct an Off-site Consequence Analysis (AFC section 8.12.3) and found no significant risk would be posed to the public due to a worst-case catastrophic release of 16,000 gallons of 24 percent aqueous ammonia. Because the facility will store no more than 10,000 gallons of a 19 percent solution, staff concurs with the applicant's analysis and conclusions.

Aqueous ammonia is typically transported and handled safely and without incident. However mishandling can result in impacts on public health, particularly during transfer from a delivery vehicle to a storage tank. It is during this transfer operation that the greatest risk of an accidental spill and release could occur. An RMP for the proposed aqueous ammonia storage tank and delivery vehicle transfer pad will be prepared (if required by the Cal-ARP regulations) and submitted to the US EPA and the Energy Commission CPM for review and approval and to the San Jose Fire Department for review and comment. A Hazardous Materials Business Plan will be prepared and submitted to the Energy Commission CPM and the City of San Jose Fire Department (see proposed condition of certification **Haz-2**). The results of the off-site consequence analysis (AFC section 8.12.3) showed no significant impacts off-site. A significant number of modern power plants routinely use aqueous ammonia and the California Energy Commission has licensed many such plants. Much of the risks associated with ammonia use are already reduced through the Los Esteros Critical Energy Facility's proposed use of the aqueous form of ammonia and the use of engineering controls such as enclosure of the tank within a secondary containment structure equipped with a water spray vapor control system. Project compliance with LORS and staff's proposed mitigation make it unlikely that the use aqueous ammonia will result in significant threat to public health and the environment.

The transportation of hazardous materials including aqueous ammonia particularly on California freeways, is routinely regulated and controlled by various federal and state laws, ordinances, regulations, and standards as discussed in the section titled **Traffic and Transportation**. There are a number of transportation accident studies that support the fact that such incidents and corresponding chances are highly dependent on the type of roadway and surroundings. It has been reported that the truck accident frequency is highest for an undivided multilane road at 5.44 accidents per million miles compared to 0.93 accidents per million miles for a freeway in rural California (Davies et al. 1992). Similarly, the accident rate in urban California is highest for a multilane that is

undivided at 13.02 accidents per million miles vis-a-vis 1.59 accidents per million miles on a freeway. A recent study went even further by concluding that releases of hazardous materials on freeways rarely play a role in deaths or injuries (FMCSA, 2000). It is therefore reasonable to say that the likelihood of an accident involving a release of ammonia is probably higher on the local roads than on the freeways. This is supported by a report that observed that accident rates are typically much higher for two-lane rural roads compared to multi-lane highways (USDOT 1998).

Staff has evaluated the proposed route to be used for shipment of hazardous materials to the facility and concludes that the risk of public impact from transportation of aqueous ammonia is not significant. The exact transportation route will not be determined until the shipper contacts the CHP and applies for a license. The **Traffic and Transportation** section suggests a route based upon analysis of patterns and LORS. The facility is located near U.S. Highway 101 (UA 101), State Route (SR) 237, and Interstate 880 (I-880). These are all multi-lane freeways, therefore, very unlikely that a serious release would occur while transporting hazardous materials. Staff has proposed conditions of certification **HAZ-6** and **HAZ-7** to address transportation of aqueous ammonia and other hazardous materials.

Staff therefore concludes that any potential adverse impacts from the transport of aqueous ammonia can be easily limited to a level of insignificance through the Applicant's conformance to applicable standards and laws, reinforced by staff's proposed mitigation.

Natural Gas

The primary fuel source for the proposed project is natural gas. Natural gas poses a fire and/or explosion risk as a result of its flammability. The risk of a fire and/or explosion from these gases can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems (NFPA 1987). These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture.

A new 10-inch pipeline 550-feet in length will be placed underground and connect to both of the existing PG&E gas transmission lines 101 and 109 located on the south side of the Lin-Hom property, adjacent to State Route 237, approximately 0.5 miles from the PG&E Milpitas Gas terminal. The pipeline will follow the western boundary on the former Lin-Hom property north to the site. The design of the natural gas pipeline is governed by laws and regulations discussed here and in section 6.0 of the AFC. These LORS require use of high quality arc welding techniques by certified welders and inspection of welds.

Many failures of older natural gas lines have been associated with poor quality gas welds. Failures in older pipelines have also resulted from corrosion. Current codes address this failure mode by requiring use of corrosion resistant coatings and cathodic

corrosion protection. Another major cause of pipeline failure is damage resulting from excavation activities near pipelines. Current codes address this mode of failure by requiring clear marking of the pipeline route. An additional mode of failure particularly relevant to the project area is damage caused by earthquake. Existing codes also address seismic hazard in design criteria (see discussion below). Evaluation of pipeline performance in recent earthquakes indicates that pipelines designed to modern codes perform well in seismic events while older lines frequently fail. Staff believes that existing regulatory requirements are sufficient to reduce the risk of accidental release from the pipeline to insignificant levels.

Failures of gas pipelines, according to data from the U.S. Department of Transportation (the National Transportation Safety Board) from the period 1984 - 1991, occur as a result of pipeline corrosion, pipeline construction or materials defects, rupture by heavy equipment excavating in the area such as bulldozers and backhoes, weather effects, and earthquakes. Given the gas line failures which occurred in the Marina District of San Francisco during the 1989 Loma Prieta earthquake, the January 1994 Northridge earthquake in Southern California, and the January 1995 gas pipeline failures in Kobe, Japan, as well as the January 19, 1995 gas explosion in San Francisco, the safety of the gas pipeline is of paramount importance. However, it must be noted that those pipelines, which failed, were older and not manufactured nor installed to modern code requirements.

The natural gas pipeline for the proposed facility will be installed by Calpine c*Power and built to PG&E specifications. The pipeline will be 10 inches in diameter. The pipeline will be tested and designed for the appropriate pressure. If loss of containment occurs as a result of pipe, valve, or other mechanical failure or external forces, significant quantities of compressed natural gas could be released rapidly. Such a release can result in a significant fire and/or explosion hazard, which could cause loss of life and/or significant property damage in the vicinity of the pipeline route. However, the probability of such an event is extremely low if the pipeline is constructed according to present standards.

According to DOT statistics, the frequency of reportable incidents is about 0.25 for all pipeline incidents per 1,000 miles per year or 2.5×10^{-4} incidents per mile per year (SERA 1993). DOT has also evaluated and categorized the major causes of pipeline failure. To summarize, the four major causes of accidental releases from natural gas pipelines are: Outside Forces-43 percent, Corrosion-18 percent, Construction/Material Defects-13 percent, and Other-26 percent.

Outside forces are the primary causes of incidents. Damage from outside forces includes damage caused by use of heavy mechanical equipment near pipelines (e.g., bulldozers and backhoes used in excavation activities), weather effects, vandalism, and earthquake-caused rupture as seen in the Marina District of San Francisco during the 1989 Loma Prieta Quake and in Kobe, Japan in January 1995. The fourth category, “Other” includes equipment component failure, compressor station failures, operator errors and sabotage. The average annual service incident frequency for natural gas transmission systems varies with age, the diameter of the pipeline, and the amount of corrosion.

Older pipelines have a significantly higher frequency of incidents. This results from the lack of corrosion protection and use of less corrosion resistant materials compared to modern pipelines, limited use of modern inspection techniques, and higher frequency of incidents involving outside forces. The increased incident rate due to outside forces is the result of the use of a larger number of smaller diameter pipelines in older systems, which are generally more easily damaged and the uncertainty regarding the locations of older pipelines.

Thus, the following safety features will be incorporated into the design and operation of the natural gas pipeline: (1) butt welds will be X-rayed and the pipeline will be tested with water prior to the introduction of natural gas into the line; (2) the pipeline will be surveyed for leakage annually (3) the pipeline will be marked to prevent rupture by heavy equipment excavating in the area; and (4) valves at the meter will be installed to isolate the line if a leak occurs. (See Conditions of Certification **HAZ-8, HAZ-9,** and **HAZ-10**)

B. Significant hazard due to accidents - Less than Significant With Mitigation Incorporated

See item **A** above.

C. Significant hazard to school - No Impact

There are no known schools within a quarter mile radius of proposed project.

CUMULATIVE IMPACTS

Although the presence of the LECEF will increase the amounts of hazardous materials in the local project area, the quantities present and mitigating measures proposed will result in no expected significant cumulative impacts. The Water Pollution Control Plant located to the northwest of the site uses 29 percent aqueous ammonia for disinfection. The City of San Jose DEIR for the US Data Port project found that under a worst case release scenario, ammonia from the treatment plant would not reach harmful concentrations beyond the treatment plant site.

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows no significant poverty populations within six miles of the project, however, there are minority populations within six miles of the project. Since staff has concluded that there will be no significant direct or cumulative hazardous materials management related impacts, there will also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No comments were received.

CONCLUSIONS

By incorporating the appropriate mitigation measures, the routine transport and use of hazardous materials at the project will not result in significant impacts to the public or the environment. By following all applicable LORS, worker safety programs and fire protection systems are adequate to maintain safety at the facility.

PROPOSED CONDITIONS OF CERTIFCATION

HAZ-1 The project owner shall not use any hazardous material in any quantity or strength not listed in AFC Table 8.12-2 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 contained at the facility.

HAZ-2 The project owner shall provide a Risk Management Plan RMP (if required by regulation) and a Hazardous Materials Business Plan HMBP (which shall include the proposed building chemical inventory as per the UFC) to the San Jose Fire Department and the CPM for review at the time the RMP plan is first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall include all recommendations of the San Jose Fire Department 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 once EPA approves the RMP.

Verification: At least thirty (30) days prior to the commencement of construction, the project owner shall provide the final plans (RMP and HMBP) listed above to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan (SMP) for delivery of ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least sixty (60) days prior to the delivery of aqueous ammonia to the ammonia storage tanks, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 150 percent of the storage volume plus the 24-hour rainfall from the 25-year storm event.

Verification: At least sixty (60) days prior to delivery of aqueous ammonia to the storage tanks, the project owner shall submit final design drawings and specifications for the ammonia storage tank, the secondary containment basin, and the secondary containment building to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no combustible or flammable material is stored, used, or transported within 100 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to receipt of sulfuric acid on-site, the Project Owner shall provide 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-6 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles, which meet or exceed the specifications of DOT Code MC-307.

Verification: At least sixty (60) days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-7 The project owner shall 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).

Verification: At least sixty (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 every 30 years and each 5 years thereafter.

Verification: At least thirty (30) days prior to the initial flow of gas in the pipeline, the project owner shall provide a detailed plan to accomplish a full and comprehensive pipeline design review to the CPM for review and approval. This 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.

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 thirty (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.

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LAND USE

Testimony of Negar Vahidi

INTRODUCTION

This land use analysis of the Los Esteros Critical Energy Facility (LECEF) focuses on two main issues: the project's consistency with local land use plans, ordinances and policies; and the project's compatibility with existing and planned land uses. In general, an electric generation project and its related facilities may be incompatible with existing and planned land uses (including recreational and agricultural uses) if it creates unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it unduly restricts existing or planned future uses.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

STATE

Farmland Mapping and Monitoring Program

The California Department of Conservation established the Farmland Mapping and Monitoring Program (FMMP) in 1982 in response to a critical need for assessing the location and quantity of agricultural lands and conversion of these lands to other uses. The resulting Important Farmland (IFL) maps and related databases comprise the only statewide land use inventory conducted on a regular basis that identifies the conversion of agricultural land to urban and other uses. Every even numbered year FMMP issues a Farmland Conversion Report (DOC, 1998).

REGIONAL

ABAG Regional Goals and Policies

Typically, associations of governments develop regional goals and policies by considering the applicable land use development plans of the jurisdictions within their region. The State and federal governments have designated the Association of Bay Area Governments (ABAG) as the official comprehensive planning agency for the Bay Area. ABAG's region includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. The ABAG Regional Plan provides a policy guide for local development, which includes goals and policies focused on natural resource protection and management. The policy guide includes specific direction for the conservation of ecological resources by encouraging comprehensive land-use planning, establishment of land trusts, purchase of conservation easements and open space, and development of environmentally friendly land uses. ABAG's policies also encourage the preservation of agricultural resources by delineating urban growth boundaries and buffer zones, and protection of agricultural production zones and the agricultural land market (ABAG, 1999).

LOCAL

Local land use laws, ordinances, regulations and standards (LORS) applicable to the proposed project include the City of San Jose General Plan, Zoning Ordinance, Alviso Master Plan, and Riparian Corridor Policy Study, and the Santa Clara County Trails Master Plan.

City of San Jose General Plan

Land use is controlled and regulated by a system of plans, policies, goals, and ordinances that are adopted by public agencies with jurisdictional authority over the area. The general plan is a broad planning document that defines comprehensive community planning patterns over a relatively long timeframe, which the State requires cities and counties to produce.

The San Jose General Plan (General Plan) includes specific policies to preserve and enhance existing development and to provide for orderly and appropriate new development in the City of San Jose (City) through the year 2020. Actions and approvals required by the City Planning, Building and Code Enforcement Department must be consistent with the General Plan. The General Plan covers the following elements of planning: City Concept; Community Development; Services and Facilities; Aesthetic, Cultural and Recreational Resources; Natural Resources; and Hazards. Each element contains goals, policies, and implementation measures that may be applicable to the proposed project. General Plan policies applicable to the proposed LECEF are provided in **LAND USE Table 1**.

As part of the U.S. Dataport project, approved by the San Jose City Council on June 19, 2001, the project site was annexed to the City from the County of Santa Clara. Santa Clara County recorded the annexation to the City as a ministerial function on September 12, 2001 (Applicant, 2001).

Alviso Master Plan

The proposed project site exists within the Alviso Planned Community. The *Alviso Master Plan: A Specific Plan for the Alviso Community* (Alviso Master Plan) was adopted by the City in December 1998 as a detailed policy and planning document for the Alviso Planned Community, the portion of San Jose north of State Route 237 and generally bounded on the east and west by Coyote Creek and the Guadalupe River, respectively. The Alviso Master Plan supplements the General Plan policies by providing a more detailed planning scope. It establishes land uses, circulation patterns, and infrastructure improvements needed to support development within the Alviso Planned Community.

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 (City of San Jose Alviso Master Plan, 1998).

Alviso Master Plan land use policies that are relevant to the proposed project are presented in **LAND USE Table 1**.

City of San Jose Riparian Corridor Policy Study

The overall purpose of the Riparian Corridor Policy Study is "to explore in detail issues related to [City of San Jose] General Plan policies which promote the preservation of riparian corridors, the area's natural streams, and how these corridors should be treated for consistency with the General Plan" (City of San Jose Riparian Corridor Policy Study, 1994). The City's Riparian Corridor Policy Study contains relevant policies to the proposed LECEF project.

LAND USE Table 1 summarizes relevant policies from the City General Plan, Alviso Master Plan and the Riparian Corridor Policy Study, and provides a brief description of their purpose and intent.

LAND USE Table 1
Relevant Land Use Policies 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 Rotes 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.
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.

Relevant Policy	Description
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.

City of San Jose Zoning Ordinance

The City of San Jose Zoning Ordinance (Zoning Ordinance) is the primary tool for achieving the objectives of the General Plan, by implementing General Plan policies. The Zoning Ordinance provides detailed specifications for allowable development within areas designated by the General Plan.

On March 14, 2001, the San Jose City Planning Commission certified the U.S. Dataport Planned Development Zoning Project EIR and recommended approval of the project to the San Jose City Council. On April 3, 2001, the City Council, acting as the CEQA Lead Agency, approved the U.S. Dataport Planned Development Zoning Project, and adopted an ordinance (No. 26343) to prezone and rezone the U.S. Dataport site, which includes the proposed LECEF project site (LECEF, 2001). The project site was prezoned and rezoned as Agriculture Planned Development, A(PD). This PD zone was based on a General Development Plan for the site (required by Zoning Ordinance § 20.10.070(c)), which included the 2.227 million gross square acre U.S. Dataport data center and a 49-megawatt diesel energy facility (LECEF, 2001). However, the City Council's approval of the U.S. Dataport project included a condition of approval necessitating the U.S. Dataport project to implement an "environmentally superior technology for power generation and supply alternatives that will reduce impacts to local and regional air quality" (Horwedel, 2001b). The proposed LECEF project evaluated in this Staff Assessment represents the environmentally superior alternative to the original U.S. Dataport energy facility. However, since LECEF represents a significant change from the original design, a new Planned Development (PD) is required to comply with the City's Planned Development Procedures (Zoning Ordinance § 20.10.070).

As a result, on September 10, 2001 the applicant and U.S. Dataport jointly filed a revised PD zone to the City to reflect the increase in megawatt output, the modified site plan, and the facility design for LECEF (Horwedel, 2001b). The revised PD zone must be approved by a new City ordinance (City Municipal Code, Title 20, Chapter 20.40) and reviewed under the California Environmental Quality Act (CEQA). The City has stated its intention to use this Staff Assessment as the environmental review document "to satisfy California Environmental Quality Act requirements [for the PD rezone] as

directed by Executive Order D-26-01 from the Governor of California" (Horwedel, 2001c).

On September 13, 2001, Joseph Horwedel, Acting Director of the City's Planning, Building and Code Enforcement Department, issued a letter to the CEC to "provide confirmation of the City of San Jose's intent and ability to process the necessary remaining City approvals (PD Zoning and PD Permit) for the Los Esteros Critical Energy Facility within the timeline set forth in the supplement to the AFC recently submitted to the CEC" (Horwedel, 2001b). On October 17, 2001, the City contacted CEC Staff to reiterate the City's ability to provide "the entitlements necessary to satisfy the LORS consistency of the CEC's Evidentiary Hearings [for LECEF]" as well as the City's intent to use CEC Staff's assessment of LECEF to satisfy CEQA requirements for the project site rezone (Horwedel, 2001c). An additional letter from the City to the CEC, date December 7, 2001, indicates that the City is "prepared to move the project quickly to public hearing and Council consideration once the Staff Assessment is released" (Gonzales, 2001).

SETTING

PROJECT LOCATION

LECEF Location and Site Characteristics

The LECEF site is located in northern San Jose, California, at 1515 Alviso-Milpitas Road. Relevant to surrounding features, the site is located:

1. North of State Road 237;

2. East of Zanker Road and the San Jose/Santa Clara Water Pollution Control Plant (WPCP);

3. West of Coyote Creek and the adjacent flood control channel; and

4. South of the WPCP's sludge drying pools.

The proposed LECEF project would be located on the former Lin-Hom property (54.6 acres), which has been used as a plant nursery in the past. Additional development of the site included residential buildings, old greenhouses, trailers and modular structures. As of November 13, 2001, the applicant was continuing to demolish and clear the structures that had formerly belonged to the Lin-Hom property owners, as approved by a City use permit (Stewart, 2001b). As of the writing of this Staff Assessment, the Applicant has indicated that demolition of structures has been completed.

The former Lin-Hom property was designated Prime Farmland on the DOC's IFL map at the time the applicant submitted the AFC. However, on August 29, 2001, the California Department of Conservation (DOC), Farmland Mapping and Monitoring Program issued a letter to the California Energy Commission regarding the reclassification of the site

from Prime Farmland to Other Land (DOC, 2001). The DOC used aerial photographs, a site visit, and phone contacts to determine that the former Lin-Hom property was "extremely dilapidated" and that no nursery activity had occurred in the last six years (DOC, 2001). Due to this inactivity, the DOC authorized the reclassification of the site to "Other Land", which would be reflected in the 2002 Important Farmland Map of Santa Clara County.

Linear Facilities

The linear facilities for the proposed project would not extend far beyond the boundaries of the proposed LECEF project site. Several proposed linear facilities and alternative routes would cross WPCP buffer lands to the west of the proposed project, as far as Zanker Road, approximately 2000 feet from the proposed project. WPCP is operated and maintained by the City and is zoned Agriculture (Planned Development). The City has assured Staff that the proposed project is properly zoned for the uses and facilities specified in the AFC (Horwedel, 2001a; Crabtree, 2001a), which include the proposed linear facilities that would cross the City-operated WPCP lands.

According to the applicant, the preferred electrical transmission line would be an underground feeder, approximately 200 to 400 feet in length, which would interconnect the project facility with the proposed Pacific Gas & Electric (PG&E) Los Esteros Substation, which is planned for construction adjacent to the project's north side, as approved by the California Public Utilities Commission (CPUC). However, PG&E and the CPUC have had differing estimates of the potential cost of construction, and, as a result, the substation project was put on a temporary hold until such a time when these differences could be resolved. On December 11, 2001, the CPUC approved the project, but at a lower cost than that proposed by PG&E (Lee, 2001). As a result, PG&E is not certain whether, or not, it will go forward with project construction.

Since the PG&E substation is not expected to be built in a timely fashion relative to LECEF, the applicant has stated two alternatives for the electrical transmission lines, which are listed in order of the applicant's preference:

1. PG&E would advance its construction schedule for the Los Esteros-Montague circuit from the Los Esteros Substation to the inter-tie into the Nortech-Trimble 115 kV line located at the intersection of Zanker Road and State Route 237.

2. The applicant would build a temporary wood-pole line to the intersection of Zanker Road and State Route 237, a distance of approximately 2,000 feet southeast of the project.

Natural gas would be supplied via a new 550-foot, 10-inch-diameter pipeline that would connect to existing PG&E lines 101 and 109, directly south of the project. These lines are currently located parallel to State Route 237 and are within the property controlled by the applicant.

A 2,700-foot, 12 to 15-inch pipeline would return plant wastewater and sewer discharges to the WPCP. The pipeline, which would be routed south then west of the

project, would connect to one of two existing sewer lines (either 60 or 80-inch lines) located at Zanker Road.

Stormwater would be collected on site and then periodically discharged via a 750-foot drain that would connect to an existing 20-inch diameter flood control pipeline located east of the project and adjacent to Coyote Creek.

Plant processing water would be supplied by the WPCP through the South Bay Water Recycling program. A 1,000-foot pipeline would be routed south then west to connect with an existing South Bay Water Recycling pipeline located parallel to State Route 237. Potable water for the operation of the facility would be trucked to the site.

SURROUNDING LAND USE

The Cilker property (66.5-acres) sits to the east/southeast of the proposed site, bounded by Coyote Creek. The Cilker property is currently being used to cultivate row crops, and contains two residences, a fruit distribution company, a tractor/trucking storage yard, and an orchard/landscaping company in the southern portion of the property. The main residence, a single family home, is located near the intersection of Coyote Creek and Alviso Road. A trailer home is located on a strip lane several hundred feet to the west. The Cilker property remains Prime Farmland, and would not be affected by the proposed LECEF project. Currently the Cilker property is under contract for sale to U.S. Dataport. If purchased for the U.S. Dataport project, the Cilker property would be converted to Light Industrial uses when the U.S. Dataport project is completed. The loss of Prime Farmland resulting from the conversion of the Cilker Property to industrial uses has already been evaluated by the U.S. Dataport Planned Development Zoning Environmental Impact Report.

However, the Cilker property contract is undergoing revisions with a completion date expected in several months (Sedgewick, 2001). The revisions would give U.S. Dataport an extension (18-24 month) to exercise its right to purchase the property (Sedgewick, 2001). Eventual purchase of the property would be dependent on an increased leasing demand for U.S. Dataport services that would instigate the construction phase of U.S. Dataport. Based on current economic conditions, it is likely that the Cilker property will not be purchased prior to the construction of the proposed LECEF project (anticipated in the first half of 2002).

Further east, approximately 750 feet from the project site, is the Coyote Creek public open space riparian zone, which is designated by the San Jose General Plan's Scenic Routes and Trails Diagram as a "Trails and Pathways Corridor" (City of San Jose General Plan (Map 15), 1994). A flood control levee borders the west side of the creek.

To the west of the former Lin-Hom property are the buffer lands of the WPCP, which extend west of Zanker Road, (located approximately 2,000 feet west of the proposed site). Currently, the WPCP buffer lands are open uncultivated fields.

Directly north of the proposed LECEF site is the location of the proposed PG&E Los Esteros Substation site, and a branch of the Cilker property (described above). Further

north, are the WPCP sludge drying beds, and to the northwest, across Zanker Road, are the WPCP treatment facilities.

State Route 237 runs east-west approximately 600 feet south of the site, which is designated by the City of San Jose General Plan's Scenic Routes and Trails Diagram as an "Urban Throughway" (City of San Jose General Plan (Map 15), 1994). The Alviso-Milpitas Road, a secondary access road, runs adjacent to the north side of State Route 237 and terminates at the western border of the former Lin-Hom property. The Santa Clara County Valley Transportation Authority's Cerone maintenance facility and industrial areas are located directly south of State Route 237.

The nearest residential land use, other than the Cilker property, is a mobile home park located approximately 700-feet south of State Route 237 and west of Zanker Road, 0.6 miles from the proposed LECEF site. A 6-foot wall encloses this mobile home park and some office buildings. Other residences are located 0.8-miles to the east and 1.4 miles to the southeast of the project site, respectively. The Alviso residential community is located approximately 1.8 miles to the northwest of the proposed LECEF site.

Surrounding Land Use Designations

LAND USE Table 2 describes the land use designations within one mile of the project site. For a visual representation of surrounding land use designations, refer to Figure 8.4-2 of the AFC.

LAND USE Table 2
Land-Use Designations Within One Mile of the Site

Direction From Site	Land-Use Designation
North	Light Industrial and Public/Quasi Public
Northeast	Light-Industrial and Manufacturing and Warehousing (City of Milpitas)
East	Light-Industrial
Southeast	Light-Industrial and Manufacturing and Warehousing (City of Milpitas)
South	Highway Services and Public Park/Open Space
Southwest	Public/Quasi Public and Highway Services
West	Public/Quasi Public.
Northwest	Public/Quasi Public.

Surrounding Zoning Designations

North of the site, lands are zoned Industrial (I) followed by Manufacturing (M-4). Eastward, across Coyote Creek, is the jurisdiction of the City of Milpitas, with the area primarily zoned for Industrial Park (MP) and General Commercial (C-2). Coyote Creek itself is zoned as Open Space (OS) by the City of San Jose. South of the site, across State Route 237, are a mixture of Agriculture (A), Manufacturing (M-1) and Highway Services (HS) lands. West of the site, lands are zoned as A(PD) and Manufacturing (M-1), followed by Agricultural (A). For a visual representation of surrounding zoning designations, refer to Figure 8.4-3 of the AFC.

U.S. DATAPORT CAMPUS

According to the AFC, LECEF is Phase I of the U.S. Dataport project. Phase II would be the conversion of LECEF to a combined cycle power plant by adding four Heat Recovery Steam Generators, two Steam Turbine Generators, and associated accessory equipment for a generation capacity of approximately 260 MW. Phase III would include the installation of equipment and systems for the planned Dataport "Super Hub" Server Farm, a 2.227 million gross square acre Internet data center. In the final design, the U.S. Dataport campus is planned to be approximately 119-acres in size, the energy facility site (now referred to as LECEF) is planned to be approximately 20-acres, and the landscaped access driveway area is planned to cover approximately 35-acres. The project includes the construction of several buildings totaling 2.242 million gross square feet of floor area.

As currently planned, uses within the U.S. Dataport campus would include Internet data centers, co-location service providers, telecommunications facilities, and cross connection facilities. The energy facility would provide electric power, chilled water for cooling, and conditioned electric power for reliable operation of the data centers. An access drive and landscape features are proposed on adjacent land owned by the WPCP. The number of people on the site would typically be low because the buildings on the U.S. Dataport campus area would primarily house equipment. As currently planned, it is estimated that there would be approximately 50 U.S. Dataport employees, 1,100 tenant employees and 400 visitors on the U.S. Dataport campus on a daily basis. At completion, U.S. Dataport is expected to use 180-200 megawatts of power.

The proposed LECEF project is Phase 1 of the U.S. Dataport project. Upon completion of the U.S. Dataport campus, the associated structures and facilities of U.S. Dataport would completely surround the proposed LECEF project site and facilities.

Currently, the U.S. Dataport project has been pushed back due to deteriorating economic conditions and an oversupply of internet information service campuses. However, given an increase in demand, the U.S. Dataport project is still planned to move forward, with construction scheduled to begin in the middle of 2002 (Sedgewick, 2001). Once committed, the construction phase would last 12-months, with the design process lasting 4 months and actual construction lasting 8-months. The overall U.S. Dataport project is scheduled to be built over a 3-5 year period, with approximately 500,000 square feet to be added per year (Sedgewick, 2001).

RECREATIONAL FACILITIES

Recreational Facilities in the immediate vicinity of the project site

Since the immediate project area is dominated by light industrial and agricultural uses, recreational sites are generally absent except for trails that cross through the general project area (bicycle, pedestrian, and equestrian). A description of the primary recreational trails and pathways is provided below.

Juan Bautista de Anza National Historic Trail

In August 1990 the U.S. Congress added the Juan Bautista de Anza National Historic Trail to the National Trail System, which is a federal network of trails that follow and commemorate original trails or routes of travel of national historical significance (Santa Clara County Trials Master Plan Update, 1995). The Juan Bautista de Anza trail is planned to cross along the northern border of the U.S. Dataport project site. Due to the proximity of the Juan Bautista de Anza trail, it could potentially be impacted by the development of LECEF and the U.S. Dataport project (refer to Cumulative Impacts analysis).

The Juan Bautista de Anza trail follows the route taken by its namesake when he led a group of Spanish colonists on a 1,800-mile trek from Sinaloa, Mexico to the San Francisco Bay Area, establishing an overland route into Alta (Upper) California (CPUC, 2000). The approved historic trail encompasses 1,210 miles of the total 1,849-mile route (National Park Service Website, 2001). The trail corridor, defined by historical records and archaeological evidence, varies in width, depending on terrain and details of the documented evidence. While many segments are on private land and therefore unavailable to the public, it passes through a variety of federal lands and includes more than 160 miles under the jurisdiction of the National Park Service, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, and the U.S. Department of Defense.

In the proposed project area, the Anza Trail passes from Sunnyvale east into the Alviso Historic District, loops from the Alviso Marina through the National Wildlife Refuge, and follows Grand Avenue to the Environmental Education Center for the wildlife refuge. The Anza Trail then travels south and east from the wildlife refuge along Los Esteros Road to Zanker Road before passing east to Coyote Creek along the northern border of the proposed U.S. Dataport project site, where it would join the sub-regional Coyote Creek/Llages Creek Trail and the proposed San Francisco Bay Trail on a northerly path.

The San Francisco Bay Trail

Senate Bill 100, which was passed in 1987, initiated regional planning for a network of recreational trails encircling San Francisco Bay (ABAG, 1999). The San Francisco Bay Trail (Bay Trail) is intended to provide easily accessible recreational opportunities for hikers, joggers, bicyclists and skaters, as well as a beautiful setting for viewing wildlife and learning about the Bay's natural environment. The Bay Trail is planned to cross along the northern border of the U.S. Dataport project site. Due to the proximity of the Bay Trail, it could potentially be impacted by the development of LECEF and the U.S. Dataport project (please refer to Cumulative Impacts analysis).

The enabling legislation mandated that the Bay Trail would:

1. Provide connections to existing park and recreation facilities

2. Create links to existing and proposed transportation facilities

3. Avoid adverse effects on environmentally sensitive areas by incorporating careful planning techniques.

In coordination with a planning committee comprised of 34 local elected officials and representatives of business, labor, community organizations, and other regional agencies, ABAG developed the Bay Trail Plan, which was adopted by ABAG's Executive Board in June 1989. The Bay Trail Plan proposes an alignment for the 400-mile-long trail network that consists of spine trails, spur trails, and connector trails (ABAG, 1999; ABAG, 1989). The Bay Trail Plan contains policies to guide selections of the trail route and implementation of the trail system. Policies fall into five categories (ABAG, 1989):

1. Trail alignment policies reflect the goals of the Bay Trail program - to develop a continuous trail which highlights the wide variety of recreational and interpretive experiences offered by the diverse bay environment and is situated as close as feasible to the shoreline, within the constraints defined by other policies of the plan.

2. Trail design policies underscore the importance of creating a trail which is accessible to the widest possible *range* of trail users and which is designed to respect the natural or built environments through which it passes. Minimum design guidelines for trail development are recommended for application by implementing agencies.

3. Environmental protection policies underscore the importance of the San Francisco Bay's natural environment and define the relationship of the proposed trail to sensitive natural environments such as wetlands.

4. Transportation access policies reflect the need for bicycle and pedestrian *access* on Bay Area toll bridges, in order to create a continuous trail and to permit cross-bay connections as alternative trail routes.

5. Implementation policies define a structure for successful *implementation* of the Bay Trail, including mechanisms for continuing trail advocacy, oversight and management.

In the proposed project area, the Bay Trail is planned to share a trail alignment with the Juan Bautista National Historic Trail as it travels south and east from the wildlife refuge along Los Esteros Road to Zanker Road before passing east to Coyote Creek along the northern border of the proposed U.S. Dataport project site, where it would join the sub-regional Coyote Creek/Llages Creek Trail on a route to the north. The San Jose City Council is requiring U.S. Dataport to record a 22-foot easement for the Bay Trail along the northern boundary of U.S. Dataport as a condition of zoning approval (Eastwood, 2001b).

The Bay Trail project is currently undergoing environmental review and public outreach by the City, and is projected to be implemented within the next several years (Eastwood, 2001b). The City is currently completing the Master Plan for the Bay Trail alignment through San Jose and it should be adopted in a few months (Rhys, 2001). According to the City, the Bay Trail "will be an integral part of the Scenic Routes and Trails network within San Jose, and any possible visual impacts to the trail or viewshed from the trail need to be evaluated for consistency with the Scenic Routes and Trails goals of the San Jose 2020 General Plan" (Eastwood, 2001a).

As stated above, the City is currently working with U.S. Dataport about the possible construction of an east-west transect of the Bay Trail along the northern portion of the site, connecting Coyote Creek to Zanker Road, although currently there is no timeframe for when this transect would be completed (Rhys, 2001). The Bay Trail is also proposed to run along both the east and west sides of Coyote Creek, with the trail running along the top of the levees, immediately north of State Route 237. Currently, there is no funding for this project and no timeframe for when it would occur. According to the City of San Jose, there is no official trail along the western levee of Coyote Creek, but recreationists use it as a bicycle route. The proposed Bay Trail on the levee is in no way connected to the U.S. Dataport project (Rhys, 2001).

Coyote Creek/Llagas Creek Trail

A sub-regional trail route, the Coyote Creek/Llagas Creek Trail is planned, approximately 750 feet east of the project site, on the west Coyote Creek levee. According to the County of Santa Clara Trails Master Plan, sub-regional trail routes are those that:

1. Provide regional recreation and transportation benefits such as linking rail stations, bus routes and/or park-and-ride facilities.

2. Provide for continuity between city trails.

3. Provide convenient, long-distance trail loop opportunities by directly linking two or more regional trials to create an urban trail network.

According to the City's General Plan Scenic Routes and Trails Diagram, the Coyote Creek corridor is designated as a Trails and Pathways Corridor, which makes adjacent properties subject to the City's *Trails and Pathways Policy #1* (Xavier, 2001), as shown in **LAND USE Table 1**.

Bicycle Paths

According to the City's General Plan Transportation Bicycle Network Diagram and the City Department of Transportation (Tripousis, 2001), a bicycle lane currently runs along the north side of State Route 237, between Zanker Road and Coyote Creek, approximately 700 feet from the proposed project. According to the General Plan Transportation Bicycle Network Diagram and the City Planning Staff, a Multi-Use trail runs along the north side of State Route 237, east of Zanker Road (Eastwood, 2001b; City of San Jose General Plan (Map 14), 1994). According to the Alviso Master Plan, Zanker Road is planned to have a bicycle lane added when the roadway is improved to full City standards. In addition, a *Proposed Connection to Coyote Creek* route has been suggested in the northern vicinity of the site (Alviso Master Plan, 1998). A bicycle path runs along Coyote Creek south of State Route 237 but does not currently run along Coyote Creek north of State Route 237, although such a route is proposed (Rhys, 2001).

Other Recreational Facilities in the Surrounding Area

Alviso Park (7.5-acre) is located adjacent to George Mayne Elementary School on North First Street, approximately 1.4 miles west of the site. A small community center is

located on Liberty Street, less than one mile from the site. Regional recreational facilities in the area include the 3,652-acre Don Edwards San Francisco Bay National Wildlife Refuge, located approximately 1.5 mile to the north of the site, and the Alviso Marina County Park (approximately 28 total acres), located less than one mile northwest of the site on the east side of the Guadalupe River.

SENSITIVE RECEPTORS

The Cilker residents on the adjacent Cilker property are the nearest sensitive receptors. The primary single-family home on the Cilker proper is located approximately 900-1200 feet from the proposed project site. A rental-unit mobile trailer home is located on a strip lane west of the main Cilker residence, located approximately 450-650 feet from the proposed project site. Beyond the Cilker property, the closest residents are located 0.6 miles away, south of State Route 237, in a trailer park surrounded by a masonry wall.

Anthony Spangler Elementary School and Curtner Elementary School are located in the City of Milpitas, approximately 1.0 mile and 1.3 miles, respectively, from the project site. George Mayne Elementary School and Alviso Park are located approximately 1.4 miles to the west. The Agnews Development Center is located approximately 1.1 miles south of the proposed project site, which is operated by the California Department of Development Services and provides care and treatment to people with developmental disabilities. A childcare center is located at the Cisco System facility on Barber Lane in the City of Milpitas, approximately 1.1 miles southeast of the site. The core Alviso residential community is located approximately 1.8 miles to the northwest of the proposed project.

IMPACTS

LAND U.S.E

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND U.S.E – Would the project:				
a) Physically divide an established community?			X	
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
d) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
e) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X
f) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
g) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
h) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

DISCUSSION OF IMPACTS

A. Physical Division Of A Community

Construction and operation of LECEF and its associated linear facilities would not significantly interfere, disrupt, or physically divide any established communities around the project site. LECEF would be constructed on lands that would eventually be surrounded entirely by the U.S. Dataport project. The linear facilities associated with LECEF do not extend beyond the boundary of the U.S. Dataport project site, except for

the wastewater discharge pipeline and the recycled water pipeline. Each of these pipelines would run through the WPCP buffer lands west of the project and east of Zanker Road, less than 3000 feet away. The WPCP buffer lands are unoccupied, uncultivated fields and the construction and operation of the pipelines would in no way interfere, disrupt, or divide an established community therein. The City has assured Staff that the project is properly zoned for the uses and facilities specified in the AFC (Horwedel, 2001a; Crabtree, 2001), which include the proposed linear facilities that would cross the City-operated WPCP lands.

As of December 2001, residents still lived at the Cilker property, adjacent to the project site. Although U.S. Dataport still has the property under contract, negotiations are ongoing to allow U.S. Dataport an 18-24 month extension to exercise their right to purchase the property (Sedgewick, 2001). Based on this timeline, the Cilker residents would likely be present during the proposed construction phase of LECEF (expected during the first half of 2002).

Cilker residents (considered sensitive receptors) potentially could be affected by the construction phase of LECEF. Impacts could include construction noise and dust, and the visual effects of construction equipment. However, given the short timeframe for LECEF construction and the mitigating measures that have been incorporated into the project design to offset common construction impacts, impacts to sensitive receptors are expected be minor and temporary, and therefore less than significant.

Given the plans for implementation of the U.S. Dataport project, it is unlikely that the Cilker residence would exist at its current location for a long period beyond the start of operation for the proposed LECEF project. The Cilker property is currently undergoing renegotiations for acquisition by U.S. Dataport. Therefore, the Cilker residents are expected to vacate the structures on the property in the near future. Any operational impacts experienced by the Cilker residents would be temporary. Given that this property is expected to be converted to industrial uses, and that the property owners are in agreement with this conversion (i.e., the voluntary sale of their property), operational impacts to this land use would be less than significant.

LECEF is planned to be integrated as Phase I of the three-phase U.S. Dataport project that has already been approved by the San Jose City Council. LECEF is approved mitigation for the U.S. Dataport EIR and would not in any way disrupt or divide the U.S. Dataport project. Even if the U.S. Dataport project were never constructed, LECEF would not physically divide an established community. Therefore, there would be no impact.

The **Noise** Staff Assessment has determined that proposed construction and operation activities would not significantly increase noise levels at the Cilker property because of the existing high ambient noise levels resulting from State Route 237. Please refer to the **Visual Resources** and **Air Quality** Staff Assessments for a discussion of potential construction and operation impacts on sensitive receptors, including the Cilker residence.

B. Conflict With Any Applicable LORS

Land Use and Zoning Designation

The Alviso Master Plan designates the proposed project site as *Light Industrial*, which is defined to allow "a wide variety of industrial uses, excluding any uses with unmitigated hazardous or nuisance effects. Examples of typical uses are warehousing, wholesaling, light manufacturing, and industrial supplier/service business" (City of San Jose General Plan, 1994). Staff has determined that this definition does not appear to readily allow the development of a 180-megawatt natural gas energy facility. However, the Alviso Master Plan does not specifically preclude the development of such a facility, and senior members of the City's Planning, Building and Code Enforcement department have repeatedly stated to Staff that LECEF would be in compliance with the Light Industrial designation (Horwedel, 2001a; Crabtree, 2001a).

Currently the proposed project site is zoned Agriculture (Planned Development), with a Planned Development Zoning that was approved by the City for the U.S. Dataport project on April 3, 2001. According to the City (Horwedel, 2001b), the City Council approved the project with the condition that "the applicant submits a plan to eliminate the originally proposed backup diesel generators and substitute an environmentally superior power generation alternative. The project described in the LECEF AFC represents the applicant's response to the Council's direction". Since LECEF has been revised from the original U.S. Dataport plans, the current PD Zoning for the site is no longer in compliance with the proposed project. According to the City (Horwedel, 2001b), " [for LECEF to be] in compliance with City Planned Development procedures, the PD Zoning designation must be revised to reflect the changes before a PD Permit (use permit) can be issued for the LECEF".

On September 10, 2001, the applicant submitted a revised PD Zoning application to the City Planning Department (Horwedel, 2001b). The City has assured Staff that the site will be properly zoned for the planned development of a 180 MW natural gas energy facility prior to the formal CEC decision on the proposed LECEF project (Horwedel, 2001b; Horwedel, 2001c). According to the City (Horwedel, 2001b), "this [PD Zoning] application will be processed under the City's special handling provisions, which are intended to ensure that the timeline can be met".

On September 13, 2001, the City contacted Staff (Horwedel, 2001b) to "provide confirmation of the City of San Jose's intent and ability to process the necessary remaining City approvals (PD Zoning and PD Permit) for the Los Esteros Critical Energy Facility within the timeline set forth in the supplement to the AFC that [the applicant] recently submitted to the CEC".

On October 17, 2001, the City again contacted Staff (Horwedel, 2001c) to reiterate the City's ability to provide "the entitlements necessary to satisfy the LORS consistency of the CEC's Evidentiary Hearings [for LECEF]…[the City] will be able to set the project to be heard by the City of San Jose Planning Commission on December 12th [2001] and the City Council on December 18th [2001].

Based on the existing requirements of the Zoning Ordinance and correspondence with City Planning staff, CEC Staff concludes that the site is not currently consistent with the City's Zoning Ordinance. However, the City will clearly make every effort to ensure that the rezoning of the site will occur prior to the final Energy Commission decision on the LECEF project.

The City of San Jose has provided an additional letter to the CEC dated December 7, 2001, which states:

The purpose of this letter is to provide continuing confirmation of the City of San Jose's intent and ability to process the necessary remaining City approvals (PD Zoning and PD Permit) for the Los Esteros Critical Energy Facility (LECEF) within the timeline required to support the California Energy Commission's extended 4-month schedule.

The City Council approved the original application for this project, which is an integral and critical part of the U.S. Dataport project, under its "special handling" provisions for projects of high importance to the City. We are now processing the revised PD Zoning, which reflects changes to the project specifically requested in the Council's approval, to facilitate and expedited decision on the application. The revised PD Zoning plan eliminates the originally back-up diesel generators, and replaces them with a natural gas-fired power generation facility, in direct response to the Council's direction.

Our PD Zoning processing schedule is dependent on the issuance of the CEC Staff Assessment for the project, which the City will use as the environmental review for the project. We are prepared to move the project quickly to public hearing and Council consideration once the Staff Assessment is released (Gonzales, 2001).

Staff concludes that upon the City's review of this Staff Assessment and effectuation of the site's rezone, the proposed project would be consistent with the City's Zoning Ordinance, and any LORS non-compliance impacts with the City's land use and zoning designations would be less than significant.

Community Character Policies

Community Character Policy 2 of the Alviso Master Plan specifies that "new development should reflect Alviso's bayside character through the design of buildings and landscaping". Additionally, the *Lands Outside of the Village Area Design Objectives* state "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". Although LECEF would not be constructed with a "bayside character", its design is characteristic of a typical power plant, which the City has stated is consistent with the Light Industrial designation of the area (Horwedel, 2001a; Crabtree, 2001a). Furthermore, LECEF is outside the village area of Alviso and several other industrial facilities have been approved by the City to be built immediately adjacent to LECEF. Therefore, Staff has determined that LECEF is consistent with *Community Character Policy 2* and *Lands Outside of the Village Area Design Objectives*.

Height Restrictions

The Alviso Master Plan *Design Objective for Areas Outside of the Village Area* indicates that buildings may only exceed 45 feet if they are located next to State Route 237 and the additional height of building (up to a specified limit of 90 feet) is coupled with preserved habitat areas to the northern portions of the site. LECEF would be located next to State Route 237 and, according to the applicant, the tallest portion of LECEF would be the 90-foot exhaust stack (which is within the specified limit), but no habitat would be preserved at the northern portion of the site.

A General Plan Amendment for the U.S. Dataport project modified the Alviso Master Plan to allow maximum building heights of 100 feet for the area located north of Highway 237 and approximately 2000 feet east of Zanker Road, which includes the proposed LECEF site (Stewart, 2001a). Based on the General Plan amendment, LECEF would be in compliance with all local height restrictions. However, as of the writing of this Staff Assessment, Staff has been unable to determine whether the General Plan amendment would pertain to LECEF if the U.S. Dataport project were never completed.

Environmental Review for the Rezone of the Planned Development

As described above under the discussion for the proposed LECEF site's land uses and zoning designation, the City's PD Zoning processing schedule is dependent on the issuance of the CEC Staff Assessment for the project, which the City will use as the environmental review for the project. The City has stated that it is prepared to move the project quickly to public hearing and Council consideration once the Staff Assessment is released (Gonzales, 2001). Since the City will use this Staff assessment to satisfy its environmental clearance requirements under CEQA for a rezone of the proposed site, Staff has analyzed the potential impacts of the Planned Development Rezone per CEQA. The primary potential impact of the Planned Development Rezone would be the removal of lands zoned for agriculture, which would contribute to the land use intensification of the area and the demise of the region's agricultural reserves.

However, on August 29, 2001, the Department of Conservation (DOC), Farmland Mapping and Monitoring Program, issued a letter to the CEC regarding the reclassification of the proposed LECEF project site (former Lin-Hom property) from Prime Farmland to "Other Land" (DOC, 2001). The DOC used aerial photographs, a site visit, and phone contacts to determine that the property was "extremely dilapidated" and that no nursery activity had occurred in the last six years (DOC, 2001). Due to this inactivity, the DOC authorized the reclassification of the site to Other Land, which will be reflected in the 2002 Important Farmland Map of Santa Clara County. Based on this reclassification, the project site is no longer considered to be Prime, Unique or Statewide Important Farmland. Therefore, the conversion of the proposed site to a light industrial use would not significantly diminish the regional or statewide supply of valuable agricultural land.

The Planned Development Rezone also changes the land use character of the proposed site. However, other light industrial projects are currently planned for the surrounding areas (please refer to **LAND USE Table 3**), and the WPCP is adjacent to the site. Therefore, Staff concludes these changes are consistent with the long-term

plans of the City, as described in the Alviso Master Plan and the general land use development patterns of the area.

A potentially significant visual impact to adjacent recreational land uses could result from the proposed project, as described below. Additionally, a potentially significant cumulative visual impact on planned segments of the San Francisco Bay Trail and the Coyote Creek/Llagas Trail may result from construction of LECEF and U.S. Dataport. Please refer to the **Visual Resources** Staff Assessment for a discussion of impacts to visual resources and associated mitigation.

Tree Removal Policy

The General Plan *Urban Design Policy 24* specifies that new developments should protect significant trees, which are defined by the City Tree Removal Controls (City Code §§ 13.31.010 – 13.32.100) as native and non-native trees having a trunk measuring 56 inches or more in circumference, 24 inches above the natural grade of the slope. According to **Biological Resources** staff, the applicant has agreed to mitigate the removal of significant trees from the LECEF site by replacing the trees at a 3:1 ratio, as specified by consultation with the City. The trees will be replanted in locations determined by the City. Therefore, the impacts will be less than significant with mitigation provided in the **Biological Resources** Staff Assessment.

Noise Policies

The City Riparian Corridor Policy Study *Guideline 2F* states, “noise producing stationary equipment should be located as far as necessary from riparian corridors to preclude exceeding ambient noise levels in the corridor”. In addition, City noise policies specify recommended noise levels for certain types of land uses. According to the **Noise** Staff Assessment, LECEF would not significantly increase ambient noise levels for surrounding trails (existing or proposed), the Coyote Creek corridor, or the Cilker residence (the nearest sensitive receptor). Impacts would be less than significant.

Industrial/Non-Industrial Relationship Policy

Alviso Master Plan *Industrial/Non-Industrial Relationship Policy 2* states, “Light Industrial areas located north of State Street and adjacent to Coyote Creek should mitigate potential negative environmental impacts to nearby natural resources… [and] industrial uses need to be environmentally sensitive by minimizing both point and non-point source pollution and other potential negative impacts”. The **Biological Resources** Staff Assessment analyzes the potential for LECEF air emissions to adversely impact sensitive serpentine soils located west and south of the proposed site. The U.S. Fish and Wildlife Service has designated these serpentine soils as critical habitat for the federally protected checkerspot butterfly. The **Biological Resources** Staff Assessment provides a discussion of potential impacts to biological resources and any associated mitigation.

Impact on Existing Recreational Land Uses

The proposed project has the potential to significantly diminish the visual quality of an existing bicycle path in the vicinity of the project site (running along the north side of State Route 237, east of Zanker Road), as specified by the General Plan’s

Transportation Bicycle Network Diagram (Map 14) (City of San Jose General Plan, 1994). In addition, according to the City Planning Department (Xavier, 2001) and the General Plan Scenic Routes and Trails Diagram Map 15 (City of San Jose General Plan, 1994), a *Trails and Pathways Corridor* runs approximately 750 feet to the east of the project in the Coyote Creek riparian area, which would make the City's *Trails and Pathways Policy No. 1* applicable to adjacent properties. The **Visual Resources** Staff Assessment analyzes this potentially significant visual impact and provides mitigation measures to help reduce any visual impacts to recreationists to less than significant levels.

Conclusion

Based on the analysis above, Staff has determined that upon the City's rezone of the proposed LECEF site, and with implementation of the **Conditions of Certification** provided in the **Noise, Visual Resources,** and **Biological Resources** Staff Assessments, LECEF would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. Therefore, impacts would be less than significant.

C. Conflict With Habitat or Natural Community Conservation Plan

There are no adopted habitat conservation plans or natural community conservation plans that would be applicable to the proposed project. Therefore, the proposed project would not conflict with existing plans, and there would be no impact.

D. Increased Use of Existing Recreational Facilities

Physical impacts to public services and facilities such as recreational facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service. An increase in population in any given area may result in the need to develop new, or alter existing, recreational facilities in order to accommodate increased demand.

As an electric generation project seeking to meet the existing energy needs of populace as a whole, and the specific future energy needs of the U.S. Dataport project, LECEF would not induce population growth in the area. Also, due to the availability of local workforce and the temporary nature of construction activities, the proposed project construction is not expected to result in a significant population increase. Finally, given the small number of operational personnel needed to run the plant, operation would result in only a negligible contribution to the area's population. Therefore, it is not expected that the proposed project would increase the use of existing recreational facilities such that a substantial physical deterioration of these facilities would occur. No impacts would occur.

E. Recreation Facilities Related to the Project

As a power generation project, the proposed project does not include any recreational facilities. As described above under Item D, the proposed project would not result in a population increase, and would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. A proposed

east-west transect of the San Francisco Bay Trail has been proposed as part of the U.S. Dataport project (Eastwood, 2001b) along the northern edge of the U.S. Dataport project site. The potential environmental impacts that might be associated with the construction of this trail segment have been analyzed in the U.S. Dataport EIR and the environmental review the City is currently undergoing for the Bay Trail Master Plan (Rhys, 2001; Eastwood, 2001b). Therefore, no impacts would occur.

F. Conversion of Farmland

On August 29, 2001, the California Department of Conservation (DOC), Farmland Mapping and Monitoring Program issued a letter to the California Energy Commission regarding the reclassification of the site (former Lin-Hom property) from Prime Farmland to "Other Land" (DOC, 2001). The DOC used aerial photographs, a site visit, and phone contacts to determine that the property was "extremely dilapidated" and that no nursery activity had occurred in the last six years. Due to this inactivity, the DOC authorized the reclassification of the site to Other Land, which will be reflected in the 2002 Important Farmland Map of Santa Clara County.

Based on this reclassification, the project site is no longer considered to be Prime, Unique or Statewide Important Farmland. Therefore, Staff has determined that the conversion of the site to a light industrial use would not result in a loss of regional or statewide agricultural lands. Therefore, there would be no impact.

G. Conflict with Existing Zoning For Agricultural Use, or a Williamson Act Agriculture Preservation Contract

According to the applicant, the site was annexed from the County of Santa Clara to the City of San Jose on September 12, 2001. The City Council prezoned the site for the planned development of the U.S. Dataport project on April 3, 2001, but due to changes in LECEF, a rezoning application was submitted by the applicant to the City on September 10, 2001. On September 13, 2001, Joseph Horwedel, Acting Director of the City's Planning, Building and Code Enforcement Department, issued a letter to the California Energy Commission to "provide confirmation of the City of San Jose's intent and ability to process the necessary remaining City approvals (PD Zoning and PD Permit) for [LECEF] within the timeline set forth in the supplement to the AFC that [the applicant] recently submitted to the CEC" (Horwedel, 2001b).

Based on the assurances of the City of San Jose, Staff has determined that the proposed LECEF project site would be properly zoned for the LECEF project (Horwedel, 2001a; Horwedel, 2001b; Crabtree, 2001a; Gonzales, 2001). Consequently, LECEF does not conflict with any existing zonings for agricultural use. In addition, the site is not under a Williamson Act Contract or a related Farmland Security Zone contract. Therefore, Staff has determined that no impact would occur.

H. Conversion of Farmland To Non-Agricultural Uses

LECEF would be built on the former Lin-Hom property, which has been listed as Prime Farmland in the past and was previously used as an active nursery. However, as noted above under Items B and F, the DOC plans to reclassify the site to Other Land in the 2002 Important Farmland Map of Santa Clara County (DOC, 2001). Additionally, the

site has not been actively used as Farmland for at least six years. Based on the lack of active use and the DOC reclassification, the project site is no longer considered to be Prime, Unique or Statewide Important Farmland, as defined by the DOC. Therefore, the proposed project would not result in the conversion of significant Farmland to non-agricultural uses. Therefore, there would be no impact.

CUMULATIVE IMPACTS

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. **LAND USE Table 3** displays the reasonably foreseeable development projects in the area.

LAND USE Table 3
Reasonably Foreseeable Development Projects

Development	Size	Location	Jurisdiction	Status
San Francisco Bay Trail (planned)	A 400-mile, multi-agency regional trail organized by local agencies and the Association of Bay Area Governments.	An east-west transect is planned along the northern border of the U.S. Dataport project (the current Cilker property), along with a route heading north on the west levee of Coyote Creek.	City of San Jose	The City is in the final stages of developing a Master Plan for the trail, and the plan's approval is expected within the next several months. The Master Plan is currently undergoing environmental review and public outreach. The City has negotiated easements with U.S. Dataport, and U.S. Dataport has agreed to install and maintain the east-west transect of the trail. However no schedule has been established for this transect since the U.S. Dataport project is currently on hold, due to fluctuating economic conditions.
Coyote Creek/Llagas Trail (planned)	A sub-regional trail meant to connect local and regional trails.	A segment is planned north of SR 237, on the west levee of Coyote Creek.	City of San Jose	Planned trail specified in 2020 General Plan although no current funding is available for construction.
San Juan Bautista National Historic Trail (planned)	A 1200-mile regional trail that traces San Juan Bautista's historic travels through California.	The historic trail would share an alignment with the Bay Trail along Los Esteros and Zanker Road, across to the Coyote Creek corridor before heading north.	City of San Jose	Will share alignment with the San Francisco Bay Trail, when constructed.
Zanker Road Bicycle Path (planned)	Local bicycle path that would increase the bicycle path system within Alviso.	Along Zanker Road, between Los Esteros Road and SR 237	City of San Jose	A bicycle path will be added when the road is improved by the Department of Transportation.
U.S Dataport Industrial Campus	2.227 million gross square feet	Surrounding LECEF, on the former Lin-Hom and Cilker Properties, near the intersection of Zanker Rd. and SR 237.	City of San Jose	Approved by the City of San Jose. LECEF is planned as Phase I of the three-phase U.S. Dataport project. Construction of U.S. Dataport has been pushed back due to fluctuating economic conditions, although managers still hope construction will begin by midyear 2002. Construction schedules would depend on leasing demand, but under ideal conditions the project would be completed in 3-5 years, with 500,000 square feet added each year. Individual leases would take approximately 12 months to construct, with approximately 4 months going to planning and 8 months to actual construction.
Pacific Gas and Electric Los Esteros Substation	7.3-mile transmission line 24-acre substation and upgrades	Located directly north of LECEF	California Public Utilities Commission	Approved by the California Public Utilities Commission, but construction has not begun.
Metcalf Energy	600 megawatt power	Approximately eight miles from LECEF, in the Coyote	California Energy Commission	Approved by the CEC and construction has begun.

Development	Size	Location	Jurisdiction	Status
Center Power Plant		Valley Industrial Park		
Spartan Energy Center	96 megawatt power plant	Approximately 11 miles from LECEF, at 1980 South 7th Street, San Jose	California Energy Commission	Application filed and in review by the California Energy Commission. No schedule is available.
Palm Corporation Industrial Campus	1.2 million sq. ft. office space	One mile west of LECEF, south of SR 237, east of First Street	City of San Jose	Project has been approved but is currently on hold
Cisco Systems Industrial Campus	2 million sq. ft. office space	One mile west of LECEF, north of SR 237, on both sides of First Street	City of San Jose	Two of ten buildings have been built but the project is currently on hold.
Irvine Company Apartment Complex	2,400-unit apartment	One mile south of LECEF	City of San Jose	Construction has begun.
Power Plant (Proposed)	500+ MW Power Plant	Located near LECEF on WPCP lands	City of San Jose	San Jose City Manager released Request For Proposal (RFP) in September 2001 for the construction of a 500+ MW power plant on WPCP lands.
Veritas Software Industrial Campus	990,000 sq. ft. office space	Less than one mile from LECEF, north of State Route 237, southwest of McCarthy Boulevard	City of Milpitas	Construction of 3 of the planned 6 buildings is near completion. As of November 2001, Veritas has told the City of Milpitas that only 1 building will be occupied in the immediate future.
Irvine Company Business Park	1 million sq. ft. business park	Less than one mile from the project site, north of State Route 237 and northeast of McCarthy Boulevard	City of Milpitas	Construction is in the advanced stages but a completion date is not available.
Peery and Arrillaga Company Office Park Development	400,000 sq. ft. of office space, with potential for some residential use.	Less than two miles from LECEF, in Tasman area, south of SR 237 and west of I 880.	City of Milpitas	Construction is about completed but there is no timeline on when the buildings will become occupied.
High and Medium Residential Development	High and medium residential developments, with a mixture of office uses	Southeast of SR 237, east of I 880	City of Milpitas	The City of Milpitas is studying the conversion of some zoning designations in this area to allow for mixed development. Potential adoption of the plan is scheduled for March 2002. At the maximum extent, up to 4,800 new residential units could be created in the next 20 years, although currently no accurate estimates are available.
Hotel	100 unit hotel	Several miles from LECEF, south of SR 237, west of Cypress Drive	City of Milpitas	Construction is almost complete.
Source: AFC, City of San Jose Planning Department (Crabtree, 2001b; Eastman, 2001a,b), City of San Jose Department of Transportation (Tripousis, 2001), and the City of Milpitas Planning Department (Burkey, 2001).				

As described in Items B and F above, the DOC will be reclassifying the proposed project site to "Other Land" in 2002 (DOC, 2001). Staff has therefore determined that no agricultural impacts would be associated with the proposed project. Hence, the conversion of the proposed site to a light industrial use would not diminish the regional or statewide supply of valuable agricultural land.

LECEF is planned as Phase I of the three-phase U.S. Dataport project, a 2.227 million gross square acre Internet data center. Based on the completion of U.S. Dataport, a significant visual impact to proposed, planned and existing recreational trails is likely to occur, and therefore, the project has the potential to conflict with the City's General Plan *Trails and Pathways Policy No. 1*, which specifies, "new development adjacent to the Trails and Pathways should not compromise safe trail access nor detract from the scenic and aesthetic qualities of the corridor" (please refer to **LAND USE Table 1** and **LAND USE Table 3**, as well as the setting, for more information about stated policies and trails). However, the **Visual Resources** Staff Assessment analyzes this potentially

significant cumulative visual impact and provides mitigation measures to help reduce any visual impacts to recreational trail users to less than significant levels.

Other than the potential visual impact to recreational trail users (which is expected to be mitigated to a less than significant level), the proposed project would not result in any significant cumulative land use impacts. The proposed project does not make a significant contribution 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 described in **LAND USE Table 3** is not expected to be cumulatively considerable. The proposed project is consistent with the long-term plans of the City (Horwedel, 2001b; Horwedel, 2001c), and would not contribute to a cumulatively significant impact to the City's goals and plans for the area. Therefore, staff concludes there are no significant cumulative land use impacts associated with the proposed project.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 1990 and 2000 information that shows the minority population is greater than fifty percent within the one-mile, two-mile and six-mile radius of the proposed LECEF Project (please refer to **Socioeconomics** Staff Assessment). Census 1990 information shows that the low-income population is less than fifty percent within the same areas. Based on the **Land Use** analysis, Staff has not identified any significant direct or cumulative land use impacts resulting from the construction or operation of the proposed LECEF project that would disproportionately affect minority populations or low-income populations. Therefore there are no significant environmental justice impacts related to land use.

CONCLUSIONS

The proposed project would not physically divide an established community, and would not conflict with any applicable habitat conservation plan. In addition, upon the City of San Jose's rezone of the proposed LECEF site, the proposed project would not conflict with any applicable land use plan, policy, or regulation. The proposed LECEF project would not conflict with any recreational or agricultural land use issues. No cumulative land use impacts are expected. Therefore, the proposed LECEF project's land use impacts are less than significant.

PROPOSED CONDITIONS OF CERTIFICATION

Given that there are no significant land use impacts, no conditions of certification have been proposed.

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NOISE AND VIBRATION

Testimony of Brewster Birdsall

INTRODUCTION

The purpose of this analysis is to identify and examine the potential noise and vibration impacts from the construction and operation of the Los Esteros Critical Energy Facility (LECEF) (01-AFC-12), and to recommend procedures to ensure that the resulting noise and vibration impacts would be adequately mitigated to comply with applicable laws, ordinances, regulations, and standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

To describe noise environments and to assess impacts on noise sensitive areas, 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 environmental noise. A C-weighting scale is sometimes used for very loud or very low-frequency noises. The A-weighted decibel scale (dBA) is cited in most national and international noise criteria (Beranek and Ver, 1992).

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. **NOISE Table 1** lists these regulations for permissible noise exposure levels as a function of the amount of time to which the worker is exposed. These 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 1995) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," 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.

NOISE Table 1
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 CFR 1910.95, Table G-16.

STATE

California Government Code Section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in **NOISE Table 2**.

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 (DHS 1977). The Model also contains a definition of “pure tone” based upon one-third octave band sound pressure levels, which can be used to determine whether a noise source contains significant pure tone components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

Other State LORS include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

NOISE Table 2 - Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - Ldn or CNEL (dB)													
	50		55		60		65		70		75		80	
Residential - Low Density Single Family, Duplex, Mobile Home														
Residential - Multi-Family														
Transient Lodging – Motel, Hotel														
Schools, Libraries, Churches, Hospitals, Nursing Homes														
Auditorium, Concert Hall, Amphitheaters														
Sports Arena, Outdoor Spectator Sports														
Playgrounds, Neighborhood Parks														
Golf Courses, Riding Stables, Water Recreation, Cemeteries														
Office Buildings, Business Commercial and Professional														
Industrial, Manufacturing, Utilities, Agriculture														

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

Source: State of California General Plan Guidelines, Office of Planning and Research, November 1998.

California Environmental Quality Act

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., Title 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

a) exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

b) exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Energy Commission staff, in applying Item c) above to the analysis of this and other projects, has concluded that a potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 dBA L_{90} or more at the nearest location where the sound is likely to be perceived.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

1. The construction activity is temporary,

2. Use of heavy equipment and noisy activities is limited to daytime hours, and

3. All feasible noise abatement measures are implemented for noise-producing equipment.

Cal-OSHA

Cal-OSHA has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

San Jose Noise Ordinance

The City of San Jose maintains a noise ordinance that protects the community (including any portion of a neighborhood) from disturbing or unreasonably loud noises. Sections 10.16.010 and 10.16.020 of the Municipal Code generally prohibit such noise because it would disturb the peace of the City.

San Jose Zoning Ordinance

The Zoning Ordinance (Title 20 of the San Jose Municipal Code) includes performance standards for noise transmitted between properties. The performance standards specify the amount of noise that is allowed to occur at the property line of a noise source adjacent to sensitive uses. The LECEF is located on land designated as A (PD) Planned Development (AFC, Figure 8.4-3) with the base district zoning of the property defined as agricultural (City of San Jose, 2001). The maximum noise levels allowed by Section 20.20.300 of the Zoning Ordinance for uses in Agricultural Districts are as follows (measured at the adjacent property line):

- 55 decibels adjacent to a property used or zoned for residential purposes,
- 60 decibels adjacent to a property used or zoned for commercial purposes,
- 70 decibels adjacent to a property used or zoned for industrial or use other than residential or commercial purposes.

San Jose General Plan

The Hazards/Noise Element of the City of San Jose's 2020 General Plan adopted by the City in 1994 recognizes the above state-level goals of managing sources of community noise. Noise levels below 60 Ldn would be "satisfactory" according to the land use compatibility guidelines for public/quasi-public and residential land uses, parks and playgrounds. Levels below 70 Ldn would be "satisfactory" for industrial and utility land uses. As a long-range objective, 55 Ldn is the acceptable exterior noise quality level. However, it is recognized that because of dominating transportation noise sources, a short-range guideline of 60 Ldn is more realistic. The planned development zoning ordinance adopted for U.S. Dataport specifies that the development comply with the San Jose General Plan noise guidelines (City of San Jose, 2001). The following policies would be relevant to the LECEF:

- Construction operations should use available noise suppression devices and techniques.
- To further the long-term outdoor noise goal of 55 Ldn, commercial, industrial, and other non-residential uses located adjacent to residential land uses and schools, libraries, or hospitals should mitigate noise generation to meet 55 Ldn at the property line.
- Noise studies should be required for land use proposals where known or suspected peak noise event sources occur which may impact adjacent existing or planned land uses.

The Riparian Corridor Policy Study (City of San Jose, 1999) also includes strategies for protecting the natural resources of the Coyote Creek corridor from development that could lead to intrusive noise.

- Noise generating activities in new development should be oriented toward non-riparian property edges.
- The operation of mechanical equipment within or adjacent to riparian corridors (e.g., compressors, street/parking area sweepers) should not exceed noise levels for open space as specified in the Noise Element of the City of San Jose's General Plan or exceed background noise levels. Noise-producing stationary mechanical equipment should be located as far as necessary from riparian corridors to preclude exceeding the ambient noise level in the corridors.

SETTING

PROJECT BACKGROUND

The LECEF project consists of a 180 MW natural-gas-fired simple cycle peaking facility with four combustion turbine generators (CTG) and a two-cell cooling tower for inlet air chillers. New linear connections to the site (each less than 3,000 feet) are necessary for the transmission line, natural gas supply, water supply, stormwater drains, wastewater discharge, and roads. The LECEF would occupy approximately 15 acres of a 55 acre site north of Highway 237 (SR-237) near Coyote Creek, within parcels recently annexed by the City of San Jose. West and north of the site are the Water Pollution Control Plant (WPCP) and the associated WPCP sludge drying ponds. The Coyote Creek Flood Control Project and riparian corridor is approximately 750 feet east of the proposed power plant (AFC, p. 8.4-6).

The project site sits within the U.S. Dataport Planned Development parcel. When fully-built, the U.S. Dataport facility will surround the LECEF with groups of industrial buildings, parking, landscaping, and developed open space. The LECEF project will generally be surrounded by the U.S. Dataport buildings. In the current conditions however, work on the U.S. Dataport facility has not yet begun and the LECEF site is surrounded by undeveloped land. Also in the current conditions, a portion of the U.S. Dataport parcel is the Cilker property (AFC, Figure 8.4-1), which is occupied with three residences.

Construction of the project is anticipated to require 4 to 6 months, assuming a 12 hour per day, 6 day per week schedule (AFC, Table 2.2-1, p. 2-13). During this period, all site preparation, construction of the power plant and other facilities, including off-site linear facilities and access roads, and startup testing would be completed. The site is presently undeveloped and requires minimal preparation.

EXISTING LAND USE

Sensitive Receptors

The nearest land uses that would be sensitive to noise would be recreational facilities that may be developed independently of full implementation of U.S. Dataport. The Coyote Creek riparian corridor is designated as a nearby public park and open space (AFC, Figure 8.4-2) with a planned trail on the western levee. On the north edge of the U.S. Dataport parcel is an easement for the proposed San Francisco Bay Trail. This recreational facility would be more than 1,500 feet north of the LECEF.

Outside of the U.S. Dataport parcel and at further distances than the recreational facilities, residences are in the vicinity of the LECEF. A mobile home park (medium density residential) is approximately 0.6 to 0.8 miles from the project site, across Highway 237 to the southwest and east (AFC, Section 8.4.1.2.4). The residences, and to a lesser extent the nearby recreational uses, would be somewhat sensitive to new noise.

With implementation of the U.S. Dataport development, land uses surrounding the LECEF would be limited to those described above and U.S. Dataport itself, with ongoing undeveloped areas and land used for municipal utility and infrastructure purposes (i.e., the WPCP, the flood control facilities, and Highway 237). Generally these ongoing and future land uses would not be sensitive to new sources of industrial noise.

A separate analysis for noise impacts occurring in the current conditions is presented in this staff assessment because three homes, which would be sensitive to noise, are located on the Cilker property within the U.S. Dataport parcel (AFC, p. 8.4-2). At approximately 600 feet from the eastern edge of the LECEF site is a temporary trailer camp, and at 800 feet from the southeastern corner of LECEF, a landscaped yard surrounds the main Cilker home. These homes are currently the nearest locations where project sound is likely to be perceived.

Linear Facilities

Project linear facilities include electricity transmission, natural gas supply, water supply, stormwater drains, wastewater discharge, and roads. None of the new linear facilities would pass near residential uses. No other off-site construction would be necessary.

EXISTING NOISE LEVELS

The applicant commissioned ambient noise surveys for six locations in July 2000 (AFC, Section 8.5.2.2) and September 2001 (11/2, LECEF Resp to DR). The noise surveys were conducted using Bruel & Kjaer sound level meters meeting the requirements of the American National Standards Institute (ANSI) for Type 1 sound level measurement systems. The existing noise levels were monitored at the Coyote Creek open space (Location 2), at the nearest residences outside of the U.S. Dataport parcel (Location 5), and at four other locations:

1. Southern property line, bordering Highway 237 (SR-237)

2. East of project property line, bordering the Coyote Creek Riparian Corridor and the planned Coyote Creek/Llagas Creek Trail

3. Northern property line, bordering the WPCP sludge drying ponds and the proposed San Francisco Bay Trail

4. Western property line, west of Zanker Road, near the receiving entrance for the WPCP and across from the WPCP pump station

5. Southwest (0.6 miles) of the project site, at the northern most edge of the mobile home park

6. Southeast (0.6 miles) of the project site, within the industrial properties of KLA Tencor and Quantum

A seventh location representing the main Cilker home within the U.S. Dataport parcel was added by CEC staff. Although noise surveys were not conducted at the Cilker residences, CEC staff has reviewed data gathered at Locations 1 and 2 and

determined that these data adequately represent upper and lower bounds of the existing noise levels at the main Cilker home.

NOISE Table 3 summarizes the ambient noise measurement results (AFC, Tables 8.5-3 through 9).

NOISE Table 3 - Summary of Ambient Measured Noise Levels

Site ID	Location	Measurement Type	Sound Level, dBA		
			L_{dn}	Average Nighttime L_{eq}	Average Nighttime L_{90}
1	Near SR-237	25-hour	69	60.2	51.8
2	Near Coyote Creek Corridor	25-hour	59	44.9	39.8
3	Northern Property Line	25-hour	58	45.6	41.0
4*	Western Property Line	18-hour*	69	61.9	59.1
5	Mobile Homes Across SR-237	25-hour	Estd. 62	50	49
6 **	Industrial Properties	Nighttime**	Estd. 60	51	47
7 ***	Main Cilker Home Near SR-237 and Coyote Creek	Extrapolated***	59	53	45

* Location 4 is based on an 18-hour nighttime measurement with afternoon hours missing. Actual Ldn may be slightly higher.

** Location 6 is based on short-term nighttime measurements (10-minutes in duration) taken generally before midnight. Ldn measurements are not available from the short-term data, but are estimated based on the measurements and typical suburban activity. The lowest observed Leq and L90 is shown here.

*** Location 7 was added by CEC staff to characterize conditions at the main Cilker home on the U.S. Dataport parcel. Conditions at this location are generally bounded by the conditions observed at Locations 1 and 2. Assuming average nighttime noise levels are dominated by the surrounding highways, the nighttime noise at Location 7 is taken to be the average of Locations 1 and 2. Assuming a lower existing condition is conservative because the main Cilker home is close to Highway 237 (where Location 1 is probably more representative).

IMPACTS

NOISE

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE – Would the project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive ground borne vibration noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the area to excessive noise levels?				X

DISCUSSION OF IMPACTS

Noise impacts associated with the project can be created by short-term construction activities, and by normal long-term operation of the power plant. This analysis discusses the LECEF project with implementation of U.S. Dataport. With U.S. Dataport, industrial buildings will eventually surround LECEF and homes on the Cilker property will be removed. A separate analysis at the end of this section depicts the LECEF project impacts in the current conditions, considering ongoing residential use on the Cilker property, without implementation of any U.S. Dataport components.

Both analyses conservatively portray noise impacts because no shielding of project noise by future U.S. Dataport buildings is assumed to occur. Because development of the U.S. Dataport buildings may take many years to complete, this analysis portrays noise impacts that would occur in the early phases of U.S. Dataport, before the planned development is fully built-out.

A. Noise in Excess of Standards or Ordinances: Less than Significant with Mitigation Incorporated

Construction Noise

Community Effects

General Construction Noise

Construction noise is a temporary phenomenon. In this case, the construction period for the LECEF will extend for 4 to 6 months (AFC, Table 2.2-1). Construction of a major industrial facility such as a power plant would be expected to cause noise levels above those considered permissible by community policy. As a result, in the absence of a community ordinance restricting construction noise, construction activities are commonly limited to certain hours of the day as a best management practice for noise.

The applicant identifies five general phases of construction activities, from site clearing through plant fabrication and initial startup. The five construction phases would be 1) excavation, 2) concrete pouring, 3) steel erection, 4) mechanical, and 5) cleanup. The most intense noise sources would occur during pile driving activities (during the first phase). During each phase, a variety of equipment would be used. This would include heavy earthmoving equipment, haul trucks, cranes, construction worker vehicles, pneumatic tools, and hammers.

The applicant has prepared analyses of construction noise impacts, listing the loudest equipment to be used in each phase and the predicted worst-case noise levels within 50 feet of equipment and at the residences across Highway 237 (Location 5). Without pile driving, the predicted worst-case average hourly noise levels during each of the five phases would range from approximately 46 to 57 dBA at the residences across Highway 237. (Pile driving activities are discussed below.) This means that general construction noise at the nearest residential receptors would not exceed the existing ambient noise levels. Since the noise levels caused by general construction would not exceed existing ambient conditions, the cumulative effect of general construction noise to the community in conjunction with existing noise levels would be less than significant.

The applicant anticipates conducting the noisiest construction activities between the hours of 6:00 a.m. and 6:00 p.m. Monday through Saturday (AFC, p. 2-13 and p. 8.5-19). Towards the end of project construction, certain critical construction activities associated with plant startup could continue 24 hours per day on any day of the week. Adhering to the daytime schedule and implementing further measures to ensure resolution of noise complaints would reduce any potential impacts. Noise effects from

construction would be reduced through the implementation of proposed Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6**.

Pile Driving Noise

Pile driver noise is impulsive, consisting of repeated impacts of a trip hammer on the piling, and can be particularly annoying. The noise levels predicted for pile driving are best compared to the maximum noise levels observed in the ambient noise environment.

The applicant specifically assessed the noise impact from pile driving, and found that at the residences across Highway 237 the noise levels would be similar to the noise levels created by existing traffic and other noise. The applicant has not proposed to mitigate the noise generated from pile driving. Because pile driving will produce a noise that can be particularly annoying at the nearest residential receptors, Energy Commission staff proposes that pile driving be performed only during daytime hours in order to minimize annoyance to residents (see proposed Condition of Certification **NOISE-6** below). With this limitation, pile driving noise would not cause a significant impact.

Because the noisiest construction activities would be limited to daytime hours and are of limited duration, noise impacts to receptors in the LECEF project area from pile driving are considered to be less than significant.

Startup and Testing

Typically, the startup and testing of a simple-cycle system does not cause substantially different noise from that caused by operation. No additional noise impacts would be caused during startup and testing beyond what is identified for operational noise below.

Linear Facilities

This project includes new off-site linear facilities in the form of new electricity transmission, natural gas supply, water supply, stormwater drains, wastewater discharge, and roads connections. None of the new linear facilities would pass near occupied residential uses south of Highway 237, although the access roads and wastewater would require construction near Zanker Road north of Highway 237. No other off-site facilities would be necessary.

Construction noise levels along the linear portions of the project would increase during this phase of construction. These increases would be perceptible, especially for residences near Zanker Road south of the highway and at the recreational facilities in the Coyote Creek corridor. However, because construction noise from linear facilities would be temporary and would be limited to daytime hours, the effects would not be significant.

Based upon the potential noise impacts of construction noise, the Energy Commission staff has recommended the inclusion of three conditions of certification (**NOISE-1**, **NOISE-2**, and **NOISE-6**) to monitor and mitigate potential construction noise impacts. With these measures, potential construction noise impacts to receptors in the LECEF project area are considered to be less than significant.

Worker Effects

The applicant acknowledges the need to protect construction workers from noise hazards. The applicant recognizes those applicable LORS that would protect construction workers, and commits to complying with them (AFC § 8.7.3.2.5).

Operational Noise

Community Effects

The applicant has incorporated noise reduction measures into the design of the project to ensure that there will not be a substantial increase in noise levels due to operation of the LECEF (AFC, §8.5.5). With these features, the project would generate approximately 39 dBA Leq at the residences across Highway 237 (0.6 miles to the southwest). Because these noise levels would be less than the nighttime average noise levels at this location, operational noise would be consistent with the established Energy Commission policy of limiting increases in noise exposure to no more than 5 dBA, which would prevent a significant increase in background noise levels.

Power Plant Operation

During its operating life, the LECEF represents essentially a steady, continuous noise source day and night. Occasional short-term increases in noise levels would occur during startup or shutdown as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for maintenance, noise levels would decrease.

The primary noise sources anticipated from the facility include the air inlet to each combustion turbine, combustion turbine exhaust flues, the water pumps, the cooling tower exhausts, and the transformers. The noise emitted by power plants during normal operations is generally broadband, steady state in nature.

The applicant performed acoustical modeling calculations to predict the facility noise emissions and to identify design features that would reduce or attenuate equipment noise (AFC, §8.5.5). The results of the acoustic modeling, including the effects of noise reduction measures specified by the applicant, are presented in **NOISE Table 4** and **Table 5**.

NOISE Table 4 – Summary of Predicted Nighttime Noise Levels

Measurement Sites	Nighttime Sound Level, dBA			Increase Caused by Project, dBA
	Ambient (L_{90})	Project (L_{eq})	Cumulative (L_{eq})	
1	51.8	52	54.9	+3.1
2	39.8	48	48.6	+8.8
3	41.0	46	47.2	+6.2
4	59.1	42	59.2	+0.1
5	49	39	49.4	+0.4
6	47	46	49.5	+2.5
7	45	43	47.1	+2.1
Based on AFC Table 8.5-12, with independent staff assessment for Location 7.				

NOISE Table 5 – Summary of Predicted Day-Night Noise Levels

Measurement Sites	Sound Level, dBA			
	Ambient (Ldn)	Project (L_{eq})	Cumulative (Ldn)	San Jose General Plan Goal (Ldn)
1	69	52	69	70 (industrial)
2	59	48	60	60 (parks)
3	58	46	59	60 (parks)
4	69	42	69	70 (industrial)
5	Estd. 62	39	62	55 (residential)
6	Estd. 60	46	61	60 (commercial)
7	59	43	59	55 (residential)
Based on AFC Table 8.5-12, with independent staff assessment for Location 7.				

The City of San Jose specifically maintains riparian corridor noise policies that govern the amount of acceptable new noise affecting the Coyote Creek riparian corridor (Location 2). The riparian corridor policies specify that noise increases should not exceed noise levels for open space as specified in the Noise Element of the City of San Jose's General Plan or exceed background noise levels. Because only distant noise sources affect Location 2, background noise levels (59 Ldn ambient) are currently less than the noise levels permissible for open space (60 Ldn). As shown in **NOISE Table 4** and **Table 5**, noise from the LECEF would exceed the background noise levels by one decibel, but would not exceed the City's goal of 60 Ldn. For locations where background noise levels are below the noise levels permissible for open space, such as Location 2, the riparian corridor noise policy has been interpreted by Energy Commission staff to allow future noise up to but not exceeding the City's goal of 60 Ldn. Cumulative noise levels with the project would be equal to but would not exceed the City's goal. Based on this information, the Energy Commission staff has concluded that the project noise effects on the riparian corridor would be less than significant.

The riparian corridor policies also specify that noise generating activities be oriented away from the riparian corridor. Because the LECEF project site plan includes a sound wall on the eastern and southern edges of the site and because cooling towers, the cooling water pump, and fuel gas compressor are located on the western portion of the site, the project site plan would conform to this policy.

Because of the substantial distance from the LECEF to the residences across Highway 237 (Location 5), the results of the modeling calculations, without assuming any additional noise controls, revealed that residential receptors would not experience noise from LECEF above the existing background noise levels. Based upon the information in **NOISE Table 4** and **Table 5**, it is the opinion of the Energy Commission staff that operation of the project will comply with the LORS, and will ensure that there will be no significant change in noise levels at any sensitive residential receptor. The cumulative noise levels at sensitive receptors will not exceed the noise standards of the San Jose General Plan, except where existing conditions currently exceed the standards. Where existing conditions currently exceed the standards, the project would not cause an increase more than 5 dBA above the existing ambient noise level at sensitive receptors, the noise due to LECEF is not expected to have a significant effect on the local noise

environment. As U.S. Dataport is built out, the new industrial buildings may be expected to shield sensitive receptors from LECEF noise. Proposed Conditions of Certification **NOISE-2** and **NOISE-4** would ensure that noise effects are reduced to a less than significant level.

Tonal and Intermittent Noises

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. Tonal noises are commonly generated by rotating equipment. Noise from fans that may be exposed to outside for efficiency purposes might only be partially shielded by a fan enclosure. Because of the distance to the residential receptors across Highway 237, special provisions will not likely be necessary to mitigate tonal noise during the operation of the project. Should tonal noise occur during project operation, proposed Condition of Certification **NOISE-4** would require that the tonal noise be eliminated.

Linear Facilities

New off-site linear facilities proposed as part of this project include the short transmission line connection to the adjacent Los Esteros Substation. Noise from the transmission lines will include a corona discharge hum. Other water and gas pipeline linear facilities would not cause noise during operation. Because no sensitive receptors would be near the new transmission facilities, the noise impact would be less than significant.

Worker Effects

The applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and has committed to comply with applicable LORS (AFC § 8.7.3.2.5). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. The applicant would implement a comprehensive hearing conservation program. Proposed Conditions of Certification **NOISE-3** and **NOISE-5** would require the applicant to prepare a noise control program and manage occupational noise hazards.

B. Excessive Vibration: Less than Significant

Construction Effects – Pile Driving Vibration

Conventional pile driving produces potentially significant ground-borne vibration. The applicant has provided an analysis of potential pile driving vibration effects. Piling driving in the vicinity of the project site will not have any effects on the nearest residential receptors, which are approximately 0.6 miles distant.

Operational Effects – Plant Vibration

Plant operation would not cause substantial ground-borne vibration beyond the site boundary. Within the site boundary, vibration would be carefully managed to protect the rotating components of the equipment in operation (AFC, p. 8.5-20). Project-induced

ground-borne vibration will not have any effects on the nearest residential receptors, which are approximately 0.6 miles distant.

C. Permanent Increase in Ambient Noise Level: Less than Significant with Mitigation

Construction Noise

As described above, construction of the power plant is a temporary phenomenon; the construction period for the LECEF is scheduled to last between 4 to 6 months. As a result, noise generated from construction would not cause a substantial permanent increase in ambient noise levels.

Operational Noise

During the operating life, the LECEF will represent essentially a steady, continuous and broadband noise source, day and night. As discussed above, the noise levels from the proposed power plant were modeled to evaluate whether the new plant would contribute an incremental increase in noise levels at the nearest residential receptors. The predicted noise levels are shown in **NOISE Table 4** and **Table 5**. The predicted noise level at the closest residential receptor outside of the U.S. Dataport parcel would be below the existing nighttime ambient conditions, and the increase caused by the project would be less than 5 dBA. Proposed Conditions of Certification **NOISE-2** and **NOISE-4** would ensure that noise effects are less than significant.

D. Substantial Temporary Increase in Noise Level: Less than Significant with Mitigation Incorporated

Construction Noise

Construction impacts are generally short-term in nature and usually result from the operation of heavy-duty diesel- and gasoline-powered construction equipment (e.g., backhoes, boom trucks, delivery trucks, compressors). As discussed above, maximum estimated noise levels at the nearest sensitive receptor from construction would range between 46 and 57 dBA, depending on the construction phase. These noise levels would be below the existing ambient noise levels at the sensitive receptors outside the U.S. Dataport parcel. As a result, temporary increases in noise levels due to construction would be considered less than significant. Staff recommends the implementation of the measures described in Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6** to further reduce any potential for impacts to the local community associated with construction activities.

Operational Noise

As described above, the LECEF will represent essentially a steady, continuous noise source day and night. However, occasional short-term increases in noise levels will occur during startup or shutdown as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for lack of dispatch or from maintenance, noise levels will decrease. It is anticipated that the short-term noise levels would not cause any significant temporary increase in noise levels.

E. Airport Noise Impacts: No Impact

The LECEF is located approximately 3.4 miles north of the San Jose International Airport. In general, the project area is not substantially affected by aircraft noise, and the LECEF project would not include any receptors that would be sensitive to aircraft noise. Therefore, this criterion is not applicable to the proposed project.

F. Private Airstrip Impacts: No Impact

The LECEF would not include any receptors that would be sensitive to aircraft noise. Therefore, this criterion is not applicable to the proposed project.

ASSESSMENT OF CURRENT CONDITIONS WITHOUT U.S. DATAPORT

Without U.S. Dataport, the Cilker residences would become the nearest residential receptors. There is a temporary trailer camp at approximately 600 feet from the eastern edge of the LECEF site, and the main Cilker home is approximately 800 feet from the southeastern corner of the LECEF site.

A. Noise in Excess of Standards or Ordinances: Less than Significant with Mitigation Incorporated

Construction Noise

Construction noise would be more intense at the Cilker homes than it would be at the residences across Highway 237 in the discussion above. From the applicant's analysis of the predicted worst-case noise levels during construction, without pile driving, the predicted worst-case average hourly noise levels during each of the five phases would range from approximately 56 to 67 dBA at the main Cilker home and 58 to 69 dBA at the temporary trailer. This means that general construction noise at the Cilker homes would at times exceed the existing ambient noise levels by approximately 10 dBA. Pile driving noise and noise from construction of linear facilities would similarly be louder than the noise occurring in the existing conditions, but as with all other construction activities, these would be of limited duration. The expected maximum noise level at the main Cilker home caused by pile driving would be approximately 80 dBA, and up to 82 dBA would occur at the temporary trailer.

As identified above, noise effects from construction would be reduced through the implementation of proposed Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6**. Because construction activities are limited to daytime hours by the proposed Conditions of Certification, and are of limited duration, construction noise impacts are considered to be less than significant.

Operational Noise

With the noise reduction measures the applicant has incorporated into the design of the project (AFC, §8.5.5), the LECEF would generate approximately 43 dBA Leq at the main Cilker home within the U.S. Dataport parcel (Location 7). The cumulative noise levels resulting from the project are shown above in **NOISE Table 4** and **Table 5**. Because these noise levels would be less than the nighttime average noise levels, operational noise would be consistent with the established Energy Commission policy of

limiting increases in noise exposure to no more than 5 dBA, which would prevent a significant increase in background noise levels. Proposed Conditions of Certification **NOISE-2** and **NOISE-4** would ensure that noise effects are reduced to a less than significant level.

At the temporary trailer camp within the U.S. Dataport parcel, project noise levels would be higher than at Location 7, but would likely be less than 55 dBA Leq (based on AFC Figure 8.5-7). With the project and existing background, noise levels would be in the range of 60 to 62 Ldn. This would exceed the City noise goal for residential uses (55 Ldn), but would not exceed the noise level typically considered acceptable for transient lodging (65 Ldn, see **NOISE Table 2**). Because this property is not zoned for residential purposes and the trailer camp is a temporary rental unit, it is assumed to be occupied seasonally by farm labor, and therefore would not be as sensitive to noise as the permanent Cilker home. The Energy Commission staff has concluded that stringent noise goals for permanent residential uses are not appropriate for the less-sensitive trailer camp. Because LECEF noise levels would be less than those typically considered acceptable in the LORS for transient lodging, a significant impact would not occur at this location.

B. Excessive Vibration: Less than Significant

Pile driving during construction of the LECEF project without U.S. Dataport, if necessary, would occur at a distance of at least 600 to 800 feet from the Cilker homes. At this distance, project vibration will not cause any effects on the residential receptors.

C. Permanent Increase in Ambient Noise Level: Less than Significant with Mitigation

Operational Noise

As discussed above, the noise levels from the proposed power plant were modeled to evaluate whether the new plant would contribute an incremental increase in noise levels at the nearest residential receptors. The predicted noise levels are shown in **NOISE Table 4** and **Table 5**. The predicted noise level at the main Cilker home (Location 7) would be below the existing nighttime ambient conditions, and the increase caused by the project would be less than 5 dBA. Proposed Conditions of Certification **NOISE-2** and **NOISE-4** would ensure that noise effects of the LECEF project without U.S. Dataport are less than significant.

D. Substantial Temporary Increase in Noise Level: Less than Significant with Mitigation Incorporated

Construction Noise

As discussed above, maximum estimated noise levels from general construction activities would at times exceed the existing ambient noise levels at the homes on the Cilker property. As in the case of the project with U.S. Dataport, temporary increases in noise levels due to construction would be considered less than significant because limitations on construction activities would be included in the Conditions of Certification.

Staff recommends the implementation of the measures described in Conditions of Certification **NOISE-1**, **NOISE-2,** and **NOISE-6**.

E. Airport Noise Impacts: No Impact

There would be no change in this impact if the project occurs without U.S. Dataport.

F. Private Airstrip Impacts: No Impact

There would be no change in this impact if the project occurs without U.S. Dataport.

CUMULATIVE IMPACTS

Section 15130 of the *CEQA Guidelines* (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts. Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The *CEQA Guidelines* require that the discussion reflect the severity of the impacts and the likelihood of their occurrence, but need not provide as much detail as the discussion of the impacts attributable to the project alone.

Pursuant to CEQA, a cumulative impacts analysis can be performed by either 1) summarizing growth projections in an adopted general plan or in a prior certified environmental document, or 2) compiling a list of past, present, and probable future projects producing related or cumulative impacts. The second method has been utilized for the purposes of this Staff Assessment.

There are a number of planned projects that would contribute to cumulative noise impacts in the project study area identified in the AFC. Adjacent to the U.S. Dataport parcel are the planned Coyote Creek/Llagas Creek Trail and the proposed San Francisco Bay Trail. Because these areas are currently designated for future recreational land use, they have been considered in the above analysis (see **NOISE Table 5**).

Other future projects would not bring sensitive receptors closer to the LECEF site. One apartment complex is currently under construction by the Irvine Company in north San Jose. This new apartment complex would be approximately one mile south of the LECEF. Because existing nearby residences are much closer to the project site, the impacts to the most sensitive residential areas have been considered in the above analysis, and no additional analysis is necessary for the future Irvine Company apartment complex.

Other planned industrial, municipal, and office projects in the vicinity of LECEF would contribute to the increased cumulative noise levels in the area mainly through increased traffic. Increased traffic noise in the future will increase baseline noise levels regardless of the project, especially near major corridors such as Highway 237 and Zanker Road. To the extent possible, the effects of noise produced by those sources have been accounted for by the ambient noise level measurements, and the resulting noise levels are described in the noise level predictions listed above.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed LECEF (please refer to Socioeconomics discussion in this Staff Assessment), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. Based on the noise and vibration analysis, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no environmental justice issues related to this project.

FACILITY CLOSURE

In the future, upon closure of the LECEF, all operational noise from the entire LECEF site would cease, and no further noise impacts from operation of the plant would be possible. The remaining potential temporary noise source would be the dismantling of the structures and equipment, and any site restoration work that may be performed. Since this noise would be similar to that caused by the original construction of the LECEF, it can be treated similarly. That is, noisy work can be performed during daytime hours, with machinery and equipment properly equipped with mufflers. Any noise LORS that are in existence would apply; applicable Conditions of Certification included in the Energy Commission Decision would also apply unless modified. Because the noise effects would likely be similar to those that would occur during construction, implementation of proposed Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6** are recommended for facility closure.

THE CITY OF SAN JOSE (With The City's subheadings)

City 20 " The noise analysis needs to include a new acoustical analysis specifically evaluating the noise generated from the LECEF, particularly the Cooling Tower and the Chillers."

Response - The AFC (Section 8.5.4.1) and information provided to staff during Data Adequacy (Section 2.9 and Attachment NO-1 of 9/14 Data Adequacy Response) included the results of operational noise predictions from the LECEF equipment. The information submitted by the applicant indicates that the cooling towers, including the chillers, were included in the acoustic modeling.

City 21 Clarifies that the City would like the Energy Commission noise analysis to address the LECEF project only, and not be based upon noise attenuation from the USDP project.

Response - The noise levels predicted in this Staff Assessment are those that would occur without any U.S. Dataport buildings in place. Because development of the U.S. Dataport buildings may take many years to complete, no portions of the noise analyses rely on shielding that may be provided by future development.

City 22 " Evaluation of LORS and applicable policies needs to reflect current changes to Title 20 of the San Jose Municipal Code regarding Energy Facilities and noise impact thresholds."

Response - The recent changes to noise performance standards in Title 20 of the San Jose Municipal Code were made effective September 27, 2001. These thresholds, which depend on the type of adjacent land use that would experience noise from the power plant, are used in this Staff Assessment as described in the LORS section above.

City 23 "While the project proposes to include silencers and other technologies which will attenuate possible noise impacts, not enough information is provided regarding their feasibility and reliability. Any specifications, case examples, or research demonstrating this is needed."

Response - Staff has proposed conditions of certification that are designed to ensure that the plant's noise reduction features achieve their design goals. Proposed condition **NOISE-4** would require performance testing during the initial operational phases. After initial performance is achieved, the proposed condition **NOISE-2** sets forth a complaint resolution process that enables neighbors to initiate noise reduction at the plant, should it become necessary at any point in the lifetime of the plant. Ongoing compliance with these conditions would provide assurance that the noise reducing features are properly implemented and maintained.

Copies of the compliance-related correspondence identified below in the Conditions of Certification will be provided to the City of San Jose.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Energy Commission staff concludes that the LECEF will be built and operated to comply with all applicable noise laws, ordinances, regulations, and standards. Energy Commission staff further concludes that if the LECEF were designed as described above, and further mitigated as described below in the proposed Conditions of Certification, it is not expected to produce significant adverse noise impacts.

RECOMMENDATION

To ensure compliance with all applicable noise LORS, Energy Commission staff recommends adoption of the following proposed Conditions of Certification.

PROPOSED CONDITIONS OF CERTIFICATION

PRE-CONSTRUCTION NOTICE & CONSTRUCTION NOISE COMPLAINT HOTLINE

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, including the City of San Jose and the Santa Clara Valley Water District, 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: The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of ground disturbance, a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

OPERATION 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 five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the local jurisdiction, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE CONTROL PROGRAM

NOISE-3: Prior to the start of ground disturbance, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA 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 above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE RESTRICTIONS

NOISE-4: The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause resultant noise levels to exceed 50 dBA L_{90} at the main Cilker home, and that the noise due to plant operations will comply with the noise standards of the City of San Jose riparian corridor policies (LORS) at Location 2 (60 Ldn). The closest permanent residential receptor is the landscaped yard of the main Cilker home if this property is not under the control of the project owner or U.S. Dataport. If this property is under the control of the project owner or U.S. Dataport, compliance is not required at the Cilker home.

No new pure tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

Protocol:

A. Prior to initiating construction, the project owner shall conduct short-term ambient noise measurements during day, evening, and nighttime hours at one location in the vicinity of the Coyote Creek riparian corridor (Location 2) and a 25-hour community noise survey at the main Cilker home, if appropriate, if appropriate based on the above discussion.

B. Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct short-term survey noise measurements 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. In addition, the project owner shall conduct a 25-hour community noise survey at the main Cilker home, if appropriate. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

C. If the results from the pre-construction and operational noise surveys indicate that the background noise level (L_{90}) at the main Cilker home has increased due to power plant noise by more than 5 dBA for any given hour during the 25-hour period, or that the noise standards of the LORS have been exceeded at the Coyote Creek riparian corridor, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

D. If the results from the pre-construction and operational noise surveys indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the local jurisdiction, and to the CPM. Included in the post-construction survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of implementation of the mitigation measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

OCCUPATIONAL NOISE HAZARDS

NOISE-5: Within 30 days of 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-6: Heavy equipment operation and noisy construction work shall be restricted to the times of day delineated below:

Any Day 6 a.m. to 8 p.m.

Noise due to pile driving 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: The project owner shall transmit to the CPM in the first Monthly Compliance Report 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 Project
(01-AFC-12)

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).

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City of San Jose. Sections 10.16.010 and 10.16.020 of the Municipal Code and Title 20 of the Municipal Code. September 2001.

City of San Jose. Ordinance Number 26343, Planned Development Zoning U.S. Dataport. April 3, 2001.

City of San Jose. Riparian Corridor Policy Study. Approved by City Council May 17, 1994. Revised March 1999.

Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment*. DOT-T-95-16. Harris, Miller, Miller and Hanson, Inc. Burlington, Massachusetts.

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State of California. 1998. *General Plan Guidelines*. Governor's Office of Planning and Research. November 1998.

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PUBLIC HEALTH

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

The purpose of staff's public health analysis is to determine if toxic emissions from the proposed Los Esteros Critical Energy Facility (LECEF) project will have the potential to cause significant adverse public health impacts or to violate standards for public health protection. If potentially significant health impacts are identified, staff will evaluate mitigation measures to reduce such impacts to insignificant levels. A brief overview of the project is provided, as are discussions regarding selected CEQA checklist items with respect to public health. A discussion of additional items listed in the Air Quality portion of the checklist may be found in the **AIR QUALITY** section of this staff analysis.

METHOD OF ANALYSIS

Public health staff is concerned about toxic emissions to which the public could be exposed during project construction and routine operation. Following the release of toxic contaminants into the air or water, people may come into contact with them through inhalation, dermal contact, or ingestion via contaminated food or water.

Air pollutants for which no air quality standards have been set are called noncriteria pollutants. Unlike criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide, noncriteria pollutants have no ambient (outdoor) air quality standards that specify levels considered safe for everyone.

Since noncriteria pollutants do not have such standards, a process known as health risk assessment is used to determine if people might be exposed to those types of pollutants at unhealthy levels. The risk assessment procedure consists of the following steps:

1. Identify the types and amounts of hazardous substances that the LECEF project could emit to the environment;

2. Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;

3. Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and

4. Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects.

Initially, a screening level risk assessment is performed using simplified assumptions that are intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to project emissions. In reality, it is likely that the actual risks from the power plant will be much lower than the risks which are estimated by the screening level assessment. This is accomplished by

examining conditions that would lead to the highest, or worst-case risks, and then using those in the study. Such conditions include:

1. Using the highest levels of pollutants that could be emitted from the plant;

2. Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;

3. Using the type of air quality computer model which predicts the greatest plausible impacts;

4. Calculating health risks at the location where the pollutant concentrations are calculated to be the highest;

5. Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and

6. Assuming that an individual's exposure to cancer-causing agents occurs for 70 years.

7. A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances which could present a health hazard from noninhalation pathways of exposure (see CAPCOA 1993, Table III-5). When these substances are present in facility emissions, the screening level analysis includes the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term). Acute health effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic health effects are those which arise as a result of long term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime (from seven to seventy years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for 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 (CAPCOA 1993, p. III-36). These exposure levels are designed to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature, and include margins of safety. The margin of safety addresses uncertainties associated with inconclusive scientific and technical information available at the time of standard setting and is meant to provide a reasonable degree of protection against hazards that research has not yet identified.

The margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection is achieved if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety exists between the predicted exposure and the estimated threshold dose for toxicity.

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact (Id).

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. In reality, the risk is generally too small to actually be measured. For example, the one in one million risk level represents a one in one million increase in the normal risk of developing cancer over a lifetime, at whatever location is estimated to have the worst-case risk.

Cancer risk is expressed in chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (called “potency factors”, and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for each carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be lower or even considerably lower than those estimated.

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate assessment of potential public health risks.

SIGNIFICANCE CRITERIA

Commission staff determines the health effects of exposure to toxic emissions based on impacts to the maximum exposed individual. This is a person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above.

As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health

effects. Significance of project health impacts is determined separately for each of the three categories.

Acute and Chronic Noncancer Health Effects

Staff assesses the significance of non-cancer health effects by calculating a "hazard index". A hazard index is a ratio comparing exposure from facility emissions to the reference (safe) exposure level. A ratio of less than one signifies that the worst-case exposure is below the safe level. The hazard index for every toxic substance which has the same type of health effect is added to yield a total hazard index. The total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one indicates that cumulative worst-case exposures are less than the reference exposure levels (safe levels). Under these conditions, health protection is likely to be achieved, even for sensitive members of the population. In such a case, staff presumes that there would be no significant non-cancer project-related public health impacts.

Cancer Risk

Staff relied upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code, §§ 25249.5 et seq.) for guidance to determine a cancer risk significance level. Title 22, California Code of Regulations, § 12703(b) states that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This level of risk is equivalent to a cancer risk of ten in one million, or 10×10^{-6}. An important distinction is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than that which applies to Proposition 65.

The significant risk level of ten in one million is consistent with the level of significance adopted by the BAAQMD Board of Directors pursuant to Health and Safety Code § 44362(b), which requires notification of nearby residents when an air district determines that there is a significant health risk from a facility. In addition, BAAQMD's Risk Management Policy states that a project with an incremental cancer risk of between one and ten in a million is acceptable if best available control technology has been applied to reduce risk (BAAQMD 2000a, p. 4). In general, BAAQMD would not approve a project with a cancer risk exceeding ten in one million.

As noted earlier, the initial risk analysis for a project is typically performed at a screening level, which is designed to overstate actual risks, so that health protection can be ensured. When a screening analysis shows cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, exceeds the significance level of ten in one million, staff would require appropriate measures to reduce risk to less than significant. If, after all risk reduction measures had been considered, a refined analysis identifies a cancer risk greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Clean Air Act section 112 (42 U.S. Code section 7412)

Section 112 requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

STATE

California Health and Safety Code sections 39650 et seq.

These sections mandate the 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.

SETTING

Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emissions plume from a facility may affect elevated areas before lower terrain areas, due to a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site influence the surrounding population distribution and density which, in turn, affects public exposure to project emissions. Additional factors affecting potential public health impact include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

The proposed site is located on approximately 15 acres of the 174-acre proposed U.S. DataPort project site located in north San Jose at 1515 Alviso-Milpitas Road. The site lies on the north side of State Route 237, approximately ¼ mile west of Coyote Creek. The site topography is relatively flat, with an elevation about 15 feet above sea level. The site is located within the northern end of the Santa Clara Valley, at the south end of the San Francisco Bay (which lies approximately 7 miles west-northwest of the site). The Valley is bordered by the Santa Cruz Mountains to the west and by the Coastal Range to the east.

Currently, land at the proposed site is classified as undeveloped prime farmland. Existing land uses in the project vicinity include a wastewater treatment plant and its buffer area, State Route 237, a bus yard, a mobile home park, wildlife refuge and agricultural and industrial uses.

Future growth in Santa Clara County is expected to occur in San Jose and in the south county; the north and west valley cities are expected to experience little population growth. Future development of the proposed U.S. DataPort project adjacent to the LECEF project will result in a new industrial park development in close proximity to Coyote Creek and may cause potential impacts to wildlife in this area.

As mentioned above, the location of sensitive receptors near the proposed site is an important factor in considering potential public health impacts. The nearest residential areas are approximately 3,200 feet (0.6 mile) southwest of the site, 4,200 feet (0.8 mile) east of the site and 7,500 feet (1.4 miles) southeast of the project site. The nearest schools are located about 5,300 feet (1 mile) and 6,900 feet (1.3 miles) northeast of the site (in the city of Milpitas). AFC Figures 8.6-1a and 1b show sensitive receptors within a three-mile radius of the project site.

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may be increased.

The climate at the project site is dominated by the influence of the Pacific Ocean and the Pacific high-pressure system, which is a semi-permanent, subtropical high-pressure system located off the coast. The size and strength of the Pacific high is at a maximum during the summer, when it is at its northernmost position, and results in strong northwesterly air flow and negligible precipitation. During this period, inversions become strong, winds are light, and the pollution potential is high. The Pacific high's influence weakens during the fall and winter when it moves southwestward, which allows storms from the Gulf of Alaska to reach northern California. About 80 percent of the region's annual rainfall occurs between November and March. During the winter, inversions are weak, winds often moderate, and the potential for air pollution is low.

Atmospheric stability is a measure related to turbulence, or the ability of the atmosphere to disperse pollutants due to convective air movement. Mixing heights (the height above ground level through which the air is well mixed and in which pollutants can be dispersed) are lower during mornings due to temperature inversions and increase during the warmer afternoons. Staff's **Air Quality** section presents more detailed meteorological data.

EXISTING AIR QUALITY

The proposed site is within the jurisdiction of BAAQMD, which includes Santa Clara County as well as eight other Bay Area counties. BAAQMD conducts ambient monitoring of thirteen gaseous toxic air contaminants at 17 locations throughout the district. By combining average toxic concentration levels from all monitoring sites with cancer risk factors specific to each contaminant, lifetime cancer risk can be calculated to provide a background risk level for inhalation of ambient air.

In 1998, the background cancer risk calculated by BAAQMD for the Bay area was 199 in one million (BAAQMD 1999, p. 11). The pollutants 1,3-butadiene and benzene, emitted primarily from mobile sources, were the two highest contributors to risk and together accounted for over half of the total. The risk from 1,3-butadiene was about 66 in one million, while the risk from benzene was about 58 in one million. Formaldehyde accounts for about seven percent of the 1998 average calculated cancer risk for the Bay Area, with a risk of about 13 in one million. Formaldehyde is emitted directly from vehicles and other combustion sources, such as the proposed LECEF project.

The use of reformulated gasoline, beginning in the second quarter of 1996, as well as other toxics reduction measures, have led to a decrease of ambient levels of toxics and associated cancer risk during the past few years. For example, cancer risk was 342 in one million based on 1992 data, 315 in one million based on 1994 data, and 303 in one million based on 1995 data.

The toxic air monitoring station closest to the LECEF project is on Fourth Street in San Jose. The 1997 ambient levels of the two pollutants which contribute most to ambient risk (1,3-butadiene and benzene) were significantly higher at that station than the Bay Area average, probably due to mobile sources. In 1997, cancer risks in San Jose for 1,3-butadiene and benzene were about 162 and 78 in one million, respectively, compared to the Bay Area average of 58 and 54 in one million. However, 1998 data show that concentrations of 1,3-butadiene were lower in San Jose than the Bay Area average, while benzene levels were only marginally higher. In 1998, cancer risk for 1,3-butadiene was 51 in one million in San Jose compared to 66 for the Bay Area, while risk for benzene was 63 in one million in San Jose compared to 58 in the Bay Area.

SITE CONTAMINATION

Site disturbances will occur during facility construction from excavation, grading, and earth moving. Such activities have the potential to adversely affect public health through various mechanisms, such as the creation of airborne dust, material being carried off-site through soil erosion, and uncovering buried hazardous substances. On behalf of Calpine Corporation, Phase I and II Environmental Site Assessments (ESAs) were conducted by Lowney Associates for the U.S. Dataport Planned

Development Zoning (PDZ) Draft Environmental Impact Report (DEIR), published in November 2000 by the City of San Jose. The purpose of an ESA is to determine the potential for the presence or likely presence of any hazardous substances or petroleum products under conditions that may indicate a release or threat of a release from present or past activities. The results of the ESAs are summarized in staff's **Waste Management** section. In addition, a database search was performed for potentially contaminated sites which may be encountered during construction of the linear facilities. These results are also summarized in the **Waste Management** section.

IMPACTS

PUBLIC HEALTH

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY – Would the project expose sensitive receptors to substantial pollutant concentrations during:				
Construction ?		X		
Operation ?			X	

DISCUSSION OF IMPACTS

Construction

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 staff's **Air Quality** analysis.

As described in the Waste Management section, a Phase I Environmental Site Assessment (ESA) and a partial Phase II ESA have been performed. Soils at the project site contain elevated levels of residual pesticides, including total DDT, dieldrin, endrin, lead and arsenic. The site will be largely covered by buildings and paving under the proposed project. Concentrations of residual pesticides are below the USEPA's Preliminary Remediation Goals (PRGs) for industrial settings and thus the residual pesticides in soil do not pose a significant threat to human health in an industrial setting. However, construction workers could be exposed to pesticide residuals during site grading.

The operation of construction equipment will result in air emissions from diesel-fueled engines. Although diesel exhaust contains criteria pollutants such as nitrogen oxides, carbon monoxide, and sulfur oxides, it also includes a complex mixture of thousands of gases and fine particles. These particles are primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel

exhaust contains over 40 substances that are listed by the U.S. EPA as hazardous air pollutants and by the Air Resources Board (ARB) as toxic air contaminants.

Exposure to diesel exhaust causes both short- and long-term adverse health effects. Short-term effects can include increased cough, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Long-term effects can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies also strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer.

Based on a number of health effects studies, the Scientific Review Panel on Toxic Air Contaminants (SRP) recommended a chronic REL (see REL discussion in Method of Analysis section above) for diesel exhaust particulate matter of 5 $\mu g/m^3$ and a cancer unit risk factor of $3x10^{-4}$ $(\mu g/m^3)^{-1}$ (SRP 1998, p. 6). The SRP did not recommend a value for an acute REL, since available data in support of a value was deemed insufficient. On August 27, 1998, the ARB listed particulate emissions from diesel-fueled engines as a toxic air contaminant and approved SRP's recommendations regarding health effect levels.

Construction of LECEF is anticipated to take place over a period of approximately 4-6 months. As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from seven to seventy years.

AFC Appendix 8.1D presents exhaust emissions from construction activities. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. Maximum daily emissions of 42.2 lb/day PM10 are determined, with 5.29 lb/day PM10 due to construction equipment and 36.87 lb/day due to fugitive dust emissions (Calpine 2001, AFC Appendix 8.1D). It is estimated that about 12.5 percent of the total maximum daily PM10 emissions are due to construction equipment emissions. Modeling construction activities, which are assumed to occur for eight hours per day, gives a one-hour maximum concentration of 13.2 $\mu g/m^3$ (Calpine 2001, Appendix 8.1D, Table 8.1D-3). The modeled one-hour concentration at the nearest residential receptor is not presented in the AFC.

In order to mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, **Air Quality** staff recommends the use of ultra low sulfur diesel fuel or 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 comparable for both mitigation measures in the range of approximately 85-92 percent. Such filters will reduce diesel emissions during construction and reduce any potential for significant health impacts.

Operation

Emissions Sources

The emissions sources at the proposed LECEF project include a fire pump diesel engine, an emergency generator, four simple cycle gas turbines, and the cooling tower. During operation, potential public health risks are related to diesel exhaust emissions from testing the diesel engine-driven fire pump engine, natural gas combustion emissions from the gas turbines, and noncombustion emissions from the cooling tower.

As noted earlier, the first step in a health risk assessment is to identify potentially toxic compounds that may be emitted from the facility.

Diesel exhaust emissions contain a number of toxic compounds. However, a chronic REL and cancer risk factor have been established for diesel particulate matter which may be used to characterize emissions from diesel engines (please see the above discussion under Construction Impacts). The diesel engine used for the fire pump must be tested on a weekly basis in accordance with safety requirements, resulting in diesel particulate emissions that must be analyzed for health effects. The BAAQMD Risk Management Policy for Diesel Engines (established February 3, 2000) lists criteria for permitting stationary diesel engines, and states that if the annual emissions would result in an incremental cancer risk equal to or less than one in one million (measured at the point of maximum residential or off-site worker exposure) over an exposure period of 70 years, the project is acceptable without further risk management considerations.

Table 8.1-14 of the AFC lists noncriteria pollutants that may be emitted from LECEF project turbines as combustion byproducts, along with their anticipated amounts (emission factors). Emission factors are from AP-42 and from the California Air Toxics Emission Factors (CATEF) database. Table 8.6-2 of the AFC (Calpine 2001) lists toxicity values used to characterize cancer and noncancer health impacts from project pollutants. The toxicity values include reference exposure levels, which are used to calculate short-term and long-term noncancer health effects, and cancer unit risks, which are used to calculate the lifetime risk of developing cancer, as published in the CAPCOA Guidelines (CAPCOA 1993). **PUBLIC HEALTH Table 1** lists combustion-related toxic emissions and shows how each contributes to the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern, but if inhaled, may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

PUBLIC HEALTH Table 1
Types of Health Impacts and Exposure Routes Attributed to Combustion-Related Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	
Acrolein				✓	✓
Ammonia				✓	✓
Benzene			✓	✓	✓
1,3-Butadiene			✓	✓	
Ethylbenzene				✓	
Formaldehyde			✓	✓	✓
Hexane				✓	
Napthalene		✓		✓	
PAHs	✓	✓	✓	✓	
Propylene				✓	
Propylene oxide	✓		✓	✓	✓
Toluene				✓	✓
Xylene				✓	✓

Source: AFC Table 8.6-2 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993

Noncriteria emissions from the cooling tower originate from contaminants in the cooling source water that become entrained in liquid water droplets emitted as cooling tower drift. LECEF will use treated wastewater from the San Jose/Santa Clara Water Pollution Control Plant (WPCP) for cooling. AFC Table 8.14-1 lists constituents found in WPCP wastewater which could be emitted as part of the drift. AFC Appendix 8.1, Table 8.1A-7 lists the amounts of each pollutant released to the atmosphere in the cooling tower drift based on the pollutant levels in the circulating cooling water. **PUBLIC HEALTH Table 2** lists these substances and shows how each contributes to the health risk analysis.

PUBLIC HEALTH Table 2
Types of Health Impacts and Exposure Routes
Attributed to Cooling Tower Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Chronic Noncancer	Acute Noncancer
Ammonia				✓	✓
Arsenic	✓	✓	✓	✓	
Cadmium		✓	✓	✓	
Chromium (III)				✓	
Copper				✓	
Lead		✓	✓	✓	
Mercury		✓			✓
Nickel			✓	✓	✓
Silver				✓	
Zinc				✓	

Source: AFC Appendix Table 8.1A-7 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993

Emissions Levels

Once potential emissions are identified, the next step is to quantify them by conducting a "worst case" analysis. Maximum hourly emissions are required to calculate acute (one hour) noncancer health effects, while estimates of maximum emissions on an annual basis are required to calculate cancer and chronic (long-term) noncancer health effects.

The emergency generator includes an 804 horsepower engine with a PM10 emission rate of 0.28 lb/hr (Calpine 2001, p. 8.1-23 and 8.1-26). The diesel fire pump will be powered by a 368 horsepower engine with a PM10 emission rate of 0.073 lb/hr (Calpine 2001, p. 8.1-23 and 8.1-26). Maximum operations will be one hour per day and 200 hours per year for the emergency generator and 45 minutes/day and 100 hours/year for the diesel fire pump; the engines will not be tested on the same day. Modeling was performed assuming that the emergency generator will operate for one hour for testing and up to 200 hours annually while the fire pump engine will operate for one hour for testing and up to 100 hours annually.

AFC Table 8.1-6 shows maximum hourly fuel use for the combustion gas turbines. The maximum fuel use is combined with the emission factor for each toxic air contaminant to estimate hourly and maximum annual emissions (Calpine 2001, AFC Appendix 8.1A, Table 8.1A-6). Emission factors are estimates of the amounts of toxic substances released per unit of fuel burned and are from data compiled by the AP-42 and the California Air Toxic Emission Factors (CATEF) database maintained by the California Air Resources Board (Calpine 2001, AFC p. 8.1-26).

The next step in the health risk assessment process is to estimate the ambient concentrations of toxic substances. This is accomplished by using a screening air dispersion model and assuming conditions that result in maximum impacts. The screening analysis was performed using the U.S. EPA approved ISCST3 dispersion modeling program (please see staff's Air Quality section for a detailed discussion of the modeling methodology). Finally, ambient concentrations were used in conjunction with RELs and cancer unit risk factors to estimate health effects which might occur from exposure to facility emissions. Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk.

The above method of assessing health effects is consistent with the California Air Pollution Control Officers Association (CAPCOA) Air Toxics "Hot Spot" Program Revised 1992 Risk Assessment Guidelines (October 1993) referred to earlier, and results in the following health risk estimates.

Impacts

Dispersion modeling for diesel emissions from fire pump testing resulted in a maximum modeled annual impact at a location distinct from the location of the maximum cancer risk from the turbines. At the site of maximum cancer risk from the diesel fire pump engine, the maximum risk is determined by applying the diesel exhaust particulate unit risk value to the maximum annual average PM_{10} concentration. After adjusting for workplace exposure (46 years/70 years), the maximum risk is 0.14×10^{-6}, which is less than the significance level. The Final Determination of Compliance from BAAQMD states that, since the health risk screening showed that the resulting increased carcinogenic risk is less than one in one million, the fire pump diesel engine is exempt from District permit requirements.

PUBLIC HEALTH Table 3
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.02	1.0	No
Chronic Noncancer	0.003	1.0	No
Individual Cancer	0.02×10^{-6}	1.0×10^{-5}	No

Source: Calpine 2001, Table 8.1-24.

The screening health risk assessment for the project, including combustion and noncombustion emissions, resulted in a maximum acute hazard index of 0.02 at a location located northeast of the proposed site (Calpine 2001, Figure 8.1C-1). The chronic hazard index at the point of maximum impact for chronic noncancer health effects is 0.003 and is located south and slightly east of the proposed facility. As **PUBLIC HEALTH Table 3** shows, both acute and chronic hazard indices are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected. Staff independently calculated noncancer hazard indices based on ground level

concentrations presented in the AFC and obtained results similar to those presented in the AFC.

Total worst-case individual cancer risk as shown in **Public Health Table 3** is estimated to be 0.02 in one million. As discussed earlier, this is the risk at the location where long-term pollutant concentrations are calculated to be the highest, and is at the same location as the maximum chronic hazard (Calpine 2001, Figure 8.1C-1). Staff independently calculated cancer risk based on ground level concentrations presented in the AFC and obtained the same value that was presented in the AFC.

CUMULATIVE IMPACTS

The maximum cancer risk for the LECEF facility is 0.02 in one million while the maximum risk from the diesel fire pump is 0.14 in one million. These risks occur at separate locations. If the maximum risk for both sources occurred at the same location, the cumulative risk would be 0.16 in one million. Maximum risk is not determined at the nearest residence.

In comparison, BAAQMD estimated the Bay Area average lifetime cancer risk for inhalation of ambient air to be 199 in one million based on 1998 ambient average toxic concentration data (BAAQMD 1999, p. 11).

The maximum impact location occurs where pollutant concentrations from LECEF would theoretically be the highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, and the increase does not represent any real contribution to the ambient risk of 199 in one million. Modeled facility-related risks are lower at all other locations, and actual risks are expected to be much lower, since worst-case estimates are based on conservative assumptions, and overstate the true magnitude of the risk expected. Therefore, staff does not consider the incremental impact of the additional risk posed by the LECEF project to be either significant or cumulatively considerable.

The worst-case long-term health impact from LECEF (0.003 hazard index) is well below the significance level of 1.0 at the location of maximum impact. At this level, staff does not expect any cumulative health impacts to be significant. As with cancer risk, long-term hazard would be lower at all other locations, and cumulative impacts at other locations would also be less than significant.

BAAQMD staff examined the issue of cumulative impacts from facilities affecting the same neighborhood. They concluded that elevated concentrations of toxic air contaminants from stationary sources tend to be quite localized, and that cumulative risks are likely to occur only when multiple facilities with substantial low-level emissions are immediately adjacent to, or very close to, one another (BAAQMD 1993).

Even in the unlikely event that worst-case emissions from an existing facility were to coincide both geographically and temporally with LECEF emissions at the location of maximum impact, the overall long-term health outlook would not change for anyone. Thus, the LECEF project will not result in any significant cumulative cancer or chronic noncancer health impacts.

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows significant minority populations within six miles of the proposed project. Since staff has concluded that there will be no significant direct or cumulative public health-related impacts, there will also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues.

COMPLIANCE WITH LORS

Staff concludes that construction and operation of the LECEF project will be in compliance with all applicable LORS regarding long-term and short-term project impacts.

FACILITY CLOSURE

The scope of staff's public health analysis is limited to routine releases of harmful substances to the environment. During either temporary or permanent facility closure, the major concern would be from accidental or nonroutine releases from either hazardous materials or wastes which may be onsite. These are discussed in the sections on **Hazardous Materials** and **Waste Management**, respectively. During temporary closure (periods greater than those required for normal maintenance), it is unlikely that there would be any routine releases of harmful substances to the environment, since the facility would not be operating. For permanent closure, the only routine emissions would be related to facility demolition or dismantling, such as exhaust from heavy equipment or fugitive dust emissions. These would be subject to closure conditions adopted by the Energy Commission once a closure plan is received from the project owner.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No comments reqarding public health were received.

CONCLUSIONS

Staff has analyzed potential public health risks associated with construction and operation of the LECEF project. With implementation of the condition of certification included herein, as noted, staff does not expect there to be any significant adverse cancer, or short- or long-term noncancer health effects from project emissions.

The health risk assessment performed by the applicant has been reviewed by the BAAQMD Toxics Evaluation Section and found to be in accordance with guidelines adopted by OEHHA, CARB and CAPCOA. Pursuant to the BAAQMD Risk Management Policy, the increased carcinogenic risk attributed to this project is considered to be not significant since it is less than 1.0 in one million. The chronic hazard index attributed to the emission of non-carcinogenic air contaminants is considered to be not significant since it is less than 1.0. Therefore, the LECEF facility is

in compliance with the BAAQMD Toxic Risk Management Policy (BAAQMD 2000b, p. 21).

PROPOSED CONDITIONS OF CERTIFICATION

Staff does not propose any conditions of certification for public health.

REFERENCES

BAAQMD. 2000. Toxic Risk Management Policy. Bay Area Air Quality Management District, 2000.

CAPCOA. 1993. California Air Pollution Control Officers Association. CAPCOA Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee. October.

Calpine. 2001. Application for Certification (01-AFC-12), submitted by Calpine c*Power. Submitted to the California Energy Commission on August 3, 2001.

SOCIOECONOMICS

Testimony of Daniel Gorfain

INTRODUCTION

The technical area of Socioeconomics includes several related areas of interest and concern. A typical socioeconomic impact analysis evaluates the effects of short-term and long-term project-induced population changes on housing, employment, and public services within the project area. For example, project impacts on housing stock, local schools, medical and protective services, as well as the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes are evaluated. The socioeconomic analysis also provides demographic data for use in various other technical area analyses to determine the potential for Environmental Justice impacts.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

STATE

California Government Code, Sections 65996-65997

As amended by SB 50 (Stats. 1998, ch. 407, sec.23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

14 California Code of Regulations, Section 15131

- Economic or social effects of a project shall not be treated as significant effects on the environment.
- Economic or social factors of a project may be used to determine the significance of physical changes caused by the project.

- Economic, social and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce and/or avoid the significant effects on the environment.

LOCAL

Santa Clara County

Santa Clara County General Plan. 1994.

City of San Jose

City of San Jose General Plan, 1994.

Santa Clara Unified School District

- School Impact Fees assessed pursuant to the California Education Code Section 17620 and Government Code Section 65995(b)(2).

SETTING

DEMOGRAPHIC CHARACTERISTICS

The Los Esteros Critical Energy Facility (LECEF) is proposed as mitigation for the US Dataport Planned Development Zoning Project (US Dataport Project), which was approved by the City of San Jose on April 3, 2001. The LECEF is located in the City of San Jose on the north side of State Route 237 and west of Coyote Creek in Northern Santa Clara County. Santa Clara County is bounded by Stanislaus County to the east, Santa Cruz and San Mateo counties to the west, Alameda County to the north, and San Benito County to the south.

The current population of Santa Clara County is 1,682,585, and is expected to grow by 20 percent to over 2 million over the next 20 years (ABAG, 2001). Among the nine San Francisco Bay Area counties, Santa Clara County has the largest population and is anticipated to have the largest population during the next 20 years as well (ABAG 2001). The City of San Jose, one of the ten fastest growing cities in the region, has a current population of 894,943 and is expected to increase by 14percent, adding approximately 129,300 new residents, by the year 2020 (ABAG 2001).

The anticipated growth in Santa Clara County may be attributed to the fact that the county is expected to gain the most new jobs of any of the nine Bay Area Counties. Between 2000 and 2020, the number of jobs in Santa Clara County is projected to increase by 21percent from 1,077,220 to 1,308,220 (ABAG, 2001). The largest increase in new jobs is estimated at 114,000 in the services sector and 70,000 in the manufacturing/wholesale market.

SOCIOECONOMICS Table 1 shows the total 1990 population, minority population percentage (people of color as defined by the U.S. Census), and percent of the population below the poverty level for Santa Clara County, the City of San Jose, and the

6-mile radius around the proposed LECEF site, which includes portions of the City of Milpitas. Also shown are housing and employment data. **SOCIOECONOMICS Table 2** shows the same population characteristics using data sets from the 2000 Census, except for poverty level data, which are not yet available. The six-mile radius data is used in staff's environmental justice screening analysis.

SOCIOECONOMICS Table 1
Demographic Profile Of Santa Clara County, City of San Jose, City of Milpitas, and Project 6-Mile Radius: 1990

	Santa Clara County	City of San Jose	City of Milpitas	6-Mile Radius
Total Population	1,497,577	782,248	50,686	390,224
Minority %	31%	52.5%	47.9%	41.1%
Poverty %**	7.5%	9.2%	4.6%	6%
Total Housing	540,240 units	259,365 units	14,465 units	N/A
Vacancy Rate	3.7%	3.5%	2.5%	N/A
Total Employment (jobs within)	806,917	407,862	27,597	N/A
Total Labor Force (living within)*	842,346	432,806	38,616	N/A

* Indicates all residents of legal working age
** Data reflects income received and poverty level in 1989
N/A: Not Applicable
Source: US Census, 1990, 2000; AFC, 2001; DOF, 2001

HOUSING

Before Calpine purchased the site for LECEF, there were five dwelling units, including one freestanding house and units attached to mixed-use greenhouse buildings. In January 1999, there were approximately 25 residents at the site, all of whom were owners or their relatives (NESJ, 2000).

There is one residence on the parcel adjacent to the southern and eastern borders of the LECEF site. This parcel of land is planned to be developed as a part of the US Dataport Project. US Dataport is negotiating with the property owner to purchase the property.

SOCIOECONOMICS Table 2
Demographic Profile Of Santa Clara County, City of San Jose, City of Milpitas, and Project 6, 2 and 1-Mile Radius: 2000

	Santa Clara County	City of San Jose	City of Milpitas	6-Mile Radius	2-Mile Radius	1-Mile Radius
Total Population	1,682,585	894,943	62,698	315,125	33,268	2,133
Minority %	46.2%	48.5%	69.1%	68.9%	68.3%	44.9%
Poverty %	U/A	U/A	U/A	U/A	U/A	U/A
Total Housing	579,329 units	281,841 units	17,364	N/A	N/A	N/A
Vacancy Rate	3.9%	1.9 %	1.3%	N/A	N/A	N/A
Total Employment (jobs within)[1]	983,400	497,360	31,810	N/A	N/A	N/A
Total Labor Force (living within)*	1,003,300	509,300	32,480	N/A	N/A	N/A

* Indicates all residents of legal working age
N/A: Not Applicable; U/A: Unavailable
Source: US Census, 1990, 2000; AFC, 2001; DOF, 2001; CEDD, 2001. Monthly labor force data for counties provided by EDD, June 2001 (preliminary); 2000. Benchmark, not seasonally adjusted.

EMPLOYMENT AND ECONOMY

Socioeconomics Table 3 identifies labor force characteristics for Santa Clara County. Department of Finance statistics from 2000 for Santa Clara County indicate a civilian labor force of 1,003,300 with an unemployment rate of two percent, below the state's unemployment rate of 5.2 percent (DOF, 2001). The civilian labor force represents all residents between 18-55 years of age and currently employed.

In Santa Clara County, the services sector accounts for 36 percent of total employment, the highest proportion of any sector. Also, manufacturing accounts for 26 percent of jobs, government nine percent, agriculture 1 percent, and construction approximately 5 percent of the jobs in Santa Clara County. The construction sector employs about 48,700 workers in Santa Clara County.

SOCIOECONOMICS Table 3
Labor Force Characteristics in Santa Clara County, 2000

Sector	Santa Clara County
Civilian labor force	1,003,300
Unemployment	19,900
Agriculture	5,300
Construction	48,700
Manufacturing	260,200
Transportation/public utilities	29,100
Trade	195,800
Finance/insurance	32,100
Services	364,500
Government	94,700

Source: Department of Finance, 2001. Totals may not add due to rounding

It should be noted that for major construction projects, the construction labor pool comes from areas that are within a two-hour commute of the LECEF site (Energy Commission, 2001). Because of the nature of the construction industry in the San Francisco Bay Area, the labor force is accustomed to commuting to construction sites throughout the region.

SOCIOECONOMICS Table 4 identifies regional labor force characteristics for the required trades. Construction and operation of this project may draw on the labor pool in Santa Clara, Alameda, Stanislaus, San Joaquin, San Mateo, Santa Cruz, San Francisco, and Contra Costa counties.

SOCIOECONOMICS Table 4
Labor Force Characteristics in
Potential Labor Force in the Principal Labor Pool Area[1]

Annual Averages[2]			
Occupational Title	**1999**	**2002**	**Percentage Change**
Construction:			
Boilermakers	120	100	-16.7
Bricklayers/Cement Mason	3,640	4,340	19.2
Carpenters	13,360	15,260	14.2
Electricians	9,020	10,440	15.7
Insulators	830	1,120	34.9
Ironworkers (structural metal	310	350	12.9
Laborers	102,240	123,490	20.8
Millwrights	480	430	-10.4
Operating Engineers	2,600	3,130	20.4
Painters	5,920	7,080	19.6
Pipefitters/Sprinklerfitters	5,680	6,850	20.6
Sheetmetal Workers	3,590	3,870	7.8
Supervisors (construction)	5,690	6,650	16.9
Surveyors (including technicians)	1,610	1,590	-1.2
Truck Drivers	20,310	21,840	7.5
Welders	4,330	4,990	15.2
Total Construction:	**179,730**	**211,530**	**17.7**
Operations:			
Mechanical Engineers (including technicians)	7,240	9,190	26.9
Electrical Engineers (including technicians)	41,200	53,720	30.4
Plant and System Operators	5,600	5,710	2
Total Operations:	**54,040**	**68,620**	**27**

Source: California Employment Development Department, 1999
[1]The labor pool area here includes the counties of Alameda, Santa Clara, Contra Costa, San Mateo, San Francisco, Santa Cruz and San Joaquin.
[2]Figures represent aggregated county-wide from 1999

As shown in **SOCIOECONOMICS Table 4,** there are approximately 211,000 potential workers in the construction labor force in the required occupations. Plant operations labor pool is estimated at almost 69,000.

FISCAL

Under current law property taxes are levied and collected in accordance with Proposition 13. Therefore, property taxes for the proposed LECEF will be calculated at one percent of assessed value at the time the LECEF goes into operation and increased at two percent per year thereafter. Based on its projected cost of $120 million, initial property tax revenue to the City of San Jose is expected to increase by $1.2 million. This represents 1.5 percent of the City's budgeted property tax revenue for Fiscal Year 2002. Budgeted sales tax revenue for FY 2002 is $153.7 million, or 39.3 percent of total tax revenue (Jayna Ng, 2001). A breakdown of City revenue for the current and recent fiscal years is presented in **SOCIOECONOMICS Table 5.**

SOCIOECONOMICS Table 5
City of San Jose General Fund Tax Revenue

Revenue Source	1999-2000	2000-2001	2001-2002 (Budgeted)
Property Taxes	$ 71,971,000	$ 80,693,570	$ 82,167,000
Sales Tax	$142,268,039	$169,216,984	$153,650,000
Utility	$ 53,425,760	$ 67,446,480	$ 62,520,000
California State In-Lieu Tax	$ 45,394,373	$ 50,282,974	$ 51,289,000
Franchise Tax	$ 30,322,259	$ 29,172,058	$ 31,567,000
Transient Occupancy Tax	$ 8,287,524	$ 10,919,727	$ 10,000,000
Total:	**$351,668,955**	**$407,731,793**	**$391,193,000**

Source: City of San Jose, City Manager's Budget Office, 2001

PUBLIC SERVICES

Police Protection

The San Jose Police Department and the Santa Clara County Sheriff's Department provide police protection for the LECEF area. The San Jose Police Department is headquartered 6.7 miles north of the LECEF site, at 201 West Mission Street. The department has 1300 sworn officers. The LECEF site is located in the Police Department's "R" district. The "R" district is split into 5 beats, each of which has at least one officer patrolling at all times (AFC, 2001). The Police Department projects a 90-second to 5.5-minute response time to the LECEF (Dalaison, 2001).

The Santa Clara County Sheriff's Department, headquartered 6.2 miles away at 55 West Younger Avenue in San Jose, provides additional support and typically patrols unincorporated areas of Santa Clara County. In addition, the Milpitas Police Department can provide support for roving and emergencies (Dalaison, 2001). The

Milpitas Police Department is located 2.8 miles away at 1275 North Milpitas Blvd in Milpitas, from the LECEF site.

Schools

Santa Clara Unified School District (SCUSD) could accommodate the children of the permanent operations workforce and children of temporary construction worker parents who relocate to the area (Adams, 2001). In addition, the Sunnyvale School District, San Jose Unified School District and Milpitas Unified School District, which serve areas in the vicinity of the LECEF, would also accommodate children of temporary construction worker parents and permanent operations workforce.

The closest school to the LECEF site is the Spangler (Anthony) Elementary School, located 2.3 miles east of the LECEF, across I-880 at 140 North Abbott Road in Milpitas. It is part of the Milpitas Unified School District. Also, the Mayne (George) Elementary School, part of the SCUSD, is located 2.5 miles west of the LECEF site at 5030 North 1st Street in Alviso.

SOCIOECONOMICS Table 6 presents enrollment trends for the Santa Clara Unified School District, Sunnyvale School District, San Jose Unified School District, Milpitas Unified School District and Santa Clara County as a whole. Compared to 1999-2000 school year, 2000-2001 enrollment in Santa Clara County and the Santa Clara Unified School District dropped by 778 and 480, respectively. Enrollment in the remaining districts also dropped from previous years.

Other Public Services in Santa Clara County

Other public services in the San Jose area include utilities, medical facilities and libraries.

There are 15 hospitals with emergency rooms in Santa Clara County. The closest, is the Santa Clara Kaiser Permanente Medical Center, located 7.5 miles southwest of the LECEF site. It is a 336-bed hospital with a 24-hour emergency room. Santa Clara Valley Medical Center (SCVMC), located at 751 South Bascom Avenue, is approximately 10 miles from the proposed LECEF site. It is a 394-bed public facility and provides 24-hour emergency room service.

SOCIOECONOMICS Table 6
Enrollment in Project Area Schools

School	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01
Santa Clara Unified School District	14,018	14,386	14,559	14,654	14,587	14,107
Sunnyvale Elementary	5,896	5,923	6,077	6,022	5,875	5,951
San Jose Unified School District	32,160	32,592	32,993	32,843	33,035	33,015
Milpitas Unified School District	9,490	9,788	9,946	9,917	9,925	9,702
Santa Clara County Total	243,514	248,377	252,207	253,367	254,782	254,004

Source: Santa Clara Unified School District web page: www.scu.k12.ca.us/sarc/index.html.
California Department of Education web page: www.cde.ca.gov/demographics

The San Jose Fire Department provides ambulance service to the proposed project site. San Jose Fire Station No. 29, located between Highways 101 and 880, can respond to an emergency at the LECEF in 6 to 7 minutes. The City of San Jose maintains a Hazardous Incidence Team (HIT) which is also located at San Jose Fire Station No. 29. The HIT is able to manage hazardous material emergencies, including incidents involving aqueous ammonia (Smith, 1999; King, 2001). Fire protection is discussed in detail in the section on **Worker Safety & Fire Protection.**

The City of San Jose Public Library Alviso Branch, located 2.5 miles west of the project site at 5050 North First Street, and the Main Branch, located 8.4 miles south of LECEF at 180 West San Carlos Street, serves the LECEF area.

Additional public utilities required for the LECEF operation include natural gas, electricity, sewer, and water. Pacific Gas and Electric (PG&E) will supply natural gas via PG&E pipelines 101 and 109, located 550 feet south of the project site (AFC, 2001). The California Public Utilities Commission has approved the construction of the Los Esteros Substation, which may be located on the northwest corner of the LECEF site, and will provide connection to the electrical grid (AFC, 2001).

The San Jose/Santa Clara Water Pollution Control Plant (WPCP), through the South Bay Water Recycling Program, will provide recycled water for plant construction and operation. In a letter dated July 6, 2001, the City of San Jose indicated that there is sufficient water supply to serve the LECEF. Potable water will be trucked into the LECEF during construction and plant operation (AFC, 2001). Wastewater from the plant and sanitary waste will be sent to the WPCP via a 2,700-foot pipeline that will connect to the sewer main on Zanker Road (AFC, 2001).

SOCIOECONOMICS

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
SOCIOECONOMICS: POPULATION, HOUSING, AND ECONOMIC (FISCAL AND NON-FISCAL)-- Would the project:				
a) Have substantial non-fiscal effects on local employment and economy?				X
b) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
c) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
d) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
e) Have substantial fiscal effects on local government expenditures, property and sales taxes?				X
f) Have a significant minority or low-income population within a six-mile radius that may be subject to disproportionate adverse effects of the project?				X
Public Services – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, the construction of which could cause significant environmental impacts, or result in an inability to maintain acceptable service ratios, response times, or other performance objectives for the following:				
g) Police protection?				X
h) Schools?				X
i) Medical and other public services and facilities?				X

DISCUSSION OF IMPACTS

A. Employment and Economy: No Impact

According to the Application for Certification (AFC) for the LECEF, construction of the LECEF is expected to be completed in 4 to 6 months. Construction is anticipated to begin in February 2001, as soon as the AFC is approved, and be completed by July 2002. In order to meet this expedited timeline, the Applicant will employ two construction shifts: a day and a night shift. A maximum of 287 workers from varying trades common to the construction industry will be required for the LECEF (AFC, 2001). Construction of the gas and water lines will require an additional 34 workers (AFC, 2001). Therefore, there will be a total peak construction workforce of 321 workers.

Key construction trades include carpenters, electricians, millwrights, operators, pipefitters, and other laborers. As shown in **SOCIOECONOMICS Table 4**, there is a sufficient labor force in Santa Clara County and the surrounding Bay area counties from which to draw the required construction trades. **SOCIOECONOMICS Table 7** presents the distribution of workers by craft and month required for LECEF construction.

SOCIOECONOMICS Table 7
Projected Monthly Construction Labor By Craft

Month	Carpenters	Electricians	Ironworkers	Laborers	Millwrights	Operating Engineers	Painters	Pipefitters	Bricklayer Mason	Teamsters	Supervisors	Total	TOTAL ALL SHIFTS
Day Shift													
Feb-01	18	14	24	20	0	12	0	35	4	2	13	142	**251**
Mar-02	14	24	22	15	10	10	0	44	4	2	12	157	**287**
Apr-02	14	17	26	16	10	10	0	30	2	2	12	139	**252**
May-02	12	16	22	15	20	12	0	33	4	2	12	148	**267**
June-02	8	18	20	12	24	10	9	33	4	2	13	153	**281**
Total	**66**	**89**	**114**	**78**	**64**	**54**	**9**	**175**	**18**	**10**	**62**	**739**	**1338**
Night Shift													
Feb-01	14	12	18	24	0	10	0	22	0	2	7	109	**251**
Mar-02	12	13	18	20	15	10	0	30	0	2	10	130	**287**
Apr-02	8	12	12	18	15	10	0	27	0	2	9	113	**252**
May-02	10	18	16	16	13	10	0	25	0	2	9	119	**267**
June-02	10	20	16	15	15	11	5	25	0	2	9	128	**281**
Total	**54**	**75**	**80**	**93**	**58**	**51**	**5**	**129**	**0**	**10**	**44**	**599**	**1338**

Source: AFC, 2001

The LECEF will result in indirect and induced jobs during plant construction and operation. To estimate the number of jobs it would produce, the Applicant employed the IMPLAN Input-Output model for Santa Clara County. The model estimated that, during construction, the project will produce 44 indirect and 67 induced jobs. These jobs will result from an estimated $7 million in local construction expenditures and $6.51 million from local spending by construction workers. Multipliers for this phase were determined to be 1.5 for employment and 1.2 for income. The Type SAM (Social Accounting Matrix) multipliers used included consideration of social security and income tax leakages, as well as individual savings and commuting.

For the operations phase, the model estimated that 4 indirect and 6 induced permanent jobs will occur, based on $2.135 million in annual operating budget. These Type SAM multipliers were determined to be 1.5 and 1.2 for employment and income, respectively. As shown in **SOCIOECONOMICS Table 3**, there were 48,700 construction workers in Santa Clara County in 2000. The 321-peak construction workers needed for the LECEF represents 0.7 percent of the total construction workforce of Santa Clara County. In

addition, **SOCIOECONOMIC Table 4** indicates that there are approximately 180,000 construction workers within commute distance. For major construction projects such as the LECEF, a two-hour commute for construction workers in the Bay Area is considered acceptable (Energy Commission, 2001).

By employing a primarily local and regional workforce for plant construction and operation, the LECEF will result in no adverse employment or economic effects. It will benefit the local economy in the short-term by providing construction employment and assisting businesses through local procurement of goods and services. It will also have a long-term benefit through permanent employment and procurement for plant operation. To ensure local hiring and economic benefits, staff has proposed Condition of Certification **SOCIO-1**.

B. Induced Population Growth: No Impact

Since there is a large local and regional workforce relative to the number of construction workers required for the LECEF project construction, it is expected that most of the construction workers will commute daily to the LECEF construction site.

Some construction workers may prefer to commute weekly and seek temporary housing. As can be seen from **SOCIOECONOMICS Table 2**, Santa Clara County had a 3.9 percent housing vacancy rate in 2000. San Jose's vacancy rate was 1.9 percent. There are a total of 579,329 housing units in Santa Clara County and 281,841 in San Jose. The vacancy rates translate into approximately 22,594 available housing units in the County and 5,355 units in the City. Although the County and City vacancy rate are below 5 percent, commonly regarded as the threshold for what is considered to be a housing shortage, the actual number of available units should be ample to meet the housing demand expected to be generated by the LECEF.

In addition, there are 7,000 hotel and 500 motel rooms in the City of San Jose (Astalfa, 2001) and 10,000 hotel and motel rooms in Santa Clara County (Bradley, 1999). Also, there are three RV parks within 30-minutes of the project area. Two of the RV parks provide temporary overnight accommodations.

At this time, the San Jose Convention and Visitors Bureau does not expect conventions to fill all available hotel and motel rooms during the planned construction period. Accommodations should also be available in the two RV parks which are typically used most heavily for summer recreation (Astalfa, 2001). Therefore, sufficient vacant housing exists within a short commute range for those construction workers who may wish to seek temporary accommodations during the 4- to 6-month construction period.

The Applicant indicates that 30 full-time employees would be required to operate and maintain the LECEF (AFC, 2001). They would consist of 20 operating technicians, five maintenance technicians, two plant administrators, one plant manager, one plant engineer, and one operations/maintenance supervisor. **SOCIOECONOMIC Table 4** indicates that there are approximately 54,000 operators and engineers within commute range.

It is anticipated that most if not all of the full-time employees would be recruited from within commute distance of the LECEF. As presented in **SOCIOECONOMICS Table 2**,

even under a “worst-case” scenario where all 30 staff required to operate the LECEF would relocate to the area, the entire operational labor force would comprise a negligible increase in population and an insignificant demand on the available housing supply base in Santa Clara County.

Because the number of construction workers is small and predominantly local and regional, it is expected that few, if any, construction personnel would relocate to the area. Therefore, the LECEF will not directly or indirectly induce substantial population growth in the area during construction.

The small number of personnel required to operate the plant represents such a small portion of the local available labor force, as demonstrated in **SOCIOECONOMIC Table 4,** that few, if any, operational personnel would relocate to the area. Therefore, the LECEF will not directly or indirectly induce substantial population growth in the area, or impact housing supply during operation.

C. Displacement of Housing: No Impact

The proposed LECEF parcel is vacant and zoned light industrial. The US Dataport project will displace the Cilker family who owns and lives on the parcel adjacent to the LECEF site. Although the Cilkers are currently negotiating the sale of the parcel with US Dataport, they will not be displaced as a direct result of the LECEF, but rather the US Dataport project. No other nearby residents would be displaced because former owners and residents of the parcel have already relocated as a result of the North East San Jose Transmission Project’s Los Esteros substation (NESJ, 2000) and the US Dataport project.

Therefore, the LECEF project would not displace the existing housing and would not necessitate the construction of replacement housing elsewhere. No impacts to housing would occur.

D. Displacement of People: No Impact

As described in Item B (above), no people will be displaced by the LECEF. Therefore, no impacts to displaced population would occur.

E. Fiscal: No Impact

Of the total project construction cost of $120 million, $7 million will be for materials and supplies that will be purchased locally, representing 5.8 percent of total construction cost (AFC, 2001). In addition, construction payroll (assuming an average rate of $60 per hour) is expected to be $15.5 million and the Applicant will likely hire local workers (AFC, 2001). There will be additional sales tax revenue generated from construction workers and LECEF operators, but this amount is expected to be small relative to the City’s total sales tax revenues.

Under current law, the LECEF should initially generate $1.2 million in property tax revenue, or 1.5 percent of this year’s total property tax revenue expected for the City of San Jose. However, there are two pending actions at the State level that could alter the method by which power plants are assessed and the way the property tax revenue they generate is allocated.

First is AB 81 (Migden), held in the Senate Appropriations Committee for consideration in 2002. This bill will change the method by which the LECEF property and other large power plant properties are taxed. It would shift the responsibility for property tax assessment of large power plants from the County Assessor to the State Board of Equalization by making it a "state assessed property." It would also require annual reassessment at fair market value, and provide that the property taxes collected be distributed exclusively to the taxing jurisdictions within the Tax Rate Area in which the facility is located. (A "Tax Rate Area" is a grouping of properties within a county wherein each parcel is subject to the taxing powers of the same combination of taxing agencies). While AB 81 could substantially increase total property tax revenue from the LECEF over its lifetime, local governments, schools and other special districts in the LECEF Tax Rate Area would receive the same percentage of the total that they currently receive from property that is assessed by the County Assessor.

Second is the State Board of Equalization's (BOE) November 28, 2001 action to amend Rule 905 (Assessment of Electric Generation Facilities) to provide that electric generation facilities, over 50 megawatts, that are owned or used by an electrical corporation, as defined in the Public Utilities Code, will be assessed by the State. Certain small qualifying facilities and qualifying cogeneration facilities would be excluded. If approved by the Office of Administrative Law (OAL), the amended Rule 905 would become effective on January 1, 2003.

If it takes effect, the BOE action would return the power plant assessment methodology to that which existed prior to California's deregulation of public utilities in 1996, consistent with the assessment jurisdiction provisions in AB 81. However, Rule 905 does not address revenue allocation. For State assessed property, the property tax collected is distributed to all the taxing jurisdictions in the county according to a statutory formula. For locally assessed property, only those taxing jurisdictions in the Tax Rate Area where the property is located receive the property tax collected. The allocation of the revenue derived is solely within the purview of the Legislature and the Governor. Now that the BOE has acted, it is expected that the Legislature will address the issue of revenue allocation in 2002 to find a formula that is equitable to all of the affected parties.

F. Minority and Low-Income Populations (Environmental Justice Screening Analysis): No Impact

The purpose of the screening analysis is to determine whether there exists a minority and/or low-income population within the potential affected area of the proposed project.

Minority and/or low-income populations, as defined by the U.S. Environmental Protection Agency's April 1998 Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, are identified where either:

- The minority population of the affected area is greater than fifty percent of the affected area's general population; or
- The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Energy Commission staff has determined the potential affected area as a six-mile radius of the proposed HEP site. The six-mile radius is consistent with the radius used for staff's cumulative air quality analysis. When a minority and/or low-income population is identified per the above, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics and transmission line safety and nuisance consider possible impacts on the minority/low-income population as part of their analysis. This "environmental justice" (EJ) analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact if an unmitigated significant impact has been identified. Staff's environmental justice approach includes providing notice (in appropriate languages) of the proposed project and opportunities for participation in public workshops to minority and/or low-income communities, and providing information on staff's EJ approach to minority and/or low-income persons who attend staff's public workshops.

As presented in **SOCIOECONOMICS Table 2**, minorities comprise 48.5 percent of San Jose's and 46.2 percent of Santa Clara County's population. Minorities also comprise 69 percent of the population with a six-mile radius of the LECEF site. **SOCIOECONOMIC Figure 1** shows the distribution of minorities within the six-mile radius. This population resides primarily in Alviso, Santa Clara County, City of Milpitas, Alameda County, and an established mobile home park located approximately one-mile southwest of the site.

Approximately 70 percent of Alviso's population is Hispanic. The majority of Milpitas' 54 percent and San Jose's 29 percent minorities are Asian (U.S. Census 2000). The 45 percent minority residents of the mobile home park are Hispanic.

According to the 1990 Census, 9.2 percent of San Jose's population and six percent of residents within six miles of the LECEF were below the poverty level. Although Census 2000 low-income data is not yet available, the area's low-income population is not expected to exceed 50 percent.

Alviso, located approximately two miles to the west, is separated from the proposed LECEF site by the San Jose/Santa Clara Water pollution Control Plant. The mobile home park lies south of Highway 237 and west of Zanker Road. The residential areas of Milpitas are located one to six miles to the east across Interstate 880. Because of the distances, development and highway structures that separate these residential areas from the LECEF site, its construction is not expected to adversely affect the social or economic character of these communities in any significant way.

Therefore, the proposed LECEF will not result in significant adverse socioeconomic effects on the surrounding minority and low-income populations.

G. Police Protection: No Impact

The Applicant will provide security services at the LECEF site during construction. In addition, the San Jose Police Department, supplemented by the County Sheriff and the Milpitas Police Department support in cases of emergency, will be able to provide adequate existing police response to the LECEF with their existing resources.

Therefore, the LECEF would not significantly increase the existing demand for police services or adversely affect police protection in and around the LECEF area.

H. Schools: No Impact

As shown in **SOCIOECONOMICS Table 6,** enrollment in schools nearby LECEF dropped between 1999 and 2001. Therefore, it is anticipated that any new students accompanying both construction worker parents and parents who relocate to be part of the LECEF operational workforce could be accommodated by schools within Santa Clara County.

As part of project development, industrial development within a school district is assessed a one-time School Impact Fees of $0.33 per square foot of principal building area (Hooper, 2001). There will be a 10,000 square-foot building, which would total approximately $3,300 to the SCUSD. These fees are intended to help school districts address their capacity problems by requiring developments to provide a fair share of the cost to develop new school facilities. Staff has proposed condition of certification **SOCIO-2** to ensure that the School Impact Fee is paid.

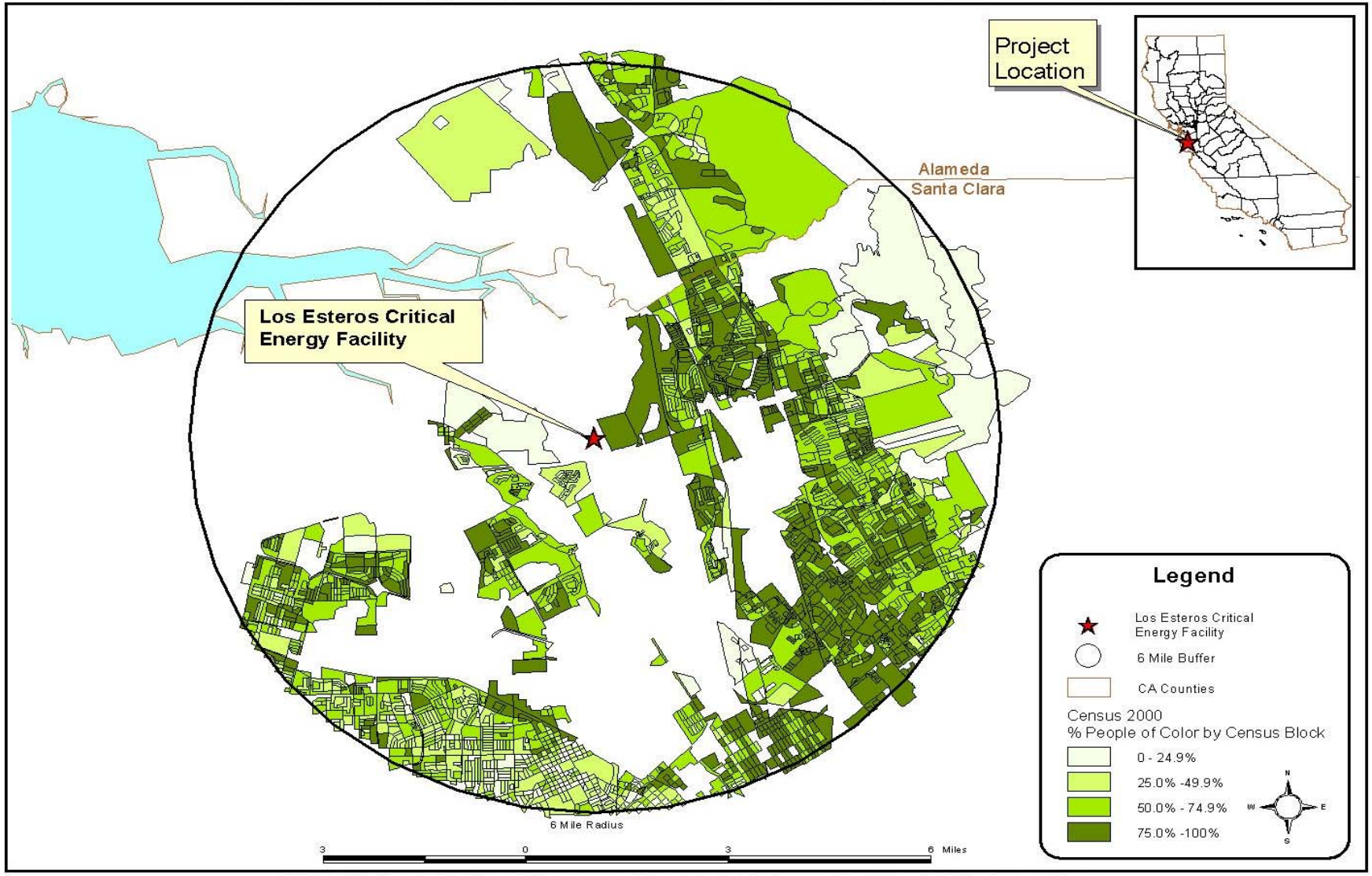
Because, at present, area school districts are generally below capacity and given the LECEF's payment of School Impact Fees, no significant socioeconomic impacts to schools would occur as a result of the LECEF.

I. Other Public Services: No Impact

The project will not directly or indirectly induce substantial population growth in the area. Any short-term increase in population due to construction activities is considered to be minimal, with adequate numbers of construction workers currently residing within the surrounding Bay Area counties. Therefore, no further constraints would be placed on any current public services providers, including utilities, medical services and libraries, as a result of the LECEF. No adverse physical impacts associated with the provision of public facilities would occur.

SOCIOECONOMICS - FIGURE 1

Los Esteros Critical Energy Facility - Census 2000 Percentage People of Color by Census Block - Six Mile Buffer



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, OCTOBER 2001

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2001, Census 2000 PL 94-171- Matrix PL2

CUMULATIVE IMPACTS

Because the LECEF would not result in any significant socioeconomic impacts to population and housing, or public services, it is unlikely that it would contribute considerably to cumulative socioeconomic impacts. Staff concludes that there are no adverse cumulative socioeconomic impacts.

CONCLUSIONS

The LECEF will not induce significant population growth in the area, nor would it involve the displacement of housing or people. In addition, it will not result in a significant adverse impact on law enforcement, medical, school or other local public services. The LECEF will have a positive effect on employment during construction and operation, contribute to sales tax revenue and add an estimated $1.2 million annually Santa Clara County's property tax base.

Staff has reviewed Census 2000 information that shows the minority population within a six-mile radius of the proposed LECEF is greater than fifty percent. Census 1990 information shows the low-income population is less than fifty percent within the same radius. Based on this Socioeconomic analysis, staff has not identified significant direct or cumulative socioeconomic impacts resulting from the construction or operation of the project, and concludes that therefore there are no socioeconomic environmental justice issues related to this project.

PROPOSED CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Santa Clara County unless:

- To do so will violate federal and/or state statutes;
- The materials and/or supplies are not available;
- Qualified employees for specific jobs or positions are not available; or
- There is a reasonable basis to hire someone for a specific position from outside the local area.

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 local regional area that will occur during the next two months.

SOCIO-2 The project owner shall pay the one-time statutory school facility development fee as required prior to the issuance of the in-lieu building permit with the City of San Jose.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

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SOIL AND WATER RESOURCES

Joe Crea, John Scroggs, and John Kessler

INTRODUCTION

This section analyzes potential effects on soil and water resources by the Los Esteros Critical Energy Facility (LECEF), as proposed by Calpine c* Power (Applicant). The analysis specifically focuses on the potential for the project to cause impacts in the following areas:

- Whether construction or operation will lead to accelerated wind or water erosion and sedimentation.
- Whether the project will exacerbate flood conditions in the vicinity of the project.
- Whether the project's demand for water will adversely affect surface or groundwater supplies.
- Whether project construction or operation will lead to degradation of surface or groundwater quality.
- Whether the project will comply with all applicable laws, ordinances, regulations and standards.
- Where the potential for impacts is identified, staff has proposed mitigation measures to reduce the significance of the impact and, as appropriate, has recommended conditions of certification.
- Solid waste disposal is also discussed in the **Waste Management** section, as are land use effects in the **Land Use** section of this Staff Assessment.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

Clean Water Act

The Clean Water Act (33 U.S.C. section 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) Permits. Stormwater discharges during construction and operation of a facility, and incidental non-stormwater discharges associated with pipeline construction also fall under this act , and are normally addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point-source discharges and stormwater discharges are delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs).

Section 404 Permit to Place or Discharge Dredged or Fill Material

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. The Army Corps of Engineers (ACOE) issues site-specific or general (nationwide) permits for such discharges.

Section 401 Water Quality Certification

Section 401 of the Clean Water Act provides for state certification that federal permits allowing discharge of dredged or fill material into waters of the United States will not violate federal and state water quality standards. These certifications are issued by the RWQCBs. Proposed linear facilities can cross ephemeral drainages that are considered waters of the United States.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the project area are contained in the San Francisco Bay Region Water Quality Control Plan. These standards are typically applied to the proposed project through the Waste Discharge Requirements (WDRs) permit. The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges to land.

California Water Code

Section 13551 of the Water Code prohibits the use of "…water from any source of quality suitable for potable domestic use for non-potable uses, including …industrial… uses, if suitable recycled water is available…" given conditions set forth in Section 13550. These conditions take into account the quality and cost of the water, the potential for public health impacts and the effects on downstream water rights, beneficial uses and biological resources.

Section 13552.6 of the Water Code specifically identifies that the use of potable domestic water for cooling towers, if suitable recycled water is available, is an unreasonable use of water. The availability of recycled water is based upon a number of criteria that must be taken into account by the SWRCB. These criteria are that: the quality and quantity of the reclaimed water are suitable for the use; the cost is reasonable, and the use is not detrimental to public health, will not impact downstream users or biological resources, and will not degrade water quality.

Section 13552.8 of the Water Code states that any public agency may require the use of recycled water in cooling towers if certain criteria are met. These criteria include that recycled water is available and meets the requirements set forth in section 13550; the

use does not adversely affect any existing water right; and if there is public exposure to cooling tower mist using recycled water, appropriate mitigation or control is necessary.

State Water Resources Control Board Policies

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB which addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power plant Cooling (adopted by the Board on June 19, 1976 by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy also addresses cooling water discharge prohibitions.

Tertiary wastewater Treatment permit

Under Title 23 of the California Code of Regulations, the California Department of Health Services reviews and approves wastewater treatment systems to meet tertiary treatment standards, allowing recycled use of water for industrial processes such as for steam production and cooling water.

LOCAL

Santa Clara Valley Water District

The Applicant, as part of the Energy Commission's certification, will be required to secure a Storm Water Discharge Permit in accordance with Ordinance No. 83-2 of the Santa Clara Valley Water District (SCVWD), as a result of its plans to construct a storm water outlet and discharge flows into Coyote Creek, a designated floodway under SCVWD's jurisdiction. In addition, the Applicant will be required to secure a Well Destruction Permit from the Energy Commission in accordance with SCVWD Ordinance No. 90-1, for the removal and closure of existing site water wells.

City of San Jose

The Applicant, as part of the Energy Commission's certification, will be required to satisfy grading, excavation and erosion requirements consistent with City of San Jose's Excavation and Grading Permit.

The Applicant will also need to satisfy the requirements of the Recycled Water Use Permit consistent with the South Bay Water Recycling (SBWR) Program.

In addition, the applicant will also need to satisfy the requirements of the Industrial Wastewater Discharge Permit consistent with City of San Jose's requirements, which will set the conditions for accepting LECEF's wastewater stream into the City's Water Pollution Control Plant (WPCP).

ENVIRONMENTAL SETTING

REGIONAL AND VICINITY DESCRIPTION

The Applicant proposes to build the Los Esteros Critical Energy Facility (LECEF), a 180 MW simple cycle plant, in Santa Clara County as the first phase of a two-phase generation development. Phase II, will be the subject of a future permitting process. The Applicant proposes to construct the LECEF within 15 acres of a 55-acre parcel being acquired by the Applicant. Most recently, the site was primarily used for agriculture, consisting of orchard trees until their removal in 1980, followed by green houses used for growing potted plants and flowers, as well as for several residences and open space. Characterized by relatively flat topography, the proposed site is located in the Alviso area of northern San Jose, situated northwest of the intersection of Highways 880 and 237. Coyote Creek runs along the eastern boundary of the site and discharges to the north of the LECEF site into San Francisco Bay.

Land use in the vicinity of the LECEF is a combination of agriculture, commercial, residential, industrial, public facilities and major highways. Immediately north of the site, PG&E plans to build the Los Esteros Substation as approved by the California Public Utilities Commission. To the northwest lies the City of San Jose's/Santa Clara's Water Pollution Control Plant (WPCP), which will serve as the primary water supply for the LECEF's industrial uses. To the west of the site lie WPCP buffer lands (LECEF 2001a, AFC Sections 1.1, 2.1, 8.4 & 8.13).

Several new linear facilities will also be required. Please refer to AFC Project Description Figure 1.1-3 for an illustration of the proposed project linear facilities. The preferred routes for each are described as follows (LECEF 2001a, AFC Section 2.0):

1. The Recycled Water Pipeline, as proposed for supply from the WPCP, would consist of approximately 1,000 lineal feet of pipeline ranging from 18-24 inches in diameter. The pipeline would run to the south from the LECEF along an existing site access road, and then to the west along an existing road to the point of interconnection .

2. The Wastewater Discharge Pipeline, a 2,700 lineal foot pipeline of diameter ranging from 12 – 15 inches, will convey wastewater from the LECEF into an existing 80-inch diameter wastewater main, that supplies influent into the WPCP. The Wastewater Discharge Pipeline would run to the south from the LECEF along an existing site access road, and then to the west along an existing road to Zanker Road, which is the point of interconnection.

3. The Storm Water Discharge Pipeline, a 750 lineal foot, 42-inch diameter pipeline will convey storm water during project operation and will discharge into Coyote Creek. The pipeline will run from the northeast corner of the LECEF site to the east, crossing 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.

4. The Natural Gas Pipeline, consisting of approximately 550 lineal feet of 10-inch diameter pipeline, would run to the south from the LECEF along an existing site access road, and would tie-in to PG&E's Main Pipeline directly south of the LECEF site along Alviso-Milpitas Road.

SOILS

As stated above, the 55-acre site being acquired by the Applicant was previously used for agricultural, commercial and residential purposes. In an August 29, 2001 letter to the Energy Commission the California Department of Conservation stated that it has reclassified 50 acres including the 15 acre LECEF site, from the "prime farmland" category to the "other land" category. With the construction of LECEF, the site will no longer be available for agricultural use. The 50 acres, including the 15-acre LECEF site is a portion of an overall 174-acre U.S. Dataport parcel . The LECEF site is relatively flat and the elevation is approximately 15 feet above mean sea level (msl).

Mocho Loam (Mq), Mocho Clay Loam (Mi), and Mocho Loam over Campbell- and Cropley-like soils (Mo), are the primary soil types covering the LECEF site. Soil types for the linear facilities also fall within these three soil types. These soils are formed from sandstone and shale rock from recent fluvial deposition.

SOIL AND WATER Table 1
Soil Types Affected & Characteristics

Primary Soil Name	Slope Class percent	Depth Range	USDA Texture	Parent Material	Water Erosion Hazard	Permeability	Drainage	Revegetation Potential
Mocho Loam (Mq)	1 – 3 percent	0 – 6 ft.	Loam	Alluvium from sedimentary rocks	Slight	Moderate	Well Drained	Good in low alkali soils
Mocho Clay Loam (Mi)	0 – 1 percent	N/A	Clay Loam	Alluvium from sedimentary rocks	Slight	Moderate to Slow	Well Drained	Very Good to Good in low alkali soils
Mocho Loam Over Campbell & Cropley-like Soils (Mo)	1 – 3 percent	N/A	Loam over Clay Loam	Alluvium from sedimentary rocks	Slight	Moderate to Slow	Well Drained	Very Good

Based on the soil characteristics of the LECEF site, erosion potential from water is slight, and construction would include implementation of plans for control of soil erosion during construction and operation (LECEF 2001a, AFC Sections 8.4 and 8.9).

SOIL AND WATER CONTAMINATION

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, and identified one recognized environmental condition of potential concern associated with previous agricultural activities. Although the Phase I and II ESA's were prepared for the overall 174-acre USD Planned Development Project, results of these assessments applicable and specific to the 55-acre LECEF site indicate contamination to native soils from DDT at concentrations up to 11,030 micrograms per kilogram. Soil samples were

collected and analyzed from areas previously used for pesticide storage and mixing, around the greenhouses, and from areas around underground storage tanks. No petroleum hydrocarbons were detected from soil samples collected around the one gasoline and two diesel underground storage tanks. The State of California classifies concentrations of DDT contaminated soil in excess of 1,000 micrograms per kilogram to be a hazardous waste if removed from the site (LECEF 2001a, AFC Section 8.13). The underground tanks have been removed and soil removal and testing operations are nearing completion as part of a separate project. Refer to the **Waste Management** section of the SA for further discussion.

GROUNDWATER

The proposed LECEF site lies within the Santa Clara Valley groundwater basin. Regional groundwater flows to the north and west towards San Francisco Bay, with local groundwater flowing east towards Coyote Creek. Available groundwater information near the proposed project site 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 Santa Clara groundwater basin.

There were four wells located on the 55-acre parcel acquired by the Applicant, although none are located on the LECEF site. All wells were plugged as part of a City of San Jose directed demolition directive for the site.

SURFACE WATER HYDROLOGY

The LECEF site is located within the alluvial plain of the Santa Clara Valley. Coyote Creek and the Coyote Creek Bypass Channel are located approximately 700 and 1,000 feet, respectively east of the LECEF site. 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 (LECEF 2001a, AFC Section 8.14).

LECEF WATER SUPPLY

The Applicant proposes to use all recycled water for its industrial processes as supplied by the San Jose/Santa Clara Water Pollution Control Plant (WPCP) through its South Bay Water Recycling (SBWR) Program. The WPCP, as owned by the Cities of San

Jose and Santa Clara, is operated by City of San Jose and has a rated treatment capacity of 167 million gallons per day (mgd). The WPCP is required to maintain discharges below 120 mgd. Recycled water from the WPCP already meets California Code of Regulations Title 22 standards for unrestricted use. Therefore, the recycled water is suitable for cooling tower makeup without further treatment. However, additional treatment at the LECEF is planned to obtain quality required particularly for the NOx control and power augmentation (LECEF 2001a, AFC Section 8.14).

WATER USES

The recycled water supply will be primarily used for cooling water, NO_x suppression injection and power augmentation. The LECEF will require a water supply of approximately 0.50 mgd (315 gpm) or 560 acre-feet/year under average conditions, and 0.82 mgd (536 gpm) or 913 acre-feet/year under peak demand conditions. During peak ambient conditions, about 50 percent of the water will be used for cooling the inlet air to the gas turbines. During average ambient conditions, less than 10 percent of the water will be used for cooling the inlet air. Potable water demands will be minimal, and will be supplied to the site in water trucks operated by local drinking water suppliers.

SOIL AND WATER Table 2 summarizes the use of recycled water for LECEF operations, and the discharge of wastewater associated with the proposed LECEF.

SOIL AND WATER Table 2
LECEF Facility Water Balance

Component Stream	Average Day (gpm)	Peak Day (gpm)
Turbine Injection for NOx Control	196	180
Turbine Injection for Power	20	20
Cooling Tower Makeup	25	256
Backwash for Microfiltration	15	25
Reverse Osmosis Concentrate	54	50
Process Drains	5	5
Total Water Consumption (Net)	**315**	**536**
Microfiltration Backwash	15	25
Blowdown Cooling Tower	16	97
Process Drains	5	5
Reverse Osmosis Concentrate	54	50
Sanitary Wastewater	Not Estimated	Not Estimated
Total Wastewater (Net)	**90**	**177**

Notes:
1. Blowdown from the cooling tower reflects 3 cycles of concentration.
   Source: (LECEF 2001a, AFC Section 7)

PROCESS WASTEWATER

Wastewater produced from various processes at the proposed LECEF, consisting of microfiltration backwash, cooling tower blowdown, reverse osmosis concentrate and process drains, as well as sanitary wastewater, will be discharged to the WPCP as influent for treatment. The wastewater discharge pipeline, a 2,700 lineal foot pipeline of diameter ranging from 12 – 15 inches, will convey wastewater from the LECEF into an existing 80-inch diameter wastewater main, that supplies influent into the WPCP. The wastewater discharge pipeline would run to the south from the LECEF along an existing site access road, and then to the west along an existing road to Zanker Road, which is the point of interconnection.

STORM WATER

Currently, storm water runoff from the project site runs by sheet flow to the northwest, towards Zanker Road. Drainage ditches along Zanker Road are minimal in size and are likely frequently exceeded in capacity. Storm water continues to drain near the WPCP sludge ponds overland and eventually drains into Artesian Slough, a tributary to Coyote Creek.

Storm water accumulating over the 15 developed acres for the LECEF (out of the 55-acre parcel) will be managed separately between process and non-process areas. Open process areas will be curbed to contain the maximum 25-year, 24-hour design storm runoff in addition to the volume of the largest storage container. Storm water drainage will be conveyed to an oil/water separator, and then into a holding tank for testing. If appropriate discharge criteria are met, the wastewater will be pumped to the sanitary sewer system. If discharge criteria are not met, the wastewater will be treated as necessary before being discharged to the sanitary sewer system. Treatment methods will be subject to the type of contaminants that are present.

Storm water from non-process areas will be conveyed through an oil/water separator into the storm water conveyance and detention system. The storm water will drain to a sump where discharge into Coyote Creek will be pumped and regulated to not exceed 35 cfs. Storm water discharge will be conveyed via a proposed 42-inch diameter pipeline, that will require excavation and placement through the Coyote Creek Bypass Channel, and through the west embankment making up the left bank of Coyote Creek itself. The discharge pipe will include a flap gate to prevent backflow, and will be directed downstream at about a 45º angle, pointing diagonally across and down the stream (LECEF 2001a, AFC Section 8.14), (LECEF 2001c, Attachment WR-99, SWPPP for Industrial Activity).

SOIL AND WATER RESOURCES

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
SOIL AND WATER RESOURCES -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?		X		
c) Substantially deplete or degrade local or regional surface water supplies, particularly fresh water, or fail to implement reasonable alternatives for water conservation?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?		X		
e) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?		X		
f) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?		X		
g) Otherwise substantially degrade water quality?		X		

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
SOIL AND WATER RESOURCES -- Would the project:				
h) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
i) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?		X		
j) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
k) Inundation by seiche, tsunami, or mudflow?				X

DISCUSSION OF IMPACTS

A. Impacts to Water Quality Standards or Waste Discharge Requirements

As proposed, the LECEF will cause a net decrease in the quantity of wastewater discharged into San Francisco Bay from the WPCP, a reduction in quantity of about 225 to 359 gpm, or 0.3 to 0.5 mgd. The quality of wastewater will not change significantly, with the concentration of salinity being the primary constituent sensitive to change. Salinity will increase as a result of concentration of the recycled water occurring during the three cycles of concentration in the cooling tower. Salinity will increase slightly overall, with all constituents meeting waste discharge requirements under the SBWR Program, and as specified under the WPCP's NPDES Permit. Recycled water supplied to the LECEF has an average TDS concentration of about 744 mg/l, and the wastewater returned to the WPCP has a TDS concentration on the order of 2,232 mg/l. The net increase in salinity in the WPCP's effluent as a result of the LECEF will be on the order of 3.4 mg/l, which represents about a 0.5 percent increase. Condition **SOIL AND WATER-8** specifies that the Applicant is required to secure an Industrial Wastewater Discharge Permit for its proposed disposal of industrial and sanitary waste to the San Jose/Santa Clara WPCP consistent with the requirements of the City of San Jose (LECEF 2001c, Response to Data Request #93).

B. Groundwater Supply Depletion or Groundwater Recharge Interference

The LECEF does not propose to use groundwater as a source of supply. The use of recycled water will have no effect on groundwater supply. Therefore, groundwater supplies will not be depleted, and no impacts are anticipated. There are four wells located on the 55-acre parcel acquired by the Applicant, although none are located on the 15-acre LECEF site. These wells are not proposed for use by the LECEF, and in

order to assure that they will be properly removed from service to avoid groundwater contamination, they will be closed in accordance with SCVWD's Ordinance 90-1 as specified in Condition of Certification **SOIL AND WATER-5**.

C. Local or Regional Surface Water Supply Depletion of Degradation

The LECEF's use of recycled water for industrial processes will avoid any substantial depletion or degradation of local or regional surface water supplies, particularly fresh water. The LECEF will use 0.5 mgd on average and 0.82 mgd on peak of the tertiary effluent available from the Cities of San Jose and Santa Clara's WPCP, which has a rated treatment capacity of 167 mgd. Any interruptions in supply of recycled water from the WPCP to LECEF, will be met by a 24-hour reserve supply established by on-site storage. Treated fresh water supply will be used for domestic purposes in the LECEF facility, and is estimated to average 2 gpm, equating to about 2.2 acre-feet/year. Treated fresh water will be transported to the LECEF via truck and stored on site.

D. Alteration of Existing Drainage Patterns Causing Erosion or Siltation

The entire project site, consisting of 15 acres of land, will be disturbed during construction of the LECEF facility, with surface grading and excavation for equipment and building foundations. This area will be subject to erosion until surface cover comprised of pavement, gravel or grass can be placed as part of final construction activities.

The LECEF development will change and alter the drainage patterns in the area, by collecting and conveying storm water, which previously drained to the northwest of the site towards Zanker Road, and instead proposes to discharge to the east into Coyote Creek. However, the Applicant has coordinated its plans with SCVWD and City of San Jose, and is preparing its plans in conformance with criteria specified by the agencies.

The applicant has indicated that adequate sedimentation and erosion controls will be employed to prevent sediment-laden runoff from entering any watercourse, and has provided a Draft Sediment and Erosion Control Plan as part of its Draft Stormwater Pollution Prevention Plan (SWPPP) for Construction Activity. The applicant will be required to provide a final Sediment and Erosion Control Plan and SWPPP prior to the start of construction. The SWPPP will demonstrate how Best Management Practices (BMPs) will be employed to minimize erosion during and after construction. The BMPs include surrounding all work areas by dikes, drainage swales, sand bags, or combinations of these to prevent run-on and uncontrolled runoff. During construction, storm water will flow as it does currently, overland towards Zanker Road, in order to avoid concentration of the runoff, and potential for erosion. The presence of concentrations of pesticide (DDT) in the native soils, make placement of BMP's to avoid concentration of runoff most important. If necessary, soil will be retained on-site with silt fences, hay bales or whatever measures are necessary to avoid potential spreading of DDT. The access road, and areas used for parking, staging and laydown will be stabilized using course aggregate, to limit sediment tracking and dust. Exposed ground surfaces will be watered to further reduce dust, without creating runoff. Earth movement activities will be conducted expeditiously to minimize exposure to erosion,

and will include installation of filter fabric fencing, hay bale fencing or sand bags as appropriate.

The other areas that will be disturbed for the construction of the linear facilities will have their drainage patterns reestablished after construction. Existing roadways and utility right-of-ways will be used to the maximum extent possible. If additional roadways are necessary, they will be sited and graded to minimize potential disturbance to erosion and runoff patterns. Best engineering management practices and drainage control will be implemented to minimize impacts from construction activities (LECEF 2001b, Construction SWPPP).

Following construction, the site surface will be covered with paving, gravel or grass, and storm water will flow into distinctive storm water management systems separating storm water from the process areas of the LECEF, from storm water originating in non-process areas. During operation, storm water from process areas of the LECEF will discharge into the headworks of the WPCP, whereas, storm water from non-process areas of the LECEF will be conveyed via the storm water conveyance and detention channels, through an oil/water separator, and into a sump before being pumped and discharged into Coyote Creek (LECEF 2001c, SWPPP for Industrial Activity).

A Sediment and Erosion Control Plan, a construction SWPPP, and an operational SWPPP are required by the General NPDES Permits. The aforementioned plans and permits are covered under conditions of certification **SOIL AND WATER-1, 2,** and **3** respectively.

E. Alteration of Drainage Pattern Resulting in Increased Surface Runoff or Flooding

Drainage at the LECEF site has been designed to prevent flooding of permanent facilities and roads, both on-site and off-site, and to maintain storm water discharges at or below pre-project flows.

Santa Clara Valley Water District (SCVWD) and City of San Jose have specified design criteria for discharge of the 174-acre USD Planned Development Project, including the LECEF, allowing a portion of storm water to discharge into Coyote Creek approximately 1,000 lineal feet east of the LECEF site, and the balance to drain to the northwest as it does currently towards Zanker Road. The portion of flow allowed for discharge into Coyote Creek is based on the portion of the overall 174-acre site area that is considered to be within the Coyote Creek watershed, which has been estimated by the Applicant to be approximately 58 acres. SCVWD has indicated that through its flood capacity improvements of Coyote Creek performed in 1997. Coyote Creek now has a capacity of 15,000 cubic feet per second (cfs), which accommodates the 100-year, 24-hour storm, which was developed by assuming that the discharges into Coyote Creek from developed areas within its watershed, are limited to discharge of the 10-year, 24-hour storm for a developed site.

The Applicant has calculated that the discharge from a 58-acre developed site under storm conditions for a 10-year, 24-hour event, would be about 64 cubic feet per second (cfs). Following construction of the 15-acre LECEF site, the Applicant proposes to

discharge up to about 35 cfs into Coyote Creek based on its estimate of storm water flows under a 25-year, 24-hour event, which is applicable to the 15-acre LECEF site under its own design standard. The remaining undeveloped 40 acres of the LECEF parcel would not drain into Coyote Creek and instead will drain as overland flow towards Zanker Road. If accepted by SCVWD, this would allow an additional 29 cfs to be discharged into Coyote Creek at such time as the USD Planned Development Project was constructed. The balance of storm water discharge from the USD Planned Development Project would then be discharged to the northwest towards Zanker Road, for which City of San Jose has jurisdiction to establish design criteria. It is expected that in order for USD Planned Development Project to meet City of San Jose's design criteria, that the USD Planned Development Project will be required to develop detention facilities in order to limit its discharge to a yet-to-be specified criteria.

The Applicant will be required to obtain a Storm Water Discharge Permit for construction of a storm water outlet, in order to discharge flows into Coyote Creek, consistent with the requirements of Santa Clara Valley Water District's (SCVWD's) Ordinance No. 83-2, as specified in **SOILS AND WATER-4**. The Applicant will also be required to issue pre-construction notification and obtain authorization if needed, from the Army Corps of Engineers regarding compliance with Nationwide Permit #'s 3 and 7, consistent with Section 404 of the Clean Water Act, as specified in **SOIL AND WATER-11** (COE 2001). Nationwide Permit #3 applies to replacement of rip-rap, which may be disturbed in the course of excavation for the new outlet. Nationwide Permit #7 applies to installing an outfall structure within Coyote Creek (LECEF 2001a, AFC Section 8.14) (LECEF 2001c, Attachment WR-99, SWPPP for Industrial Activity). Both aforementioned Nationwide Permits apply if construction of the outfall will cause disturbance below the ordinary high water mark in Coyote Creek.

F. Creation of Runoff Exceeding Stormwater Drainage Systems, or Providing Sources of Polluted Runoff

Storm water developed over the 15 acres for the LECEF will be managed separately between process and non-process areas. Open process areas will be curbed to contain the maximum 25-year, 24-hour design storm runoff in addition to the volume of the largest storage container. Storm water drainage will be conveyed to an oil/water separator, and then into a holding tank for testing. If appropriate discharge criteria are met, the wastewater will be pumped to the sanitary sewer system. If discharge criteria are not met, the wastewater will be treated as necessary before being discharged to the sanitary sewer system.

Storm water from non-process areas will be conveyed through an oil/water separator into the storm water conveyance and detention system. The storm water will drain to a sump where discharge into Coyote Creek will be pumped and regulated to not exceed 35 cfs. Storm water discharge will be conveyed via a proposed 42-inch diameter pipeline, that will require excavation and placement through the Coyote Creek Bypass Channel, and through the west embankment making up the left bank of Coyote Creek itself. The discharge pipe will include a flap gate to prevent backflow, and will be directed downstream at about a 45º angle, pointing diagonally across and down the stream (LECEF 2001a, AFC Section 8.14), (LECEF 2001c, Attachment WR-99, SWPPP for Industrial Activity).

G. Otherwise Degrade Water Quality

Soil samples were collected and analyzed from areas previously used for pesticide storage and mixing, around the greenhouses, and from areas around underground storage tanks. The materially recognized condition at the LECEF site consists of DDT contamination to native soils at concentrations up to 11,030 micrograms per kilogram. The State of California classifies concentrations of DDT contaminated soil in excess of 1,000 micrograms per kilogram to be a hazardous waste if removed from the site. However, concentrations of DDT are below the U.S. Environmental Protection Agency's (USEPA's) Preliminary Remediation Goal (PRG) of 12,000 micrograms per kilogram. No petroleum hydrocarbons were detected from soil samples collected around the one gasoline and two diesel underground storage tanks.

Upon construction, the LECEF site will be largely covered by buildings and paving, and the residual DDT levels are not considered a significant threat to human health in an industrial setting. There are no proposed residential or other sensitive receptor uses planned for the site. Construction workers could potentially be exposed to pesticide residues during site grading, and storm water could potentially disperse pesticide residues to other land parcels or water bodies. Prevention measures for the potential of contact with construction workers will be addressed in the Soil Management Plan (SMP) and Construction Worker Health and Safety Plan (HSP), and submitted to the State Department of Toxic Substances Control, City of San Jose Environmental Services Department, and San Jose Fire Department – Hazardous Materials Department. Refer to the **Hazardous Materials** section of the SA for further discussion. The SMP will address how DDT contaminated soil will be handled during site grading, excavation, and landscaping. The SMP will also address how excavated soil that may need off-site disposal will be stockpiled and tested for determination of proper disposal or on-site remediation before disposal. Refer to the **Waste Management and Worker Safety** sections of the SA regarding the HSP and SMP discussion. During LECEF construction, storm water will continue to flow overland to the northwest, without concentrating in any ditch, and avoiding any changes in existing drainage patterns and potential to increase dispersion of pesticide residues. During LECEF operation, storm water will collect into paved and lined areas, which will serve to prevent native soil contact with the storm water (LECEF 2001a, AFC Section 8.13).

Hazardous materials used during construction will be stored within areas having secondary containment and/or cover. Hazardous materials used during operation will be stored primarily within covered areas, including storage of 10,000 gallons of aqueous ammonia, which will also have secondary containment. The ammonia area will be bermed and sloped to an underground sump to contain any potential releases during transfer from tanker trucks to the storage tank. The containment will be sized to contain the contents of a full tanker truck. Sulfuric acid and sodium hydroxide will be stored separately in 5,000 gallon outdoor tanks and will include secondary containment. Secondary containment structures will be designed in accordance with Article 80 of the Uniform Fire Code, and will consist of reinforced concrete. Secondary containment in covered areas will be sized to store 100 percent of the volume of the contents in the primary tanks. Secondary containment in outside storage tanks exposed to storm water will be sized to also include the rainwater from a 25-year, 24-hour storm (LECEF 2001c, Data Response Attachment WR-99, SWPPP for Industrial Activity).

Please refer to the **Waste Management** section for discussion of safeguards regarding contaminated soils.

H. Place Housing within the 100-Year Flood Hazard Area Depicted on a Flood Map

The LECEF development will not increase the risk of flooding to housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map.

I. Flow Impediment or Redirection Due to Placement of Structures in Flood Hazard Areas

The proposed discharge of storm water, and construction of an outlet within the stream bank of Coyote Creek, could potentially impede or redirect flows within the 100-year flood plain. However, the Applicant is preparing plans for determining the appropriate capacity and designing the configuration of the outlet consistent with criteria specified by SCVWD. The outlet design will require addressing the armoring of the Coyote Creek channel banks, both in replacing existing rip-rap that might be disturbed during construction, and in placing new rip-rap that can prevent soil erosion and the impediment of flows. Condition of Certification, **Soil and Water-4,** specifies that the Applicant shall provide the Compliance Project Manager (CPM) with all information/data necessary to satisfy the requirements of the Storm Water Discharge Permit for construction of a storm water outlet, and to discharge flows into Coyote Creek, consistent with the requirements of Santa Clara Valley Water District's (SCVWD's) Ordinance No. 83-2.

J. Place People or Structures at Risk Due to Flooding

The LECEF will not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of failure of a levee or dam. All storage facilities included in the project development are of minimal size, and will be designed according to applicable building codes including resistance to loadings from earthquakes.

K. Risk of Inundation From Seiche, Tsunami, or Mud Flow

The LECEF would not be impacted by inundation by seiche, tsunami or mudflow. The 1906 Earthquake in San Francisco that had a magnitude 7.8 on the Richter Scale, only generated a tsunami wave of approximately 10 cm in height. The primary threat along the Central CA coast is from distant tsunamis generated by earthquakes along subduction zones (overlap of tectonic plates). Based on the experience from the 1906 earthquake, relatively little wave energy is transmitted through the Golden Gate into San Francisco Bay. Further, the LECEF is setback from the bay shoreline, providing another margin of safety. Therefore, tsunamis would not impact the LECEF (USGS 2001).

FACILITY CLOSURE

The LECEF is expected to operate for a minimum of 30 years. Closure options range from "mothballing," with the intent of a restart at some time, to the removal of all equipment and facilities.

The decommissioning plan will be submitted to the Energy Commission for approval prior to decommissioning. Compliance with all applicable LORS, and any local and/or regional plans will be required. The plan will address all concerns in regard to potential erosion and impacts on water quality.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

AGENCY COMMENTS

SCVWD-1 Santa Clara Valley Water District (SCVWD) indicated that the project is within the Santa Clara Valley groundwater basin.

Response: Comment included in Groundwater Discussion under Environmental Setting.

SCVWD-2 SCVWD stated the necessity to comply with its Ordinance 90-1 in the removal of existing wells on the 55-acre parcel acquired by the project owner.

Response: See Condition of Certification **Soil and Water-5**.

SCVWD-3 SCVWD requested that AFC Table 8.14-2 be enhanced, or the information otherwise provided, to include nitrate concentrations in the wastewater streams, and to determine if nitrate streams would increase in the SBWR recycled water effluent.

Response: Staff is not aware of the Applicant's response to this request.

SCVWD-4 SCVWD requested that its ordinances 83-2 and 90-1 be listed in the LORS Section.

Response: Staff has included these ordinances in the LORS Section of this Staff Assesment.

City-41 The City of San Jose (as well as SCVWD) requested that the AFC discussion of possible salinity impacts to wastewater discharged to the WPCP needs further analysis.

Response: In a November 28, 2001 meeting between SCVWD, City of San Jose, Applicant and staff, SCVWD indicated that they would like each discharger of wastewater contributing to increased salinity concentrations in the effluent of the WPCP to consider pretreatment options. The City's and SCVWD's concern is that until the increase in salinity is mitigated, there

continues to be a trend where the current salinity concentration of recycled water is discouraging use by some potential markets, as it can stress some species of grass and plants that could otherwise be irrigated, and cause salinity concentrations of concern in soil and groundwater where applied.

Staff and the Applicant recognized the City's and SCVWD's concerns, and suggested that the Salinity Control Program as currently under development by City of San Jose and SCVWD, would be the more appropriate opportunity to effectively reduce salinity in recycled water, and that the LECEF would inherently contribute to this program as part of its rates for purchasing recycled water.

COE-1 The Army Corps of Engineers (COE) questioned if work and/or structures will extend bayward or seaward of the line on shore reached by mean high water (MHW) in tidal waters, or ordinary high water in non-tidal waters designated as navigable waters of the U.S.

Response: The proposed LECEF storm water outfall into Coyote Creek is not considered navigable water of the U.S.

COE-2 The COE questioned if work and structures were proposed in unfilled portions of the interior of diked areas below former MHW, and if so, they must be authorized under Section 10 of the Rivers and Harbor Act of 1899 (33 USC 403).

Response: The proposed LECEF will not include components within the interior of diked areas, within a navigable water of the U.S., as applicable under Section 10.

COE-3 The COE stated that all proposed discharges of dredged or fill material into water of the U.S. must be authorized by the COE pursuant to Section 404 of the Clean Water Act (33 USC 1344).

Response: See Condition of Certification **Soil and Water-11** requiring the project owner to file pre-construction notice and obtain Nationwide Permit #'s 3 and 7 as needed.

PUBLIC COMMENTS

PUBLIC-1 During the November 5, 2001 Informational Hearing, Mr. Hilbert Morales questioned the potential for a major flood to disable the LECEF.

Response: Based on flood prevention measures implemented by SCVWD to Coyote Creek during 1997, Coyote Creek now has a capacity to contain and convey the flood resulting from a 100-year, 24-hour storm.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is approximately 69 percent within a six-mile radius of the proposed LECEF project (refer to **SOCIOECONOMICS** **Figure 1** in this SA), and 1990 Census information that shows the low-income population is less than six percent within the same radius. Based on the Soil and Water Resources assessment, staff has not identified unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project; therefore, there are no soil and water-related environmental justice issues related to this project.

CUMULATIVE IMPACTS

The project will not significantly change the volume or quality of wastewater discharge as proposed. The SCVWD and the City of San Jose are currently developing a Salinity Control Program to request dischargers to the WPCP to consider pretreatment operations to reduce salinity. Staff concludes there will be no significant cumulative impacts to water quantity or quality.

Construction and operational activities related to the LECEF project may cause an increase in cumulative wind and water erosion. However, implementation of the SWPPP would ensure that LECEF would not contribute significantly to cumulative erosion and potential sedimentation impacts.

COMPLIANCE WITH LORS

The project as proposed, will comply with LORS provided the recommended Conditions of Certification are adopted.

CONCLUSIONS

Staff has determined the proposed project will result in less than significant impacts to the public or the environment if the following conditions of certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

The following conditions have been developed for the project:

SOIL & WATER 1: Prior to beginning any site mobilization activities, the project owner shall obtain staff approval of a final Erosion Control Plan. The Erosion Control Plan 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 Erosion Control Plan shall be submitted to the CPM for review and approval and to the City of San Jose for review and comments at least sixty days prior to start of any site mobilization activities. The CPM must approve the final Erosion Control Plan prior to the initiation of any site mobilization activities.

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. The SWPPP will include final construction drainage design and specify Best Management Practices (BMP's) for all on and off-site LECEF project facilities. This includes final site drainage plans and locations of BMP's.

Verification: At least 60 days prior to the start of any site mobilization activities, the SWPPP for Construction Activity and a copy of the Notice of Intent for construction under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity filed with the SWRCB, shall be submitted to the CPM. Approval of the 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 a Notice of Intent for operating under the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity to the State Water Resources Control Board (SWRCB), and 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 BMP's and monitoring requirements for the LECEF project facilities. This includes final site drainage plans and locations of BMP's.

Verification: At least 60 days prior to the start of project operation, the SWPPP for Industrial Activity and a copy of the Notice of Intent for operating under the General NPDES Permit for Discharges of Storm Water Associated with Industrial 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 project operation.

SOIL & WATER-4: The applicant shall provide the CPM with all information/data necessary to satisfy the requirements of the Storm Water Discharge Permit for construction of a storm water outlet, and to discharge flows into Coyote Creek, consistent with the requirements of Santa Clara Valley Water District's (SCVWD's) Ordinance No. 83-2.

Verification: At least 60 days prior to site mobilization, the applicant shall submit all elements required for a Storm Water Discharge Permit to the CPM for review and approval and to the SCVWD for review and comments.

SOIL & WATER-5: The applicant shall provide the CPM with all information/data necessary to satisfy the requirements of the Well Destruction Permit for removal and closure of existing water wells, consistent with the requirements of Santa Clara Valley Water District's (SCVWD's) Ordinance No. 90-1. The project owner shall obtain staff approval prior to construction.

Verification: At least 60 days prior to site mobilization, the applicant shall submit all elements required for a Well Destruction Permit to the CPM for review and approval and to the SCVWD for review and comments.

SOIL & WATER-6: The project owner will install metering devices and 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 applicant shall provide the CPM with all information/data necessary to satisfy the requirements of the Recycled Water Use Permit for use of recycled water under the South Bay Water Recycling (SBWR) Program.

Verification: At least 60 days prior to site mobilization, the applicant shall submit all elements required for the Recycled Water Use Permit to the CPM for review and approval and to the City of San Jose for review and comments.

SOIL & WATER 8: The applicant 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 applicant shall submit all elements required for the Industrial Wastewater Discharge Permit to the CPM for review and approval and to the City of San Jose for review and comments.

SOIL & WATER-9: The project owner shall provide the CPM with evidence of submitting an 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 120 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 authorization from the Army Corps of Engineers regarding compliance with Nationwide Permit #'s 3 and 7, consistent with Section 404 of the Clean Water Act, as applicable for placement of the storm water outfall in Coyote Creek. In association with obtaining authorization for use of Nationwide Permit #'s 3 and 7, the Applicant 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 authorization from the Army Corps of Engineers of Nationwide Permits #'s 3 and 7 in compliance with Section 404 of the Clean Water Act.

REFERENCES

LECEF (Los Esteros Critical Energy Facility). 2001a. Application for Certification, Volume 1 & Appendices, Los Esteros Critical Energy Facility (01-AFC-12). Dated August 3, 2001 and docketed August 6, 2001.
Cited in text as: (LECEF 2001a, AFC Section #)

LECEF (Los Esteros Critical Energy Facility). 2001b. Data Adequacy Response Set 1. Dated and docketed September 14, 2001.
Cited in text as: (LECEF 2001b, page #)

LECEF (Los Esteros Critical Energy Facility). 2001c. Data Request Response Set #1. Dated November 14, 2001 and docketed July 10, 2001.
Cited in text as (LECEF 2001c, page #)

COE (Army Corps of Engineers). 2001. Personal communication from John Kessler – Energy Commission Staff to Ed Wylie, Chief - South Section, Regulatory Branch, Army Corps of Engineers, San Francisco)
Cited in text as: (COE 2001)

USGS. 2001. Tsunami Record from the Great 1906 San Francisco Earthquake. http://walrus.wr.usgs.gov/tsunami/1906.html
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TRAFFIC & TRANSPORTATION

Testimony of Matthew G. Darrow, P.E.

INTRODUCTION

The traffic and transportation section of the Initial Study provides an independent analysis of the Los Esteros Critical Energy Facility (LECEF) project proposed by Calpine c*Power. Potential impacts related to traffic operations and safety hazards resulting from the construction and operation of the project are discussed. These potential impacts were analyzed based on applicable Santa Clara County Congestion Management Plan (CMP) guidelines. The Santa Clara Valley Transportation Authority (VTA) manages the CMP. The CMP defines minimum operation thresholds that are applicable to the LECEF analysis. Specific thresholds are listed in Laws, Ordinances, Regulations and Standards (LORS).

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

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.

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" (Caltrans, 1996).

LOCAL

The Santa Clara Valley Transportation Authority (VTA) oversees the Santa Clara County Congestion Management Plan (CMP). The County and cities within are mandated, per 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. 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 their 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 percent of segment capacity[3] to a segment already operating at LOS F.

SETTING

The primary roadway corridors in the North San Jose region are Interstate 880, US 101, and State Route 237. I-880 is oriented north/south and provides a connection between Oakland and Campbell. This facility is under the jurisdiction of the California Department of Transportation (Caltrans), serving approximately 183,000 vehicles on a daily basis. In the vicinity of the proposed LECEF, I-880 is a six-lane freeway, with three mixed flow lanes in each direction. Access to the project site from I-880 is provided via the SR 237 interchange, which is located a mile to the east.

US 101 provides north-south regional access and extends almost the entire length of California. In the vicinity of the project, US 101 is an east/west facility. US 101 is an eight-lane freeway with three mixed-flow and one HOV lane in each direction. It is under the jurisdiction of Caltrans. Approximately 166,000 vehicles travel on this facility on a daily basis. US 101 intersects with I-880 in San Jose approximately 4 miles to the south, and SR 237 in Mountain View approximately five miles to the west of the proposed LECEF.

SR 237 extends from US 101 to I-880 in an east/west direction and is located immediately south of the proposed LECEF site. The facility is a six-lane freeway with one (1) HOV lane in each direction and is under the jurisdiction of Caltrans. SR 237 serves 115,000 vehicles per day. Access to the project site is from Zanker Road, which connects with SR 237.

The project site is located east of Zanker Road (directly north of SR 237) in the Alviso area of North San Jose and the County of Santa Clara. The proposed project access

[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.

will be from Zanker Road approximately 0.2 miles north of SR 237. Zanker Road is classified as an arterial from the proposed access road south and a major collector north of the access road. Zanker Road is two lanes north of SR 237 and varies between two and four lanes to the south.

This project will also include the construction of various linear facilities. A natural gas and water pipeline will be installed along the access roads. They will begin at the site and tie into both Zanker Road and Alviso-Milpitas Road.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

TRAFFIC AND TRANSPORTATION

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?		X		
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		X		
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Create a significant hazard to the public or the environment through the routine transportation of hazardous material?			X	

DISCUSSION OF IMPACTS

A. Substantial Increase in Traffic

The average workforce is expected to be 200 workers. Some of these workers will carpool to work. The analysis assumes that most trips will arrive during the peak hour while some will not. The project is expected to generate approximately 350 daily trips, 154 of which are expected to occur during the PM peak hour. The peak workforce is expected to be 311 workers. During peak construction months the project is expected to generate approximately 525 daily trips, 238 of which are expected to occur during the PM peak hour. Approximately 10 truck deliveries will occur on a daily basis during construction. Construction of the proposed facility is anticipated to occur over a 4 to 6-month construction period between December 2001 and May of 2002.

The traffic volumes that will be added to Zanker Road should not significantly affect local and regional intersections, however, the volumes that will be added to the freeway segments along SR 237 will be approximately 1 percent to 2 percent of capacity and will adversely affect an already congested freeway system.

Since daily trip volumes are expected to be significant on the freeway system, a construction traffic control plan and implementation program that limits construction-period truck and worker commute traffic to off-peak periods in coordination with the City of San Jose, County of Santa Clara, and Caltrans should be developed to offset this project impact. The Applicant has indicated their intent to provide such a plan (see condition of certification **TRANS-1**). Therefore, impacts will be reduced to a less than significant level.

B. Exceedance of Established Level of Service Standards

In order to assess the potential of project-related traffic significantly impacting local and regional City of San Jose intersections and/or Caltrans facilities, the following scenarios were analyzed:

1. Background traffic; and

2. Background plus construction traffic.

Background traffic is existing traffic, plus traffic that will be experienced from approved but not yet constructed development projects. Traffic volumes during plant operations are considered insignificant.

For signalized intersections, level of service calculations were based on the Highway Capacity Manual 1985 (Transportation Research Board, Special Report 209, 1985). The software tool used was TRAFFIX (Dowling Associates, Version 7.5). This method and analysis tool calculates the average delay time for all vehicles at the intersection and assigns a corresponding Level of Service (LOS) to the intersection.

For freeway segments, the LOS calculations were based on technical guidelines prescribed in the CMP. These guidelines suggest calculating density based on volume,

number of lanes, and travel speed. Mixed-flow and High Occupancy Vehicle (HOV) lanes were analyzed separately. Each density has a corresponding LOS as defined by the CMP.

According to the San Jose General Plan, the minimum desirable level of service at local signalized intersections is D during peak commute times while the County CMP allows a minimum threshold of LOS E for certain routes of regional significance. One local intersection and three regional CMP intersections * were evaluated. They are:

- Zanker Rd./SR 237 (North Intersection)*;
- Zanker Rd./SR 237 (South Intersection)*;
- Zanker Rd./Tasman Dr.; and
- Zanker Rd./Montague Expressway*

Under background conditions[4], all four of the intersections will operate at better than the minimum established LOS thresholds in the PM peak hour (See **Traffic and Transportation Figure 1**). Although the intersection at Zanker Rd./Montague Expressway will operate at LOS E during the PM peak hour, this LOS is equal to the minimum desired at this regional CMP intersection.

With the addition of peak hour construction traffic, the LOS at the four intersections will be unchanged. Therefore, there is no significant impact from construction operations.

The CMP states that the minimum acceptable LOS is E for freeway segments in the region. Four freeway segments were studied. They are:

- SR 237 from North First to Zanker (Eastbound);
- SR 237 from Zanker to I-880 (Eastbound);
- SR 237 from Zanker to North First (Westbound); and
- SR 237 from I-880 to Zanker (Westbound).

Under background conditions, two of the four segments will operate at levels worse than the minimum established LOS threshold in the PM peak hour (See **Traffic and Transportation Figure 1**). SR 237 from North First to Zanker (Eastbound) and SR 237 from Zanker to I-880 (Eastbound) will operate at LOS F.

With the addition of PM peak hour construction traffic, LOS on the four segments will not change. However, the CMP standards specify that a volume increase of 1 percent of capacity on a facility expected to operate at LOS F is considered significant[5].

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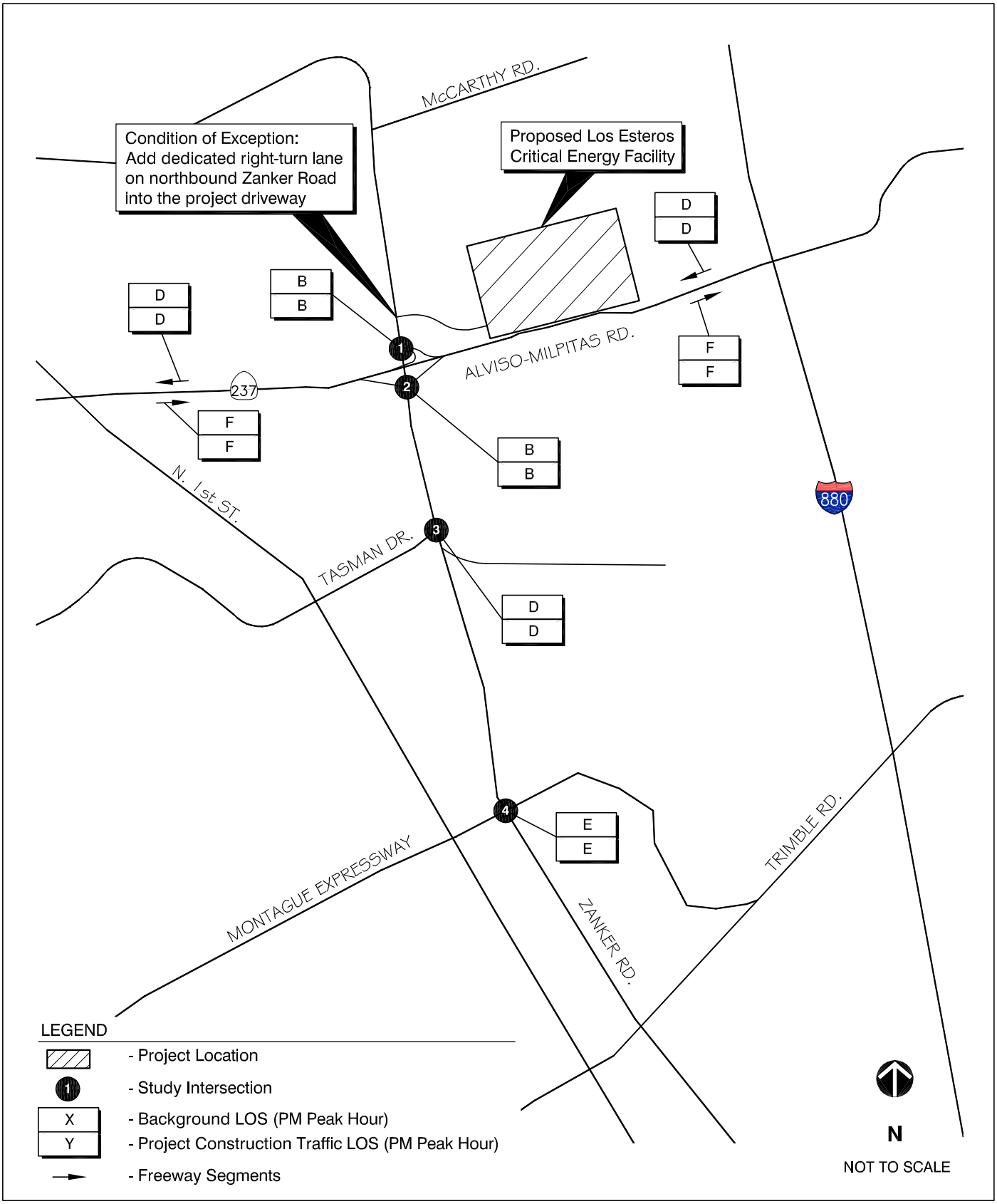
[4] Existing (2000) traffic volumes with added traffic from approved developments. The source of the approved developments was the City of San Jose, City of Milpitas, and the City of Santa Clara.

* Intersection affected by the Santa Clara County's regional Congestion Management Plan (CMP).

[5] 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.



FEHR & PEERS
TRANSPORTATION CONSULTANTS

Nov 21, 2001 MJF
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PROJECT LOCATION AND ROADWAY LEVELS OF SERVICE

TRAFFIC AND TRANSPORTATION FIGURE 1

With the addition of PM peak hour construction traffic, the freeway segment at SR 237 from Zanker to I-880 (eastbound) will experience an additional 130 trips. Since this is a 6-lane facility, the segment capacity is 69 trips (2,300x3x1 percent). Therefore, a significant impact will be created on this freeway segment.

The freeway segment at SR 237 from North First to Zanker (eastbound) will experience no new traffic in the PM peak hour. Therefore, no significant impact will occur on this segment.

Although the impact to SR 237 from Zanker to I-880 (eastbound) is considered significant, widening of the freeway is considered to be too expensive to make it a viable mitigation measure. Furthermore, the impact will only be experienced during the construction phase. This phase will be temporary in nature.

A construction traffic control plan and implementation program that limits construction period truck and project-related commute traffic to off-peak periods in coordination with the City of San Jose, County of Santa Clara, and Caltrans will be required to offset this project impact. The Applicant has indicated their intent to provide such a plan (see condition of certification **TRANS-1**).

In addition, construction of linear facilities (i.e., gas/water pipelines) will include temporary traffic lane closures, thereby affecting the capacity of the following roadways:

- Zanker Road (between project site and SR 237)
- Alviso-Milpitas Road (immediately south of the site)

The applicant will be required to prepare a traffic control plan related to the construction of linear facilities, which will include a discussion on the use of flagmen, advanced warning flashers, and signage for temporary lane closures. In addition, this traffic control plan should include timing of linear facilities construction to take place outside peak traffic periods to avoid traffic flow disruptions.

Decrease in service levels resulting from temporary lane closures related to construction of linear facilities also require the development and implementation of a construction traffic control plan to offsets these traffic impacts.

The project will have a significant impact on one freeway segment of SR 237. However, implementation of condition of certification **TRANS-1** will reduce this impact to an insignificant level.

C. Change in Air Traffic Patterns

The LECEF has no major commercial aviation center in the area. The San Jose International Airport is located approximately five miles to the south of the proposed site and Moffett Federal Airfield is located approximately six miles to the west. A local airport in Fremont is located approximately two miles north of the project, but it will not be impacted by the proposed LECEF because the height of the exhaust stacks are low (less than 90 feet high) and do not interfere with the flight path. Therefore, there will be no impact.

D. Substantial Increase in Traffic Hazards

Staff observations of the project area indicate that a potential traffic operation problem could occur near the primary access road to the jobsite. In the AM peak hour there will be up to 238 project-related vehicles that will access the site from northbound Zanker Road by making a right turn. These vehicles will primarily be construction workers driving to work. Since these vehicles will arrive at the site at roughly the same shift start time, they will have the potential to queue back along Zanker Road and cause delay to through-traffic.

Zanker Road north of SR 237 is a two-lane facility with no dedicated right turn lane at the proposed primary project access location. In the morning, a relatively high amount of construction traffic will try to enter the project site at the primary access road. Since motorists that normally travel northbound on Zanker Road at high speeds may not be expecting to find congestion due to vehicles entering the jobsite at this location, a traffic hazard could occur. The project owner shall be required to install a temporary dedicated right turn pocket with 150 feet of queue storage along the eastside shoulder of Zanker Road (see condition of certification **TRANS-2**). This right turn pocket will not need to be a permanent part of the City of San Jose road system and should be constructed in a way that it can be easily removed after construction is complete. This turn pocket does not need to be paved.

The need for the temporary right turn pocket stems from the increased construction staff and delivery vehicles that will access the jobsite at the primary entrance. This temporary right turn pocket is not intended to mitigate hazardous material deliveries.

The Applicant has indicated its intent to comply with all weight and load limitations on state and local roadways, in order to prevent traffic and roadway hazards related to overweight and oversize loads. Condition of certification **TRANS-2** will mitigate this potential impact to a less than significant level.

E. Inadequate Emergency Access

The project will not lead to inadequate emergency vehicle access (EVA). Emergency vehicles that respond to jobsite emergencies are expected to travel from emergency facilities in Milpitas (to the east) or Santa Clara (to the south). Emergency vehicles are expected to access the site from one of three access roads. The primary EVA to the site will be along the access road that connects with Zanker Road 0.2 miles north of SR 237. If this access road is blocked, emergency vehicles will take a secondary EVA provided from Alviso-Milpitas Road on the south of the proposed facility. An additional EVA will be located 0.4 miles north of SR 237 along Zanker Road. Emergency vehicles from Milpitas will most likely arrive at the site via SR 237 to Zanker Road while emergency vehicles from Santa Clara will most likely arrive at the site on Zanker Road.

During construction operations, emergency vehicles traveling to the site through any of the four study intersections will not be significantly impacted since these intersections will operate at better than the minimum established LOS thresholds in the PM peak hour.

The Applicant has also indicated their intent to maintain emergency access on applicable roadways during construction of linear facilities. Access will be maintained by providing flagmen and complying with the "Manual of Traffic Controls for Construction and Maintenance of Work Zones" (Caltrans, 1996).

F. Inadequate Parking Capacity

Onsite parking will be substantial and will be able to handle both the peak construction employee phase of the proposed project as well as staging. Parking along Zanker Road or Alviso-Milpitas Road will be prohibited. All parking will be self-contained onsite.

G. Transportation of Hazardous Material

The construction and operation of the plant will require the transportation of various hazardous materials, including: aqueous ammonia, gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, paint thinner, etc. The transport of hazardous materials over city streets has the potential to result in an increase in traffic hazards. The LECEF AFC has indicated that the transportation of hazardous materials to and from the site will be conducted in accordance with all applicable LORS for the handling and transportation of hazardous materials. All hazardous material deliveries should be routed as follows: from SR 237 exit northbound at Zanker Road, turn right onto the primary access road and enter the LECEF (see condition of certification **TRANS-3**). Implementation of condition of certification **TRANS-3** will mitigate the potential impact to a less than significant level.

CUMULATIVE IMPACTS

Nine projects in the region that lie within two miles of the proposed LECEF have been identified that could affect the regional traffic and transportation network. These projects are as follows:

- Northeast San Jose Transmission Reinforcement Project – Approved; construction date is unknown.
- US DataPort Facility - Approved but on hold; construction as early as 2003
- Palm Corporation Industrial Campus – Approved but on hold; construction date is unknown.
- Cisco Systems Industrial Campus - Approved but on hold; construction date is unknown.
- Irvine Company Apartment Complex – Approved and under construction.
- Veritas Software Industrial Campus – Approved and under construction.
- Irvine Company Business Park – Approved and under construction.
- Office Park Developments – Approved and under construction.
- Pacific Gas and Electric Los Esteros Substation – Project on hold; construction date is unknown.

Five of the nine projects are either on hold or have an undetermined construction schedule. The remaining four projects are in various phases of construction. Three of the four projects under construction lie to the east for the LECEF and would most likely access SR 237 at locations east of the interchange at Zanker Road closer to I-880. The remaining project lies a mile south of SR 237 and the LECEF, and would likely access SR 237 at Zanker Road from the south. Construction of the previously approved US DataPort project would most likely begin after LECEF construction is complete. Operational traffic at the LECEF will be minimal and will not significantly affect construction traffic for US DataPort. Since traffic generated by the LECEF construction phase will be temporary and will occur during off-peak hours, staff concluded that there will be no significant cumulative impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed Los Esteros CEF Project (please refer to **Socioeconomics Figure 1** in this Staff Analysis), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. Based on the traffic and transportation analysis, staff has identified a few significant impacts resulting from the construction or operation of the project; however, there are no environmental justice issues related to these impacts. Furthermore, staff's recommended Conditions of Certification will mitigate these impacts to an insignificant level.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

CITY OF SAN JOSE

City 28 The City feels that a discussion of bicycle and pedestrian facilities should include the Bay Trail, which has a planned alignment both along Coyote Creek and on an east-west transect north of the LECEF site.

Response: Staff feels that construction traffic generated by the proposed LECEF will not cause a significant impact to users of nearby bicycle and pedestrian facilities. People that use these facilities will not be significantly affected or deterred by the project. Traffic generated by the operations of the proposed LECEF will be insignificant.

City 29 The City feels that discussion of CEQA thresholds should state all thresholds that are applicable, not just a summary.

Response: The LORS section of this staff report defines applicable Federal, State, and Local regulations that are relevant to the LECEF. This section states that the Santa Clara Valley Transportation Authority (VTA) manages the Santa Clara County Congestion Management Plan (CMP) guidelines. The CMP defines specific minimum operation thresholds and significance criteria that are applicable to the Traffic and Transportation analysis of the LECEF.

City 30 The City wonders why a discussion of the transportation of hazardous materials is in the Transportation section and not just the Hazardous Materials section.

Response: The discussion of the transport of hazardous materials appears in both sections. The Transportation section discusses this issue since the transport of hazardous materials over city streets has the potential to result in an increase in traffic hazards. Staff has required that the transportation of hazardous materials to and from the site be conducted in accordance with all applicable LORS. See Trans-3.

City 31 The City would like the Transportation LORS section to contain a discussion of the City's level of service (LOS) policies.

Response: This staff report states that the Santa Clara Valley Transportation Authority (VTA) oversees the Santa Clara County Congestion Management Plan (CMP). The County and cities within are mandated, per 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 San Jose General Plan sets forth goals, policies, and implementation programs related to traffic issues in the city. These goals include minimum LOS standards for local routes, regional routes, and state highway facilities. The LORS section of this staff assessment contains a detailed discussion of City policies. It also contains a detailed discussion of the Santa Clara County CMP policies. These policies were used in this Staff Assessment.

City 32 The City feels that the Transportation section needs to "more thoroughly evaluate impacts to trails adjacent to the LECEF site."

Response: See response to City 28 above.

CONCLUSIONS

Provided that the Applicant develops a construction traffic control and implementation program, constructs a dedicated right-turn lane on Zanker Road, and follows all LORS acceptable to the City of San Jose, County of Santa Clara, and Caltrans for the handling of hazardous materials, the project will result in less than significant impacts.

PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall develop a construction traffic control and transportation demand implementation program that limits construction-period truck and commute traffic to off-peak periods in coordination with the City of San Jose, County of Santa Clara, and Caltrans. Specifically, this plan shall include the following restrictions on construction traffic:

1. establish construction work hours outside of the peak traffic periods[6] to ensure that construction workforce traffic occurs during off-peak hours, except in situations where construction activities necessitate travel during peak hours, in which case workers will be directed to routes that will not deteriorate the peak hour level of service below the local City of San Jose's and County CMP LOS standard;

2. schedule heavy vehicle equipment and building material deliveries to occur during off-peak hours;

3. route all heavy vehicles and vehicles transporting hazardous materials as follows: from SR 237 exit northbound at Zanker Road and turn right to enter the Los Esteros Critical Energy Facility; and

4. during the construction phase (once every two months), monitor and report the turning movements and traffic volumes for the project access roads during the A.M. (7:00 to 9:00 a.m.) and P.M. (4:00 to 6:00 p.m.) peak hours to confirm construction trip generation rates.

The construction traffic control and transportation demand implementation program shall also include the following provisions for linear facilities:

1. timing of linear construction (all pipeline construction affecting local roads shall take place outside the peak traffic periods to avoid traffic flow disruptions);

2. signing, lighting, and traffic control device placement;

3. temporary travel lane closures;

4. maintaining access to adjacent properties; and

5. emergency access.

Verification: At least 30 days prior to start of site preparation or earth moving activities, the project owner shall provide to the City of San Jose, County of Santa Clara, and Caltrans for review and comment, and to the CPM for review and approval, a copy of their construction traffic control plan and transportation demand implementation

[6] AM Peak hours are between 7:00 to 9:00 AM and PM peak hours are between 4:00 to 6:00 PM.

program. Additionally, every 2 months during construction the project owner shall submit turning movement and traffic volumes at the project access roads during the A.M. (7:00 to 9:00 a.m.) and P.M. (4:00 to 6:00 p.m.) peak hours to confirm construction trip generation rates identified in the AFC, and to determine that any impacts to City, County, and State transportation facilities are kept at an insignificant level.

TRANS-2 The project owner shall construct a temporary dedicated right turn pocket along the eastside shoulder of northbound Zanker Road with a minimum of 150 feet of storage for access to the proposed LECEF facility at the primary access road north of SR 237. This right turn pocket will not need to be a permanent part of the City of San Jose road system and should be constructed in a way that it can be easily removed after construction is complete. This turn pocket does not need to be paved.

Verification: At least seven days prior to the start of site preparation or earth moving activities, the project owner shall demonstrate to the City of San Jose and county of Santa Clara that the temporary dedicated right pocket has been constructed along the eastside shoulder of Zanker Road.

TRANS-3 The project owner shall ensure that all federal, state, and local regulations for the transportation of hazardous materials are observed.

Verification: The project owner shall include in its Monthly Compliance Reports copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transportation of hazardous substances.

REFERENCES

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TRANSMISSION LINE SAFETY AND NUISANCE

Obed Odoemelam, Ph.D.

INTRODUCTION

The energy from the proposed Los Esteros Critical Energy Facility (LECEF) will be delivered to the Pacific Gas and Electric (PG&E) power grid through two 400-ft underground 115 kV circuits running between LECEF's new 115 kV switchyard and PG&E's new Los Esteros Substation being built adjacent to the project site. As noted by the applicant, Calpine c* Power (or c* Power) this area PG&E transmission grid consists of 230 kV and the 115 kV lines for which the proposed Los Esteros Substation would serve as a central energy distribution point. The location for LECEF was chosen mainly for its proximity to this proposed substation (LECEF 2001, page 5-1).

Since (a) line electric fields depend on the applied voltage and conductor configuration and (b) the same 115 kV would be applied to the proposed underground line and the existing overhead 115 kV grid lines to be interconnected (without change in configuration), the existing system's electric fields will not be increased by the power addition from the proposed LECEF. Only the magnetic fields would increase since magnetic fields are the only fields whose intensities depend directly on current levels for a given line design. Because magnetic fields can penetrate most materials (unlike electric fields), the magnetic fields from the proposed underground line would be encountered in the area above the proposed route. The electric fields would not.

The purpose of this staff analysis is to assess the proposed power delivery scheme to determine whether or not specific mitigation would be necessary to maintain post-project field and non-field impacts within levels associated with similar lines designed according to applicable health and safety laws ordinances regulations and standards (LORS). Staff's analysis will focus on the following field and non-field issues as related primarily to the physical presence of the proposed and existing 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.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Discussed below by subject area are design-related LORS applicable to the physical impacts of the proposed underground transmission line and the existing overhead grid lines potentially affected by operation of the proposed LECEF. The potential for 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 because of the potential for visual impacts on the landscape.

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the distancing 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 as produced by the physical interactions of line electric fields. Since electric fields are unable to penetrate most materials including the soil, such interference and other electric field effects are not associated with underground lines and would, therefore, not be associated with the proposed project line. For overhead lines, any such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for manifestation could be assessed from field strength values calculated 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 in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the

electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests 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. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification as necessary to ensure compliance with this FCC requirement.

State

- General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

Industry Standards

There are no design-specific federal regulations to limit the audible noise from transmission lines. As with radio noise, such audible noise is limited instead 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 overhead, high-voltage lines are designed to assure compliance. As with radio-frequency noise, such audible noise usually results from the action of the electric field at line conductor surface 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 such as the 115 kV and 230 kV grid lines in question. 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.

NUISANCE SHOCKS

Industry Standards

There are no design-specific federal regulations to limit nuisance shocks in the transmission line environment. For modern 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). 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. Each applicant is responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff usually recommends specific conditions of certification as necessary to ensure that such grounding is made by both the project owner and the property owners along the line route.

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

- General Order 95 (GO-95), CPUC, “Rules for Overhead Electric Line Construction” specifies 1tree-trimming criteria to minimize the potential for power line-related fires.
- Title 14 Section 1250 of the California Code of Regulations: “Fire Prevention Standards for Electric Utilities” specifies utility-related measures for fire prevention.

Compliance with these regulations minimizes the potential for such fires.

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

- GO-95, CPUC. “Rules for Overhead Line Construction”. These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and line workers.
- GO-128, CPUC. Rules for Construction of Underground Electric Supply and Communication Systems”. These rules specify uniform statewide requirements for underground line construction regarding clearance, grounding techniques, maintenance, and inspection.

- Title 8, CCR, Section 2700 et seq., Sections 2700 through 2974. "High Voltage Electric Safety Orders". These safety orders establish essential requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment

Local

There are no shock hazard-related requirements on the physical dimensions of power lines at the local level.

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 for high-voltage Lines. These provisions specify the minimum national safe operating clearances applicable in areas of line accessibility to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

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 reduce such fields as feasible without affecting line safety, efficiency, reliability and maintainability.

While there is considerable uncertainty about the EMF/health effects issue, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency and maintainability, depending on the type and extent of such measures.

State

The CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only for new or modified lines. It required each utility within its jurisdiction to establish EMF-reducing measures and incorporate them 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 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 evidence that each proposed overhead line will 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 therefore, up to each applicant to ensure that such measures are applied without 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, staff and other regulatory agencies can use such field strength values to assess effectiveness at field strength reduction. 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 structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since close placement maximizes the cancellation effects of line fields, undergrounding (in which line conductors are closely placed together in their burial casings) produces the lowest field levels possible from the power transmission involved. The continuing challenge is to design and place those lines to achieve maximum field cancellation without affecting safety, efficiency and reliability. The necessary design and placement methods are included in the line design guidelines of each utility.

Since each new line in California is currently required to be designed to incorporate the EMF-reducing requirements of the utility in the service area involved, thee fields from the line are required under existing CPUC policies to be similar to fields from similar lines in that service area. A condition of certification is usually proposed by staff to ensure implementation of the design measures necessary. In the case of undergrounding, which produces the maximum field strength reduction possible, staff may not regard validating field strength measurements as necessary during operations.

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 since only it can penetrate the 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 for short periods to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). 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.

SETTING

As noted in the information from the applicant (LECEF 2001a, pages 5-1), the site of the proposed project and related switchyard is a 15-acre lot in the Alviso area of San Jose in rural Santa Clara County. The site is undeveloped farmland approximately 1,000 feet north of the California State Highway 237 and 2,000 feet east of Zanker Road. The nearest residential areas are approximately 0.6 miles to the southwest, 0.8 miles to the east, and 1.4 miles to the southeast, meaning that the residential field exposure at the root of the present health concern would be insignificant for the project line as proposed to be routed entirely within the site for LECEF and the proposed Los Esteros Substation.

The applicant has provided a listing of the transmission lines in the immediate project area along with their respective conductor types, voltage ratings and current-carrying capacities (LECEF 2001, page 5-3). However, the power from LECEF will be transmitted from the proposed Los Esteros Substation through four specific 115 kV lines (Los Esteros-Nortech, Los Esteros-Trimble, Los Esteros-Montague, and Los Esteros-Agnew) which will exit the Los Esteros Substation along a right-of-way. It is these lines that will be potentially impacted by LECEF operations with respect to magnetic field generation. As noted by the applicant, power introduction from LECEF would lead to corresponding decreases in 230 kV Los Estero-Newark and Los Esteros Metcalf lines (LECEF 2001a, pages 5-11 and 5-13).

The potential impacts of the LECEF-related current increases on the existing system is assessed through magnetic field calculations for the area within the routes of the four grid lines to be used to distribute the power. With no changes in the system's electric fields, the previously noted electric field impacts of concern will remain at current levels along the overhead grid lines while absent along the route of the underground project line.

PROJECT DESCRIPTION

The interconnection line for the proposed LECEF will consist of the segments listed below:

- The two new underground single circuits extending the 400 feet between the project's 115 kV switchyard and the proposed PG&E 115/230 kV Los Esteros Substation;
- The new LECEF Switchyard; and
- Project-related modifications at the Los Esteros Substation.

Since the line will be located entirely within the fence lines of LECEF and the proposed Los Esteros Substation, no new right-of-way would be required for routing. As more fully noted by the applicant (LECEF 2001a, pages 5-5), the line's two circuits will be installed in separate burial conduits and will exit underneath the new LECEF Switchyard, run northwest, and resurface within the Los Esteros Switchyard where they will be connected at specific receptor points.

PG&E is presently unable to guarantee that the Los Esteros Substation will be completed by the May 2002 operational date for LECEF, making it necessary for the applicant to propose two temporary alternative interconnection schemes for the project. The option selected by the applicant, and approved by PG&E and Cal-ISO would be to transmit to power through a temporary 2000-foot wood pole line between the proposed project and the Nortech-Trimble line (LECEF 2001a, pages 1-3 and 2-7)

The design for the proposed underground interconnection and the temporary overhead alternative would be constructed according the respective standard designs of PG&E, as the main utility in the project area (LECEF 2001a, pages 5-7, and 5-15). Since these designs reflect compliance with existing health and safety LORS, staff would regard their temporary use as appropriate for this utility service area. PG&E has pledged to work cooperatively with the applicant to ensure the desired on-time completion of the Los Esteros Substation (LECEF 2001, Appendix 5.4A).

IMPACTS

TRANSMISSION LINE SAFETY AND NUISANCE

ENVIRONMENTAL CHECKLIST	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
TRANSMISSION LINE SAFETY AND NUISANCE -- Would project operation:				
a) Pose an aviation hazard to area aircraft?				X
b) Lead to interference with radio-frequency communication?				X
c) Pose a hazardous or nuisance shock hazard?				X
d) Pose a fire hazard?				X
e) Expose humans to higher electric and magnetic field levels than justified by existing knowledge?		X		

DISCUSSION OF IMPACTS

A. Aviation hazard: No Impact

The existing overhead grid lines to be used during LECEF operations were designed by PG&E according to PG&E guidelines bearing on aviation safety, fire hazards, and hazardous shocks. Therefore, staff considers the use of these lines during LECEF operations (without structural modification) as potentially safe with regard to these impacts. Staff does not recommend any of the safety-related conditions of certification normally required for new or upgraded lines. The proposed project line is an underground line, which does not pose an aviation hazard. Since the line will be designed according to GO-128 requirements, staff does not regard it as posing the hazardous shock hazard concern in this analysis. Staff proposes a specific condition of certification, **TLSN-1**, to ensure the assumed compliance.

B. Interference with radio-frequency communication: No Impact

The potential for electric field-related audible noise, nuisance shocks, and interference with radio-frequency communications depends on electric field strengths, which in turn, depend on voltage. Since (a) there will be no change to the voltage on existing grid lines and (b) these lines were designed and are presently maintained by PG&E according to PG&E requirements bearing on these electric field effects, staff considers their continued use during LECEF operations as appropriate with regard to these effects.

C. Hazardous and nuisance shock hazards: No Impact:

Refer to A. Aviation hazards and B. Interference with radio-frequency communication discussions.

D. Fire Hazard: No Impact

Refer to A. Aviation Hazards discussion.

E. EMF Health Effects: Less than Significant with Mitigation Incorporated

Maximum field strengths along the routes of the existing overhead grid lines to be used were calculated by the applicant to establish the potential contribution of LECEF to the fields from the four potentially impacted 115 kV components. Calculations were made using the maximum power possible from all future phases of the project (LECEF 2001a, pages 5-13 through 5-15, and Appendices 5.5B and 5.5C). Staff has verified the accuracy of the applicant's calculations with regard to parameters bearing on field strength dissipation and exposure assessment. Since underground lines are lines with the lowest intensities possible, staff will not recommend any exposure-related changes to the proposed design or placement plan.

The maximum magnetic fields strengths anywhere within the routes of the potentially impacted lines were calculated to change from the existing 161.44 mG to 192.4 mG when the project is operational. The level at the right-of-way would increase from the present 36.0 mG to 44.9 mG. These field strength values are as staff would expect for PG&E lines of the same voltage and current-carrying capacity and are much lower than the 150 to 200 mG established for the edge of the right-of-way by the few states with regulatory limits on these line magnetic fields.

The applicant (EAEC 2001a, pages 5-16 and 5-17) has presented the field reduction approaches incorporated in these existing area grid lines. These measures include the following:

1. increasing the distance between the conductors and the ground;

2. reducing the spacing between the conductors;

3. minimizing the current in the line; and

4. arranging current flow to maximize the cancellation effects from interacting fields from nearby conductors.

Since these field reducing measures have been incorporated to the extent considered by PG&E without impacts on line safety, efficiency, reliability and maintainability, staff considers further mitigation as unnecessary but recommends a specific condition of certification, **TLSN-2**, to validate the field reduction effectiveness assumed by the applicant.

CUMULATIVE IMPACTS

The reported magnetic field strengths were calculated by the applicant to factor the interactive effects of fields from the conductors of the potentially impacted overhead grid lines. Therefore, these values should be seen as representing cumulative exposures from these existing area PG&E lines. As reflected in the calculated values, any such exposures would be similar to those associated with overhead PG&E lines of similar voltage and current-carrying capacity. The fields from underground lines diminish more rapidly with distance than those from their overhead counterpart. Therefore, the magnetic fields from the proposed underground interconnection would not contribute to

magnetic field exposure of a cumulative nature from its route within the property lines for LECEF and the proposed PG&E Los Esteros Substation.

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows that there are minority populations within six miles of the project. Since staff has concluded that there will be no significant direct or cumulative transmission line safety-related impacts, there will also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No comments were received.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

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-related field exposures cannot be characterized with certainty. The long-term, mostly residential magnetic exposure at the root of the present health concern will be insignificant for the proposed underground interconnection line given the general absence of residences along the proposed route and the significant distance from the few residences in the area. On-site worker or public exposures would be short-term and at levels expected for similar PG&E designs and current-carrying capacity. Such exposures are well understood and have not been established as posing a health hazard to humans. The potential for nuisance shocks would be minimized through compliance with GO-128.

Since the 115 kV overhead grid lines to be used were designed according to PG&E guidelines reflecting compliance with existing health and safety LORS, staff considers these lines as appropriate for use during LECEF operations. These LORS were established against the field and non-field effects of specific concern in this analysis

RECOMMENDATIONS

Since the project's underground line will be designed according to the applicable safety and field-reducing guidelines and routed away from residential area, staff recommends approval with specific respect to the line-related impacts of concern in this analysis. If such approval is granted, staff recommends that the Energy Commission adopt the conditions of certification specified below to ensure implementation of the measures necessary to ensure the line safety assumed by the applicant. Since undergrounding obviates the need for further field exposure-related mitigation, staff considers validation measurements as necessary along the proposed on-site route.

PROPOSED CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall build the proposed 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 the PG&E's 115 kV grid lines to be use in distributing the power from LECEF to the area's population centers. 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.

REFERENCES

LECEF (Los Esteros Critical Energy Center) 2001a. Application for Certification, Volumes I and II. Submitted to the California Energy Commission on August 6, 2001.

Electric Power Research Institute (EPRI) 1982. Transmission Line Reference Book: 345 kV and Above.

Energy Commission Staff 1992. High Voltage Transmission Lines: Summary of Health Effects Studies. California Energy Commission Publication, P700-92-002.

National Institute of Environmental Health Services 1998. An Assessment of the Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. A Working Group Report, August, 1998.

VISUAL RESOURCES

Testimony of Michael Clayton and Brewster Birdsall

INTRODUCTION

Visual resources are the natural and cultural features of the environment that can be viewed. This analysis focuses on whether the Los Esteros Critical Energy Facility (LECEF) would cause visual impacts and whether the project would be in compliance with applicable laws, ordinances, regulations, and standards. The determination of the potential for visual impacts resulting from the proposed project is required by the California Environmental Quality Act (CEQA)

This analysis includes the following:

- description of applicable laws, ordinances, regulations and standards;
- assessment of the visual resources setting of the proposed power plant site and linear facility routes;
- evaluation of the visual impacts of the proposed project on the existing setting;
- evaluation of compliance of the project with applicable laws, ordinances, regulations, and standards;
- conclusions; and
- proposed conditions of certification

A summary of the visual resources analytical data is presented in table form in **VISUAL RESOURCES Appendix VR-1**. A discussion of the visual resources analysis methodology is provided in **VISUAL RESOURCES Appendix VR-2**. A lighting complaint resolution form is also provided in **VISUAL RESOURCES Appendix VR-3**. **VISUAL RESOURCES Appendix VR-4** presents the visual resources figures.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL

The proposed project (including the linear facilities) is not located on federally administered public lands and is not subject to federal regulations pertaining to visual resources.

STATE

None of the roadways in the project vicinity, including State Route (SR) 237 and Interstate 880 (I-880) are eligible or designated State Scenic Highways (State Scenic Highway System Web Site: http://svhqsgi4.dot.ca.gov:80/hq/LandArch/scenic/cahisys.htm). Therefore, no state regulations pertaining to scenic resources are applicable to the project.

LOCAL

The following discussion of Local laws, ordinances, regulations, and standards (LORS) is based on Section 5.13.5 (LORS Compliance) of the Applicant's Application (LECEF 2001a, AFC pages 8.11-16 through 19); supplemental Data Responses submitted by the Applicant (LECEF 2001d, Data Response No. 130); and a review of the City of San Jose General Plan, Zoning Ordinance, and Alviso Master Plan.

The proposed power plant and linear facilities are located within the City of San Jose and would be subject to local LORS pertaining to the protection and maintenance of visual resources. LORS applicable to the proposed project are found in the City of San Jose General Plan, Zoning Ordinance, and Alviso Master Plan. The pertinent sections of the City's 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. Pertinent standards and policies within the Alviso Master Plan are found in the Land Use Plan section of the Master Plan under Land Use Policies, Design Guidelines, and Landscaping Policies (City of San Jose, 1998a, pp. 43-47, 62-63, and 65-67 respectively). An assessment of the project's consistency with these applicable local LORS is presented in a later section of this analysis.

SETTING

EXISTING LANDSCAPE

The proposed project site is located in Santa Clara Valley, bordering the southern portion of San Francisco Bay. The Santa Clara Valley is part of the California Coast Ranges, which are classed as a section of the Pacific Border Province (Hunt, 1967). The Valley is defined by the Santa Cruz Mountain range to the south and west, the Diablo Mountain range to the east, and San Francisco Bay to the north. The landform of the valley floor is generally level and exhibits the visual characteristics of an environment transitioning from its historical agricultural use to that with a highly urbanized character, primarily defined by industrial, commercial, office, and residential development; infrastructure; and vegetation typical of landscaped urban parks and streetscapes. While some vestiges of the Valley's historical agricultural activity remain, views within this urban environment are typically confined by, and encompass, built structures. Sandwiched between the Valley's rapidly developing urban areas that today, are collectively referred to as "Silicon Valley," and the expansive southern portion of San Francisco Bay, are the Bay margin wetlands, sloughs, and diked salt ponds. Views in the wetlands and along the dike trails are afforded open, panoramic vistas, punctuated by development and infrastructure.

The proposed project would be constructed to the east of the community of Alviso in the northern portion of the City of San Jose. The project site is north of State Route (SR) 237, east of Zanker Road, west of Coyote Creek, and south of the Santa Clara Water Pollution Control Plant (WPCP) and associated lands. Although the resident population in this area is relatively low (there are three residences to the immediate southeast of the project site), the site is visible to large numbers of people who commute to and from

work on the adjacent SR-237. The project site encompasses a 15.3-acre portion of a larger site that was approved by the City of San Jose for development of the U.S. DataPort project. The site is essentially flat, with little topographic variation (Calpine 2001a, p. 8.11-3). The property on which the proposed power plant would be located was used as a plant nursery for many years and supported numerous greenhouses which have since been removed. The proposed 200-foot underground transmission interconnection, 600-foot natural gas line, and water and sewer lines would all be located within the general project site described above.

Immediately north of the site are the settling ponds associated with the WPCP. Immediately west of the site, adjacent to Zanker Road are the WPCP buffer lands that have been used as hay fields. Additional buffer lands are located on the west side of Zanker Road, south of the WPCP. Further west, at a distance of approximately 1.7 miles is one of Alviso's residential neighborhoods (along Grand Boulevard). To the south of the site are SR-237 and the technology business parks and Valley Transit Authority's Cerone bus maintenance facility on the south side of SR-237. To the east of the site is the riparian corridor of Coyote Creek and the McCarthy Ranch commercial and office development, which is situated between Coyote Creek and I-880 in the City of Milpitas.

Site Landscape With U.S. DataPort

The site landscape would have an appearance similar to other technology and industrial parks along the SR-237 corridor. The landscape would be dominated by the large, geometric block forms of the U.S. DataPort buildings and perimeter and entry landscaping associated with the U.S. DataPort development. Views across the site would be almost completely blocked by the U.S. DataPort structures and formal landscaping. The upper elevations of the East Bay Hills to the east and north would be partially visible above the 90-foot tall U.S. DataPort buildings and trees.

Site landscape Without U.S. DataPort

The proposed site consists of level open fields with a prominent agricultural character, which is increasingly rare along the SR-237 corridor. The vegetation colors range from green to brown and are transient with seasonal influences. Riparian trees along Coyote Creek add visual variety and provide a visible boundary along the east side of the site. The abrupt rise of the East Bay Hills to the east and north provides visual contrast to the flat terrain of the site and adjacent Bay margin lands. The site's openness is what allows for the distant, expansive, vista views to the north trending ridgeline of the East Bay Hills. As development in the Santa Clara Valley continues, such vista views and visible agricultural heritage are becoming increasingly rare.

VIEWER EXPOSURE

Site Visibility with U.S. DataPort

Public views to the site with U.S. DataPort present would be limited primarily to a short section of eastbound SR-237 just east of Zanker Road. From this location, the project would be briefly visible in the gap between two U.S. DataPort buildings until U.S. DataPort's entry landscaping reaches sufficient height to screen the majority of the

proposed power plant structures (see **VISUAL RESOURCES Figures 3** and **4** – [Please note: The image presented in Figure 4 is substantially smaller than life-size scale]). The upper portions of the proposed project facilities would also be visible to the upper floors of some of the office buildings in the McCarthy Ranch development along the east side of Coyote Creek. U.S. DataPort buildings and landscaping would effectively limit site visibility from other viewing locations including the Bay Trail, Zanker Road, eastbound SR-237, Grand Boulevard, and the retail locations in the McCarthy Ranch development. Viewer concern is rated low to moderate for motorists on SR-237.

The proposed 115 kV double circuit interconnection would span approximately 500 feet from the power plant switchyard on the north side of the project site to the 115 kV transmission line that PG&E would construct immediately adjacent to the western perimeter of the proposed project as part of PG&E's Northeast San Jose Transmission Reinforcement Project and construction of their Los Esteros Substation. Therefore, the electric interconnection would be located within the project area describe above as would the underground gas line and its aboveground metering station and the underground recycled water line, wastewater line, and storm water drain. The electric transmission interconnection would have limited visibility as described above for the power plant. The gas line metering station would be located interior to the perimeter 8-foot sound wall and would not be visible from surrounding viewpoints. The other linear facilities would be underground and would not be visible during project operation.

The reasonable worst case plumes from the cooling towers (based on a 10 percent frequency of occurrence during seasonal daylight hours from November through April) would rise approximately 118 feet above ground level which would be approximately 28 feet above the 90-foot tall HRSG stacks, which are the tallest components of the proposed project. The cooling tower plumes would extend downwind approximately 46 feet. The cooling tower plumes could be visible slightly above the intervening U.S. DataPort buildings when viewed from more distant viewing locations to the west such as the Alviso residential area along Grand Boulevard represented by KOP 3. While the cooling tower plumes could appear more visible when backlit by early morning sunlight on clear winter mornings, the relatively low frequency of occurrence, non-persistent nature of these plumes, and limited extent to which plumes would be visible above the U.S. DataPort buildings would result in a low degree of viewer exposure.

Site Visibility Without U.S. DataPort

Without the presence of the U.S. DataPort buildings and landscaping, the proposed project would be prominently visible in foreground views from SR-237, Zanker Road, the bicycle trail along the north side of SR-237, and the proposed Bay Trail. The project would also be visible as a distant middleground feature (though not prominently so) from the Alviso residential neighborhood along Grand Boulevard.

Residents to the immediate southeast of the site and along Grand Boulevard would have extended views of the project site while motorists on SR-237, Zanker Road, and Grand Boulevard would have views toward the site ranging from brief to moderate. Due to the long-term nature of visual exposure that would be experienced from residences within the primary project viewshed, and the sensitivity with which people regard their

places of residence, residential viewers are considered to have high viewer concern. Viewer concern is rated low to moderate for motorists.

The proposed 115 kV double circuit interconnection would be located within the project area describe above as would the underground gas line and its aboveground metering station and the underground recycled water line, wastewater line, and storm water drain. The electric interconnection would have limited visibility from SR-237 and Zanker Road as they span approximately 500 feet from the switchyard on the north side of the project site to the 115 kV transmission line that would be built by PG&E as part of the Northeast San Jose Transmission Reinforcement Project. The electric interconnection would be partially obscured by the PG&E transmission line that would run down the west side of the site and along the north side of SR-237 to its tie-in point on Zanker Road. The gas line metering station would be located interior to the 8-foot tall perimeter soundwall and would not be visible from surrounding viewpoints. The other linear facilities would be underground and would not be visible during project operation.

The reasonable worst case plumes from the cooling towers (based on a 10 percent frequency of occurrence during seasonal daylight hours from November through April) would rise approximately 118 feet above ground level which would be approximately 28 feet above the 90-foot tall HRSG stacks, which are the tallest components of the proposed project. The cooling tower plumes would extend downwind approximately 46 feet. While the viewshed of the plumes would be similar to the viewshed for the project structures (given the relatively small size of the projected plumes), when viewed from the Alviso residential area represented by KOP 3, the cooling tower plumes could appear more visible than project structures when backlit by early morning sunlight on clear winter mornings. However, the plumes would typically be of a non-persistent nature and from this more distant viewpoint, the visual prominence of the plumes would be low. The resulting viewer exposure would be low-to-moderate.

KEY OBSERVATION POINTS

Three key observation points (KOPs) were established to characterize the existing visual setting within which the proposed project would be evaluated. **VISUAL RESOURCES Figure 1** shows the location of the three KOPs. At each KOP a visual analysis was conducted, the results of which are presented in **Appendix VR-1**. The following paragraphs briefly summarize the concluding assessments of overall visual sensitivity at each KOP with and without U.S. DataPort as part of the visual baseline. Overall visual sensitivity takes into account existing landscape visual quality, viewer concern, and overall viewer exposure.

Visual Sensitivity with U.S. DataPort

KOP 1 was established on eastbound SR-237, approximately 0.25 mile southwest of the project site and just east of the Zanker Road overpass (see **VISUAL RESOURCES Figure 3**). The site is briefly within the primary cone of vision of eastbound motorists (within 45° of the centerline of the direction of travel). The overall visual sensitivity of the landscape viewed from SR-237 is low-to-moderate, reflecting the low-to-moderate visual quality of the modified landscape, low-to-moderate viewer concern, and low viewer exposure to motorists on SR-237.

KOP 2 was established on Zanker Road approximately 0.38 mile east of the project site and approximately 0.4 mile north of SR-237 (see **VISUAL RESOURCES Figure 9**). The site is outside of the primary cone of vision for both northbound and southbound motorists on Zanker Road. The overall visual sensitivity of the landscape viewed from this location on Zanker Road is low because of the low-to-moderate visual quality of the modified landscape and viewer concern combined with no viewer exposure resulting from the lack of site visibility (the site would be screened by U.S. DataPort buildings).

KOP 3 was established on Grand Boulevard at Pacific Street, approximately 1.7 miles east of the project site (see **VISUAL RESOURCES Figure 13**). The site is within the primary cone of vision for the residences on Grand Boulevard facing toward the project site. The overall visual sensitivity of the landscape viewed from this location on Grand Boulevard is low-to-moderate and reflects the low-to-moderate visual quality of the modified landscape, high viewer concern attributed to the viewing residents, combined with no viewer exposure resulting from the lack of site visibility due to screening by U.S. DataPort.

Visual Sensitivity without U.S. DataPort

KOP 1 was established on eastbound SR-237, approximately 0.25 mile southwest of the project site and just east of the Zanker Road overpass (see **VISUAL RESOURCES Figure 2**). The site is briefly within the primary cone of vision of eastbound motorists. The overall visual sensitivity of the landscape viewed from SR-237 is moderate-to-high, reflecting the moderate visual quality of the open, undeveloped landscape, moderate viewer concern for motorists on SR-237 (anticipating open, panoramic vista views to the East Bay Hills), and high viewer exposure (due to unobstructed foreground views available to high numbers of viewers) to eastbound motorists on SR-237.

KOP 2 was established on Zanker Road approximately 0.38 mile east of the project site and approximately 0.4 mile north of SR-237 (see **VISUAL RESOURCES Figure 8**). The site is outside of the primary cone of vision for both northbound and southbound motorists on Zanker Road. The overall visual sensitivity of the landscape viewed from this location on Zanker Road is moderate because of the moderate visual quality of the open agricultural landscape and low-to-moderate viewer concern, combined with the moderate-to-high viewer exposure associated with this highly exposed site.

KOP 3 was established on Grand Boulevard at Pacific Street, approximately 1.7 miles west of the project site (see **VISUAL RESOURCES Figure 13**). The site is within the primary cone of vision for the residences on Grand Boulevard facing toward the project site. The overall visual sensitivity of the landscape viewed from this location on Grand Boulevard is moderate and reflects the low-to-moderate visual quality of the predominantly open landscape (that encompasses not only the project site but the WPCP and recent office/technology park development along SR-237), and high viewer concern attributed to the viewing residents, combined with low-to-moderate viewer exposure which reflects the extended duration of view available to the residents.

VISUAL RESOURCES

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
With U.S. DataPort As Part of the Environmental Setting				
VISUAL RESOURCES - Would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	
Without U.S. DataPort As Part of the Environmental Setting				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?		X		
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		X		
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?		X		

ANALYSIS AND DISCUSSION OF IMPACTS

A summary of the impact analysis is presented in a table in **VISUAL RESOURCES Appendix VR-1**. The impact assessment methodology and significance criteria utilized in this study are described in detail in **VISUAL RESOURCES Appendix VR-2**. The following discussion explains the responses to the questions in the environmental checklist.

With U.S. DataPort as Part of the Environmental Setting

A. Scenic Vistas

The large rectangular forms of U.S. DataPort would effectively screen the view across the site to the East Bay Hills beyond, which are visible above the 90-foot tall U.S. DataPort structures. As a result, there would not be a significant vista view across the project site and the introduction of the proposed project facilities behind the U.S. DataPort structures would not substantially alter existing views across the site. The project's cooling tower vapor plumes would be slightly more visible. However, due to the relatively low frequency, small plume size, non-persistent presence, and their limited visibility above the U.S. DataPort buildings, the resulting visual impact on vista views would be adverse but not significant.

B. Scenic Resources

As indicated in the previous discussion of LORS, there are no state designated scenic highways within the proposed project viewshed. Although SR-237 is a City-designated Landscaped Throughway, it is not a state-designated scenic route. The project would therefore not have a substantial adverse effect on scenic resources.

C. Visual Character or Quality

Project aspects that were evaluated in the assessment of Item C included project construction; power plant structures; electric transmission line, water and gas supply pipelines; and cooling tower plumes.

Project Construction

Construction of the proposed power plant and linear facilities would cause temporary adverse visual impacts due to the presence of equipment, materials, and workforce. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, ditching of construction sites, construction of the actual facilities, and site and rights-of-way cleanup and restoration. The proposed project construction would occur over a 4-6 month period (Calpine 2001a, AFC page 2-13). Due to the short-term nature of project construction and the low to low-to-moderate overall visual sensitivity of the project location, and limited visibility of the project site, no substantial visual degradation of the site or its surroundings would occur. Furthermore, effective implementation of staff's Condition of Certification **VIS-1** would ensure that construction impacts remain less than significant.

Power Plant and Linear Facilities Operation

The power plant and linear facilities would not cause significant long-term visual impacts because the proposed facilities would essentially be surrounded by U.S. DataPort buildings (see **VISUAL RESOURCES Figure 15** in **VISUAL RESOURCES Appendix VR-4**). **VISUAL RESOURCES Figures 3, 4,** and **9** present visual simulations of the proposed power plant viewed from KOPs 1 and 2. As summarized in **VISUAL RESOURCES Appendix VR-1**, the overall visual change that would be experienced at the three representative KOPs would range from none to low, which is arrived at by evaluating the potential visual contrast, project dominance, and view blockage that

would be caused by the proposed project. The visual change experienced from KOP 1 would be low because of the low contrast and view blockage that would result from the proposed project's subordinate presence. When viewed from KOPs 2 and 3, the existing bicycle trail, or future Bay Trail, there would be no perceptible visual change because of the screening provided by the U.S. DataPort buildings (see **VISUAL RESOURCES Figure 15**). When overall visual change is considered within the context of each view's overall visual sensitivity, the resulting visual impact at KOP 1 would be adverse but not significant, and there would be no visual impact experienced at KOPs 2 and 3.

The 115 kV transmission interconnection would not cause significant long-term visual impacts due to: (a) the short length of the line between the proposed power plant and the adjacent PG&E transmission line (to be built as part of PG&E's Northeast San Jose Transmission Reinforcement Project, and (b) its viewing context within the interior of the U.S. DataPort development area. From all potential viewpoints, the transmission line would be minimally visible and would be partially obscured by U.S. DataPort buildings and landscaping, and PG&E's transmission line that would run down the west side of the project site and along the north side of SR-237 (Calpine 2001c, Data Response #125).

Also, because there would be no apparent evidence of the various underground pipelines, no significant visual impacts would occur during pipeline operation. The gas supply metering station would be enclosed by the perimeter 8-foot sound wall and would not be visible to nearby residences or motorists on SR-237 or Zanker Road.

Combustion Turbine and Cooling Tower Exhaust Plumes

Staff conducted an independent plume modeling analysis of the project and concluded that visible plumes from the cooling towers would occur but not from the combustion turbine exhaust stacks (Birdsall 2001).

Cooling Tower Plumes

The cooling tower equipment would primarily be used for inlet air chilling during warmer weather and would operate for only auxiliary and gas compressor cooling loads when ambient temperatures are less than 50°F (Calpine 2001c, Response to Data Request #142). After a review of the cooling tower exhaust data presented in the AFC (Calpine 2001a), a psychrometric analysis was performed to determine the potential for visible water vapor plumes. As shown in **Table 1** below, staff's modeling analysis (Birdsall 2001) indicates that a relatively low frequency of plume formation would occur as a result of the proposed cooling towers. The cooling tower plumes would occur 16 percent of all daylight hours and 22 percent of all seasonal daylight hours (seasonal daylight hours are those daylight hours during the months [November to April] when conditions conducive to plume formation are most prevalent). Because of the low temperatures of the cooling tower exhausts, substantial moisture would not be carried into the air, and most of the cooling tower plumes are predicted to be limited to a transparent haze or wisps of moisture and would be of limited persistence.

Table 1
Staff Predicted Hours with Cooling Tower Visible Plumes

	Available Hours	Unabated Cooling Tower	
		Total	Percent*
All Hours	43,630	10,990	25.2 percent
Daylight Hours	22,270	3,520	15.8 percent
Seasonal Daylight Hours	9,930	2,150	21.6 percent
Seasonal hours occur from November through April			

Table 2 provides the cooling tower plume dimensions for the 10 percent frequency plume during all hours and seasonal daylight hours. As **Table 2** shows, the 10 percent frequency plumes for seasonal daylight hours are predicted to be very small with a length of 46 feet, a height of 118 feet, and a width of 20 feet. These plumes would in effect extend no higher than 28 feet above the tallest project structural component (combustion turbine stack).

Table 2
10th Percentile Cooling Tower Visible Plume Dimensions

All Hours	**Cooling Tower**
Length (ft)	98
Height (ft)	128
Width (ft)	23
Seasonal* Daylight Hours	
Length (ft)	46
Height (ft)	118
Width (ft)	20
* Seasonal = November through April	

As previously discussed, the cooling tower plumes could be visible slightly above the intervening U.S. DataPort buildings when viewed from more distant viewing locations such as the Alviso residential area along Grand Boulevard represented by KOP 3. While the cooling tower plumes could appear more visible when backlit by early morning sunlight on clear winter mornings, the relatively low frequency of plume occurrence, small plume size, non-persistent presence of the plumes, and limited extent to which plumes would be visible above the U.S. DataPort buildings would result in a low degree of viewer exposure, visual prominence, and view blockage when viewed by motorists and/or residents from locations in or beyond the immediate project vicinity. Thus, the plumes would be either minimally noticeable or appear subordinate to the surrounding structures and landforms and would not substantially degrade visual quality. The resulting visual impact would be adverse but not significant.

Combustion Turbine Exhaust Plumes

After a review of the combustion turbine exhaust data presented in the AFC (Calpine 2001a), a psychrometric analysis was performed to determine the potential for combustion turbine exhaust visible plumes. Staff's modeling analysis (Birdsall 2001) indicates that no visible plumes would form from the combustion turbine exhausts. The extremely high turbine exhaust temperature precludes the formation of visible water vapor plumes, even under the most extreme weather conditions.

D. Light or Glare

Existing visible night lighting at the project site would be associated with the U.S. DataPort buildings, parking areas, and roads and driveways. There is also substantial night lighting along the SR-237 corridor (vehicles on SR-237 and development on the south side of SR-237), and within the McCarthy Ranch development on the east side of Coyote Creek. To the west and northwest of the site, the WPCP has a number of facilities and buildings that have night illumination, which is visible from SR-237, Zanker Road, and Grand Boulevard.

The proposed project would require night lighting for operational safety and security. During construction, to the extent possible, the nighttime construction lighting would be erected pointing towards the center of the construction site and would be shielded. Task specific construction lighting would be used to the extent practical while complying with worker safety regulations (Calpine 2001c, Data Response #138). During project operation, exterior lights would be hooded and lights would be directed onsite so that significant light or glare would not be created. Fixtures of a non-glare type would be specified. For areas where lighting is not required for normal operation, safety, or security, switched lighting circuits would be provided, thus allowing these areas to remain unilluminated at most times, minimizing the amount of lighting potentially visible offsite (Calpine 2001c, Data Response #137). Furthermore, to the extent that night lighting is visible, it would be subordinate to that of the U.S. DataPort project, which would surround the proposed project.

Proper implementation of Condition of Certification **VIS-4** and its required lighting controls would ensure that visible nighttime lighting and glare impacts would be kept to less than significant levels.

Although the proposed project would be substantially screened from view by U.S. DataPort structures and landscaping, the proposed project would have the potential to create daytime glare (resulting from the reflection of sunlight off of structural surfaces) visible to SR-237. This could occur with the slight degree of visibility of the upper stack surfaces. However, the treatment of project structural surfaces with a non-reflective, appropriately textured finish, as required in Condition of Certification **VIS-2**, would ensure that visible daytime reflective glare impacts would be kept to less than significant levels.

Without U.S. DataPort as Part of the Environmental Setting

A. Scenic Vistas

The openness of the site's level, undeveloped terrain allows for panoramic vista views to the east and north across the site to Mission Peak and the East Bay Hills. The opportunity for such distant sightlines to the north-trending ridgeline of the East Bay Hills is becoming increasingly rare along the fast developing SR-237 corridor. The proposed project structures would partially impair though not completely block these vista views. However, screening vegetation necessary to minimize degradation of existing visual quality could inadvertently block vista views to the ridgeline of the East

Bay Hills. This could occur if screening vegetation is planted too close to SR-237 as is shown in the simulation presented as **VISUAL RESOURCES Figure 4**. Vegetation planted in close proximity to SR-237 screens the more northerly ridgeline as illustrated on the left side of **Figure 4**. The result is that the panoramic vista view is substantially constrained, causing an adverse and significant impact under this criterion. Staff's proposed Condition of Certification **VIS-3** would preserve these more distant sightlines while still screening the majority of the proposed project features, thereby ensuring that a significant visual impact does not result from blockage of scenic vistas.

The project's cooling tower vapor plumes would be visible from nearby roadways and residences. However, due to the relatively low frequency of plume occurrence, small plume size, and non-persistent nature of these plumes, the resulting visual impact on vista views would be less than significant.

B. Scenic Resources

As indicated in the previous discussion of LORS, there are no state designated scenic highways within the proposed project viewshed. Although SR-237 is a City-designated Landscaped Throughway, it is not a state-designated scenic route. The project would therefore not have a substantial adverse effect on scenic resources and would not cause a significant visual impact under this criterion.

C. Visual Character or Quality

Project aspects that were evaluated in the assessment of Item C included project construction; power plant structures; linear facilities; and cooling tower plumes.

Project Construction

Construction of the proposed power plant and linear facilities would cause temporary adverse visual impacts due to the presence of equipment, materials, and workforce. Construction would involve the use of cranes, heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas. Construction would include site clearing and grading, ditching of construction sites, construction of the actual facilities, and site and rights-of-way cleanup and restoration. The proposed project construction would occur over a 4-6 month period (Calpine 2001a, AFC page 2-13). Due to the short-term nature of project construction, no substantial visual degradation of the site or its surroundings would occur. Furthermore, effective implementation of staff's Condition of Certification **VIS-1** would ensure that construction impacts remain less than significant.

Power Plant and Linear Facilities Operation

The power plant has the potential to cause significant long-term visual impacts when viewed from KOP 1 and SR-237. **VISUAL RESOURCES Figure 5** (see **VISUAL RESOURCES Appendix VR-4**) presents a visual simulation of the proposed power plant viewed from KOP 1. As shown in the simulation and summarized in **VISUAL RESOURCES Appendix VR-1**, the overall visual change that would be experienced at KOP 1 would be moderate and is arrived at by evaluating the potential visual contrast, project dominance, and view blockage that would be caused by the proposed project. When viewed from KOP 1 on SR-237, the visual contrast caused by the project's

complex, industrial-appearing structures would be moderate-to-high. The structures would appear co-dominant with the foreground linear presence of SR-237 and the rolling landform of the East Bay Hills in the background. Project-induced view blockage of the East Bay Hills would be moderate and the panoramic quality of the once open sightlines across the site would be substantially diminished. In the context of the moderate-to-high visual sensitivity at KOP 1, the resulting visual impact on SR-237 as well as the existing bicycle trail and future Bay Trail alignment would be adverse and significant.

The applicant's Landscaping Plan as presently proposed (see **VISUAL RESOURCES Figure 16**) would not adequately screen the proposed project from the Bay Trail or Zanker Road. As shown in **VISUAL RESOURCES Figure 12**, substantial portions of the project structures are visible from Zanker Road. Landscaping would need to be increased along the west side of the project site both in terms of vegetation height and density. Also, landscaping would need to be extended along the north side of the project site. As shown in **VISUAL RESOURCES Figure 16**, the present Landscape Plan does not include plantings along the north and east side of the project site. Vegetation screening would need to be extended along both the north and east side, to screen the majority of the proposed project structures from views along the Bay Trail and the Coyote Creek riparian corridor. Also, the applicant's proposed 20-year time to vegetation maturity would exceed staff's five-year significance threshold for vegetative screening (visual impacts extending beyond five years are considered long-term and significant). Therefore, screening vegetation must achieve full effectiveness within five years of the completion of project construction.

Effective implementation of the applicant's landscaping plan (as illustrated in the simulation presented as **VISUAL RESOURCES Figure 7** for KOP 1) as conditioned by staff's Condition of Certification **VIS-3** would reduce the project's significant visual impact on views from SR-237, the existing bicycle trail, and the future Bay Trail to levels that would be adverse but not significant.

The overall visual change that would be experienced at KOP 2 would be moderate. When viewed from KOP 2 on Zanker Road, the visual contrast caused by the project's complex, industrial-appearing structures would be moderate-to-high (see **VISUAL RESOURCES Figure 10**). The structures would appear co-dominant with the foreground level fields and the rolling landform of the East Bay Hills in the background. Project-induced view blockage of the East Bay Hills would be low-to-moderate. The project would be outside of the primary north-south cone of vision for motorists on Zanker Road and panoramic views across the site would not be significantly impaired. In the context of the moderate visual sensitivity at KOP 2, the resulting visual impact on Zanker Road would be adverse but not significant.

The overall visual change that would be experienced at KOP 3 would be low. When viewed from KOP 3 at the intersection of Grand Boulevard and Pacific Street in Alviso, the visual contrast caused by the project's complex, industrial-appearing structures would be low at this distant middleground viewing distance (see **VISUAL RESOURCES Figure 14**). The structures would appear subordinate to the foreground level fields and the rolling landform of the East Bay Hills in the background. Project-induced view blockage of the East Bay Hills would be low. The project would be outside of the

primary north-south cone of vision for motorists on Grand Boulevard but within direct views of the residences along Grand Boulevard. Panoramic views encompassing the site would not be significantly impaired. In the context of the moderate visual sensitivity at KOP 3, the resulting visual impact on residents and motorists along Grand Boulevard would be adverse but not significant.

The 115 kV transmission interconnection would not cause significant long-term visual impacts due to the short length of the line between the proposed power plant and the adjacent PG&E transmission line (to be built as part of PG&E's Northeast San Jose Transmission Reinforcement Project). From all three KOPs, the transmission line would be partially obscured by PG&E's transmission line that would run down the west side of the project site and along the north side of SR-237 (Calpine 2001c, Data Response #125).

Also, because there would be no apparent evidence of the various underground pipelines, no significant visual impacts would occur during pipeline operation. The gas supply metering station would be enclosed by the perimeter 8-foot sound wall and would not be visible to nearby residences or motorists on SR-237 or Zanker Road.

Combustion Turbine and Cooling Tower Exhaust Plumes

As described above under the U.S. DataPort section, staff conducted an independent plume modeling analysis of the project and concluded that visible plumes from the cooling towers would occur but not from the combustion turbine exhaust stacks (Birdsall 2001). Please see the above section for a description of the plume analysis and the modeling results and discussion of the combustion turbine exhaust.

The cooling tower plumes would be visible from all three KOPs and could appear more visible when backlit by early morning sunlight on clear winter mornings and viewed from the west (Zanker Road and the Alviso residential area along Grand Boulevard). However, in all cases (including views from KOPs 1-3, the nearby Bay Trail, and the McCarthy Ranch development on the east side of Coyote Creek), the low frequency of occurrence, small plume size, and non-persistent presence of the plumes would result in a low degree of viewer exposure, visual prominence, and view blockage when viewed by motorists and/or residents from locations in or beyond the immediate project vicinity. Thus, the cooling tower plumes would not substantially degrade visual quality and the resulting visual impact would be adverse but not significant.

D. Light or Glare

There is no existing visible night lighting on the project site and it appears as a noticeably dark area when viewed from all three KOPs. There is however, substantial night lighting along the SR-237 corridor (vehicles on SR-237 and development on the south side of SR-237), and within the McCarthy Ranch development on the east side of Coyote Creek, filtered views of which are available through the riparian trees along Coyote Creek. To the west and northwest of the site, the WPCP has a number of facilities and buildings that have night illumination that is visible from SR-237, Zanker Road, and Grand Boulevard.

The proposed project would require night lighting for operational safety and security. During construction, to the extent possible, the nighttime construction lighting would be erected pointing towards the center of the construction site and would be shielded. Task specific construction lighting would be used to the extent practical while complying with worker safety regulations (Calpine 2001c, Data Response #138). During project operation, exterior lights would be hooded and lights would be directed onsite so that significant light or glare would not be created. Fixtures of a non-glare type would be specified. For areas where lighting is not required for normal operation, safety, or security, switched lighting circuits would be provided, thus allowing these areas to remain unilluminated at most times, minimizing the amount of lighting potentially visible offsite (Calpine 2001c, Data Response #137).

Given the lack of existing lighting at the project site, the proposed project lighting has the potential to change the character of the existing landscape at night during both construction and operation of the project. Even shielded lighting elements could create significant light and glare impacts as a result of indirect lighting of project structures and backscatter. With proper implementation of Condition of Certification **VIS-4** and its required lighting controls, visible nighttime lighting and glare impacts would be kept to less than significant levels.

The proposed project would also have the potential to create daytime glare (resulting from the reflection of sunlight off of structural surfaces) visible to SR-237. However, the treatment of project structural surfaces with a non-reflective, appropriately textured finish, as required in Condition of Certification **VIS-2**, would ensure that visible daytime reflective glare impacts would be kept to less than significant levels.

CUMULATIVE IMPACTS

Cumulative impacts to visual resources could occur where project facilities or activities (such as construction) occupy the same field of view as other built facilities or impacted landscapes. It is also possible that a cumulative impact could occur if a viewer's perception is that the general visual quality of an area is diminished by the proliferation of visible structures (or construction effects such as disturbed vegetation), even if the new structures are not within the same field of view as the existing structures. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) visual access to scenic resources is impaired; (3) visual quality is diminished; or (4) the project's visual contrast is increased.

Six projects have either been approved for construction or are under construction in the project viewshed bounded by I-880 on the east, SR-237 on the south, and 1st Street and Grand Boulevard on the west. These five projects have the potential to be visible within the same viewshed as the proposed project depending on viewing location and include (a) U.S. DataPort Industrial Campus, (b) Pacific Gas and Electric Company Los Esteros Substation, (c) City of San Jose's 500+ MW power plant, (d) Cisco Systems Industrial Campus, (e) Veritas Software Industrial Campus, and (f) Irvine Company Business Park.

Cumulative Impacts With U.S. DataPort as Part of the Existing Setting

The proposed project would be located within the interior of the U.S. DataPort development area, immediately adjacent to the Los Esteros Substation (to be built). Because of the screening provided by the U.S. DataPort buildings and associated landscaping, the proposed project would be minimally visible to motorists on SR-237 and Zanker Road, to users of the existing Bike Trail and proposed Bay Trail, to customers and workers in the McCarthy Ranch development, and to residents of the Alviso residential neighborhood along Grand Boulevard. In all cases, visibility of the proposed project would be so limited that a cumulative visual impact would not be significant.

Cumulative Impacts Without U.S. DataPort as Part of the Existing Setting

In general, any development on the proposed project site would contribute to a significant cumulative visual impact that is occurring within the SR-237 corridor. The cumulative visual impact results from the increasing urbanization of views and the continued loss of open, panoramic vistas from SR-237. Such vista views across agricultural and/or undeveloped Bay margin lands to the hills and ridgelines that surround the South Bay area are becoming increasingly rare in the SR-237 corridor as development continues to encroach upon or block sightlines from SR-237. As a result, views become more confined to high-density urban development (lower quality landscape features) and less exposed to undeveloped lands and hills with more natural character (higher quality landscape features). Therefore, because the proposed project would be highly visible to motorists on SR-237, it would contribute to the ongoing and significant cumulative visual impact that is occurring with the urban buildout along the SR-237 corridor.

Additionally, the proposed project has the potential to cause specific adverse cumulative visual impacts in conjunction with one or more of the five identified cumulative projects in the immediate project vicinity.

The U.S. DataPort Industrial Campus would be located on the former Lin-Hom and Cilker properties. The development would likely consist of a collection of multi-story buildings and landscaping. If U.S. DataPort were built, it would effectively surround the proposed project on all four sides, screening the proposed project from public view. As a result, the proposed project would not contribute to a cumulative visual impact with U.S. DataPort because it would no longer be noticeable.

PG&E's 24-acre Los Esteros Substation would be located immediately to the north of the proposed project and would be visible in the same field of view as the proposed project. The prominent and highly industrial appearance of the two projects would substantially change the visual quality and character of the project site and would cause a significant cumulative visual impact. However, the cumulative impact would be substantially mitigated with full and effective implementation of the applicant's landscape plan as conditioned by staff's Condition of Certification **VIS-3.**

The City of San Jose's proposed 500+ MW power plant would be located near the proposed project on WPCP lands and would likely be visible in the same field of view as the proposed project. The prominent and highly industrial appearance of the two projects would substantially change the visual quality and character of the project vicinity and would cause a significant cumulative visual impact. However, the cumulative impact would be substantially mitigated with full and effective implementation of the applicant's landscape plan as modified by staff's Condition of Certification **VIS-3.**

The Cisco systems Industrial Campus is located one mile west of the proposed project, north of SR-237, on both sides of First Street. This project would be a 2-million square foot office development that would ultimately consist of 10 multi-story buildings, two of which have been built. The only view area that would encompass both the proposed project and the Cisco project would be the Alviso residential area represented by KOP 3 on Grand Boulevard. However, from this viewing area (approximately 1.7 miles west of the proposed project), the proposed project would be of such a small scale relative to the wide field of view and the much closer Cisco development, that it would not substantially alter or obscure existing views or diminish the scenic quality experienced along Grand Boulevard. Therefore, the resulting cumulative visual impact would be adverse but not significant.

The Veritas Software Industrial Campus would be located along the east side of Coyote Creek in the McCarthy Ranch development. It would consist of 990,000-square feet of office space in multi-story buildings. This development is substantially screened from view from SR-237, Zanker Road, and Grand Boulevard by the riparian trees along Coyote Creek though filtered views through the trees to the development are available. As a result of the Veritas project's limited visibility to viewing areas represented by KOPs 1-3, the proposed project's cumulative visual impact in conjunction with Veritas would be adverse but not significant.

The Irvine Company Business Park is located less than one mile from the project site, north of SR-237 and northeast of McCarthy Boulevard in the McCarthy Ranch development. The Irvine project is substantially screened from view from SR-237, Zanker Road, and Grand Boulevard by the riparian trees along Coyote Creek and other development within the McCarthy Ranch development. As a result of the Irvine project's limited visibility to viewing areas represented by KOPs 1-3, the proposed project's cumulative visual impact in conjunction with Irvine would be adverse but not significant.

Cumulative Visual Impacts Resulting from Visibility of Vapor Plumes

The reasonable worst case plumes from the cooling towers (based on a 10 percent frequency of occurrence during seasonal daylight hours from November through April) would rise approximately 118 feet above ground level which would be approximately 28 feet above the HRSG stacks which are the tallest components of the proposed project. In addition to the proposed project vapor plumes, the panoramic view from the Alviso neighborhood along Grand Boulevard west of the project site would also encompass approximately 6 to 8 additional vapor plumes emanating from sources south of SR-237.

The most prominent of those additional plumes and the one closest to the proposed project plume would be the vapor plume from Calpine's Agnews Cogeneration Plant located approximately 0.9 mile south of the project site (Calpine 2001d, Data Response #146). Similar to the Agnews Cogeneration plume, the proposed project plume could appear more visible and prominent when backlit by early morning sunlight on clear winter mornings. The resulting cumulative visual impact would be adverse. However, because of the relatively low frequency, small plume size, and non-persistent nature of the proposed project plumes, the resulting adverse cumulative visual impact would not be significant, particularly when viewed at the 1.7-mile distant middleground viewing distance available at KOP 3.

ENVIRONMENTAL JUSTICE

Staff reviewed the demographic information provided in the **SOCIOECONOMICS** section of this SA in relation to the locations around the proposed project that have the potential to receive a significant visual resources impact (SR-237 [KOP 1], the existing bicycle trail, and the proposed Bay Trail). Because there is no minority or low-income population within those areas that have the potential to receive a significant visual impact, the project would not cause an unmitigated disproportionate visual impact on a minority or low-income population.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

LOCAL

Table 3 provides a listing of the applicable LORS for the City of San Jose. Nineteen relevant LORS were found to pertain to the enhancement and/or maintenance of visual quality. **Table 3** describes the proposed project's consistency with the applicable LORS under both baseline scenarios: With U.S. DataPort as part of the visual setting and Without U.S. DataPort as part of the visual setting. With U.S. DataPort, the proposed project would be consistent with sixteen of the policies referenced in **Table 3**. In two instances, the project was determined to be inconsistent with local policy regarding height limitations. In one instance, the project was found to be partially consistent with respect to landscaping requirements. Without U.S. DataPort, the proposed project would be consistent with two policies and partially consistent with two policies. The project would be inconsistent with 15 policies. In all cases of inconsistency or partial consistency, either the inconsistencies would not initially produce a significant visual impact, or with timely and effective implementation of staff's conditions of certification, the impacts causing the inconsistencies would be mitigated to levels that would not be significant.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
City of San Jose General Plan: Community Development - Urban Design	Policy 24: New development projects should include the preservation of ordinance-sized and other significant trees. Any adverse affect on the health and longevity of such trees should be avoided through appropriate design measures and construction practices. When tree preservation is not feasible, the project should include appropriate tree replacement.	**With U.S. DataPort (USDP)** YES **Without USDP** YES	**With USDP** The proposed project will result in the loss of trees on the site. However, as required by this criterion, the applicant has committed to providing appropriate replacements. **Without USDP** The proposed project will result in the loss of trees on the site. However, as required by this criterion, the applicant has committed to providing appropriate replacements.
City of San Jose 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.	**With U.S. DataPort (USDP)** YES **Without USDP** NO	**With USDP** State Route (SR) 237 is a designated Landscaped Throughway. With USDP, the proposed project would be minimally visible from SR-237 as a result of screening provided by the USDP structures. Therefore, the proposed project would not significantly affect vistas and would be consistent with this policy. **Without USDP** State Route (SR) 237 is a designated Landscaped Throughway. The proposed project could substantially affect vista views from SR-237 if project related landscaping blocks sightlines to the more distant ridgelines of the north trending East Bay Hills. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. In any case, the project would not preserve or enhance the existing vista views and the residual visual impact would still be adverse. However, following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
City of San Jose General Plan: Aesthetic, Cultural and Recreational Resources - Scenic Routes (cont'd)	Policy 4: Any development occurring adjacent to Landscaped Throughways should incorporate interesting and attractive design qualities and promote a high standard of architectural excellence.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from SR-237, which is a designated Landscaped Throughway. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. However, the residual impact would still be adverse and the project would not be perceived as having attractive design qualities or promoting a high standard of architectural excellence. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.
City of San Jose General Plan: Aesthetic, Cultural and Recreational Resources - Scenic Routes (cont'd)	Policy 5: Any development along Landscaped Throughways entering the City should be designed to provide attractive gateways to the City.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from SR-237, which is a designated Landscaped Throughway. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. However, the project would not be perceived as providing an attractive gateway to the City and the residual visual impact would still be adverse. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
City of San Jose General Plan: Aesthetic, Cultural and Recreational Resources - Trails and Pathways	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 development adjacent to the corridors does not compromise safe trail access nor detract from the scenic and aesthetic qualities of the corridor.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view from the existing bicycle trail and the proposed Bay Trail by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from the existing bicycle trail and proposed Bay Trail. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. However, the residual visual impact would still be adverse and the proposed project would detract somewhat from the scenic and aesthetic qualities of the corridor. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.
City of San Jose General Plan: Scenic Routes and Trails Diagram - Scenic Routes	Landscaping in Urban Throughways should be used to supplement and enhance the 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.	**With USDP** YES **Without USDP** PARTIALLY	**With USDP** The proposed project would be substantially screened from view from SR-237 by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** While the proposed landscaping as conditioned by staff's Condition of Certification **VIS-3** would effectively screen the project's unsightly industrial character from SR-237 views, the applicant-proposed landscaping could also substantially affect vista views from SR-237 if sightlines to the more distant ridgelines of the north trending East Bay Hills are blocked. The resulting visual impact would be significant which would be inconsistent with this policy. Timely and effective implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. In any case, the project would not provide a foreground framework or a clearing for longer distance views. However, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
City of San Jose General Plan: Scenic Routes and Trails Diagram - Scenic Routes (cont'd)	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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view from SR-237 by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from SR-237, which is a designated Landscaped Throughway. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. However, the residual impact would still be adverse and the project would not be perceived as being attractive, having a high quality of architectural design, or preserving existing scenic character. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Land Use Policies	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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be screened from Coyote Creek by USDP structures and landscaping. Therefore, the proposed project would not cause impacts to the visual resources of Coyote Creek. **Without USDP** The Master Plan discussion of this objective states that "It is important that the potential environmental impacts of industrial activities be mitigated so as not to harm nearby natural resources." The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from the present and future trails in the vicinity of the Coyote Creek corridor. The resulting visual impact would be significant which would be inconsistent with this policy. Although effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would substantially mitigate the impact on views from the Coyote Creek corridor, the residual impact would still be adverse though not significant. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Land Use Policies (cont'd)	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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be screened from Coyote Creek by USDP structures and landscaping. Therefore, the proposed project would not cause impacts to the visual resources of Coyote Creek. **Without USDP** As stated in the discussion of this policy, the intent of this policy is to protect sensitive habitats from neighboring industrial activities. The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from the present and future trails along Coyote Creek. The resulting visual impact would be significant which would be inconsistent with this policy. Although effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would substantially mitigate the impact on views from Coyote Creek, the residual impact would still be adverse though not significant. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.
Alviso Master Plan: Land Use Policies (cont'd)	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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would substantially detract from the quality of views from SR-237. The resulting visual impact would be significant which would be inconsistent with this policy. Effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the impact to a level that would not be significant. However, the residual impact would still be adverse and the project would not be perceived as providing an attractive gateway to the City. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Land Use Policies (cont'd)	Environmental Protection Objective: New development should contribute to the protection and preservation of Alviso's natural amenities [which includes Coyote Creek].	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be screened from Coyote Creek by USDP structures and landscaping. Therefore, the proposed project would not cause impacts to the visual resources of Coyote Creek. **Without USDP** The intent of this objective is to protect natural features from environmental degradation such that they can continue to be enjoyed by existing and future residents. The proposed project would have a complex industrial appearance that could substantially detract from the quality of views from the present and future trails along Coyote Creek. The resulting visual impact would be significant which would be inconsistent with this policy. Although effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would substantially mitigate the impact on views from Coyote Creek, the residual impact would still be adverse though not significant. Following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.
Alviso Master Plan: Design Guidelines - 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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view by USDP structures and landscaping. Therefore, the proposed project would be consistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that would not reflect the elements and materials of Alviso's seaside styles and would detract from the quality of views. The resulting visual impact would be significant which would be inconsistent with this policy. Although effective and timely implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would substantially mitigate the impact on local views, the project would still not be perceived as reflecting Alviso's seaside styles. However, following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Design Guidelines - Lands Outside of the Village Area <u>Industrial Development</u>	<u>Development Standards – Height</u>: Maximum 45 feet and two stories above flood elevation, except that for properties located between the Water Pollution Control Plant lands and the Guadalupe River, and on the former Cargill landfill site, buildings as tall as 90 feet may be allowed if all of the following conditions are met: 1. The building is set back at least 500 feet from Wilson Way, Tony P. Santos Street, and Grand Boulevard. 2. The building is well-designed and contributes positively to the Alviso area; and 3. Such building heights facilitate the transfer of development intensity away from the baylands and environmentally sensitive areas in the vicinity of the Alviso village to locations closer to Highway 237 in order to achieve habitat preservation or other environmental protection objectives.	**With USDP** NO **Without USDP** NO	**With USDP** Although the proposed project would be substantially screened from view by USDP structures and landscaping, the project would still exceed the 45-foot height limitation and would not contribute positively to the visual quality of the Alviso area. Therefore, the proposed project would not be consistent with this policy. **Without USDP** The proposed project's combustion turbine stacks would exceed the 45-foot height limitation and the structure would not contribute positively to the visual quality of the Alviso area as required in condition #2. Timely and effective implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the adverse impact on visual quality but would not create a circumstance where the project would make a positive contribution to the Alviso area. However, following mitigation, the proposed project's inconsistency with this policy would not constitute a significant visual impact.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Design Guidelines - Lands Outside of the Village Area <u>Industrial Development</u> (cont'd)	Development <u>Standards – Allowable Building Materials</u>: • Formed concrete with scoring or an embossed wood grain appearance • Concrete blocks or bricks • Stucco, in simple application • All types of wood siding • Composition shingle, concrete "shingle," and metal roof materials • Glass as an accent material and for windows	**With USDP** NO **Without USDP** NO	**With USDP** The proposed project would have only two buildings, which would be located within the power plant complex. Most structures are actually "equipment." Project buildings and equipment would generally be surfaced with metal siding, which would not be consistent with this policy. However, the proposed facilities would be substantially screened from view by the U.S. DataPort buildings and landscaping and effective implementation of staff's Condition of Certification **VIS-2** would mitigate the visual impact to a level that would not be significant. **Without USDP** The proposed project would have only two buildings, which would be located within the power plant complex. Most structures are actually "equipment." Project buildings and equipment would generally be surfaced with metal siding, which would not be consistent with this policy. However, timely and effective implementation of staff's proposed Condition of Certification **VIS-2** and the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the visual impact to a level that would not be significant.
Alviso Master Plan: Design Guidelines - Lands Outside of the Village Area <u>Industrial Development</u> (cont'd)	Development <u>Standards – Parking</u>: 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.	**With USDP** YES **Without USDP** NO	**With USDP** Parking for the proposed project would be located at the rear (north) of the project site between the cooling tower and the service administration building. Also, a majority of the site would be screened from view by the U.S. DataPort structures and landscaping. Furthermore, as required in staff's proposed Condition of Certification **VIS-3**, the proposed project site would have vegetative screening around all four sides. **Without USDP** Parking for the proposed project would be located at the rear (north) of the project site between the cooling tower and the service administration building. Also, as required in staff's proposed Condition of Certification **VIS-3**, the proposed project site would have vegetative screening around all four sides.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
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.	**With USDP** PARTIALLY **Without USDP** PARTIALLY	**With USDP** The project's proposed tree plantings would impart an appearance that would be similar to that of the nearby riparian trees along Coyote Creek (see **VISUAL RESOURCES Figure 12**). This similar vegetative character would be consistent with Policy 1. However, the tree plantings would not be consistent with the open, low growing vegetation that generally characterizes Alviso's vegetative appearance. **Without USDP** The project's proposed tree plantings would impart an appearance that would be similar to that of the nearby riparian trees along Coyote Creek (see **VISUAL RESOURCES Figure 12**). This similar vegetative character would be consistent with Policy 1. However, the tree plantings would not be consistent with the open, low growing vegetation that generally characterizes Alviso's vegetative appearance.
Alviso Master Plan: Landscaping Policies (cont'd)	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.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view from SR-237 by USDP structures and landscaping. Therefore, the proposed project would not be inconsistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that could substantially detract from the quality of views in the vicinity of Alviso. To mitigate the industrial visual character of the proposed project, the applicant has proposed to screen the structures with trees. The proposed landscaping has the potential to block vista views from SR-237 to the more distant ridgelines of the north trending East Bay Hills. Timely and effective implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would mitigate the visual impact to a level that would not be significant. However, the proposed project and its landscaping would partially reduce the existing open view, which would not be consistent with this policy.

Table 3 - Proposed Project's Consistency with Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Objective and Policy Descriptions**		
Alviso Master Plan: Landscaping Policies (cont'd)	Landscaping Policy 3: Landscaping should be used to screen unattractive uses and soften the effect of taller buildings due to the flood protection requirements.	**With USDP** YES **Without USDP** YES	**With USDP** The proposed project would be substantially screened from view from SR-237 by USDP structures and landscaping. Therefore, the proposed project would not be inconsistent with this policy. **Without USDP** The proposed project would have a complex industrial appearance that could substantially detract from the quality of views in the vicinity of Alviso. To mitigate the industrial visual character of the proposed project, the applicant has proposed to screen the structures with trees. Timely and effective implementation of the applicant's proposed landscape plan as modified by staff's Condition of Certification **VIS-3** would ensure that that the project would be consistent with this policy.
Alviso Master Plan: Landscaping Policies (cont'd)	Landscaping Policy 4: Landscaping should not block views of the rivers, natural riparian areas, or marshlands.	**With USDP** YES **Without USDP** NO	**With USDP** The proposed project would be substantially screened from view from SR-237 and Zanker Road by USDP structures and landscaping. Therefore, the proposed project would not be inconsistent with this policy. **Without USDP** The proposed project structures and landscaping would block views of the Coyote Creek riparian corridor from Zanker Road and eastbound SR-237.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

City 33: Stating that planning for the Bay Trail, to the north and east of the LECEF site has begun, City staff indicates that "…any possible visual impacts to the trail or viewsheds from the trail need to be evaluated for consistency with the Scenic Routes and Trails goals of the San Jose 2020 General Plan."

Response: The LORS section of staff's visual analysis includes a consistency analysis of the proposed project with respect to the Scenic Routes and Trails goals of the San Jose 2020 General Plan.

City-34: The City takes issue with the AFC determination that the LECEF site is not "adjacent to the freeway." The City states that "…due to the size of the project and its visual prominence in relation to Highway 237, it needs to be evaluated within the context of the goals and policies established regarding Urban Throughways within the General Plan."

Response: The LORS section of staff's visual analysis includes a consistency analysis of the proposed project with respect to the goals and policies regarding the General Plan's Urban Throughways designation.

City-35: The City indicates a desire for visual analysis from the perspective of the trail system. "Visual analysis needs to be expanded to evaluate possible impacts to visual resources from these trail vantage points. It is strongly suggested that an additional photosimulation include at least one to two additional points of origin from the planned trails."

Response: Staff's visual analysis includes an assessment of the visual impacts to both the existing bicycle trail and the proposed Bay Trail.

City-36: The City requests "Further documentation is needed showing that Best Available Control Technologies are incorporated to reduce possible plume visibility."

Response: Needs To Be Provided by Brewster Birdsall

City-37: The City suggests that "Graphics (Figure) 8.11-2 (in the AFC) needs to include the complete Bay Trail Alignment."

Response: Staff has previously requested that the City provide a map of the Bay Trail alignment in the project area at an appropriate scale and with sufficient detail so that an accurate depiction of the Bay Trail alignment can be presented in this Staff Assessment. That information has not yet been received.

CONCLUSIONS AND RECOMMENDATIONS

With timely and effective implementation of staff's proposed conditions of certification, the proposed project would cause less than significant visual impacts. With U.S. DataPort, the proposed project would be consistent with sixteen of the LORS referenced in **Table 3**. In two instances, the project was determined to be inconsistent with local policy regarding height limitations. In one instance, the project was found to be partially consistent with respect to landscaping requirements. Without U.S. DataPort, the proposed project would be consistent with two policies and partially consistent with two policies. The project would be inconsistent with 15 policies. However, the visual impacts producing project inconsistencies with local LORS would be mitigated to less than significant levels with timely and effective implementation of staff's conditions of certification.

PROPOSED 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: If visible from nearby residences, SR-237, Zanker Road, or Grand Boulevard, the project site as well as staging and material and equipment storage areas shall be visually screened. All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction. Any vegetation removed in the course of construction will be replaced on a 1-to-1 in-kind basis. Such replacement planting shall be monitored for a period of three years to ensure survival. During this period, all dead plant material shall be replaced.

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 any rights of way disturbed during construction of underground pipelines; and 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 forty-five (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 fifteen (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 seven (7) days after completing the surface restoration that it is ready for inspection.

VIS-2 Prior to first turbine roll, the project owner shall treat project structures and buildings in appropriate colors or hues that minimize visual intrusion and contrast by blending with the surrounding landscape, and shall treat those items in a non-reflective, appropriately textured finish. 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 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 each proposed treatment and color on the materials to which they are to be applied, for all project elements that would be visible to the public;

d) documentation that a non-reflective finish will be used on all project elements visible to the public;

e) a detailed schedule for completion of the treatment; and,

f) a procedure to ensure proper treatment maintenance for the life of the project.

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.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

Verification: At least sixty (60) 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 thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty (30) days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-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, (c) the Bay Trail alignment to the north, and (d) the Bay Trail and Coyote Creek riparian/trail corridor to the east. Screening vegetation must be comprised of evergreen species and be provided on all four sides of the proposed project. Trees and other vegetation must be strategically placed and of sufficient height and density to achieve effective screening of project structures within five (5) years of first turbine roll. In screening project facilities, care must be taken in siting vegetation plantings to avoid blocking vista views of distant ridgelines (for an example, see simulation presented as **VISUAL RESOURCES Figure 7**).

Protocol: The project owner shall submit a landscaping plan consistent with the visual simulation provided as **VISUAL RESOURCES Figure 7** to the CPM for review and approval and the City of San Jose for review and comment. The Plan shall include:

a) 11”x17” color simulations of the proposed landscaping at 5 years as viewed from KOPs 1 and 2; and

b) a detailed list of plants to be used and times to maturity given their size and age at planting.

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 by start of project operation.

Verification: Prior to first turbine roll and at least sixty (60) 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 notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within thirty (30) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven (7) days after completing installation of the landscaping, that the landscaping is ready for inspection.

VIS-4 Prior to first turbine roll, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the night sky is minimized during both project construction and operation. The project owner shall develop and submit a lighting plan for 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) lighting shall be designed so that during both construction and operation, 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;

b) high illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance shall be provided with switches or motion detectors to light the area only when occupied; and

c) a lighting complaint resolution form (following the general format of that in **Visual Resources Appendix VR-2**) 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.

Lighting shall not be installed before the plan is approved.

Verification: At least ninety (90) days before ordering the 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 of the plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven (7) days of completing exterior lighting installation that the lighting is ready for inspection.

VIS-5 The project owner shall comply with the City of San Jose's requirements regarding signs. 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: Prior to first turbine roll and at least sixty (60) days prior to installing signage, 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 thirty (30) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the walls and signage that they are ready for inspection.

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APPENDIX VR – 1

LOS ESTEROS CRITICAL ENERGY FACILITY VISUAL RESOURCES STAFF ASSESSMENT - SUMMARY OF ANALYSIS

(DOES NOT INCLUDE PLUME ANALYSIS)

VIEWPOINT		EXISTING VISUAL SETTING WITH US DATAPORT								VISUAL CHANGE WITH US DATAPORT					IMPACT SIGNIFICANCE	
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Viewer Exposure: Visibility	Viewer Exposure: Distance Zone	Viewer Exposure: Number of Viewers	Viewer Exposure: Duration of View	Viewer Exposure: Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Mitigation / Conditions	Impact Significance with Mitigation
KOP 1 **EASTBOUND SR 237** **Visual Resources Figures 2, 3, & 4**	View to the northeast from SR 237, just east of Zanker Road.	**Low to Moderate** Foreground to middleground urban landscape dominated by the rectangular block forms of U.S. DataPort and the linear form of SR 237, backdropped by Mission Peak and the East Bay Hills to the east.	**Low to Moderate** Motorists on SR 237 anticipate a foreground to middleground landscape dominated by office and industrial parks and urban development along both sides of SR 237.	**Very Low**	**Foreground**	**High**	**Brief**	**Low**	**Low to Moderate**	Upper portion of HRSG stacks partially visible above landscaping associated with entrance to US Dataport (see Visual Resources Figures 3 and 4).	**Low**	**Subordinate**	**Low**	**Low**	**VIS-2 VIS-3 VIS-4**	**Adverse but Not Significant**
KOP 2 **ZANKER ROAD** **Visual Resources Figures 8 & 9**	View to the east from Zanker Road, approximately 0.4 mile north of SR 237.	**Low to Moderate** Foreground to middleground rural/urban transitional landscape dominated by the rectangular block forms of U.S. DataPort, partially backdropped by Mission Peak and the East Bay Hills to the east.	**Low to Moderate** Motorists on Zanker Road anticipate a foreground to middleground transitional landscape that is experiencing on-going urban development and hosts the presence of public service facilities (wastewater treatment and landfill) generally lacking in visual quality.	**Not Visible**	**Foreground**	**Moderate**	**Brief**	**None**	**Low**	Proposed project would not be visible because of screening provided by US DataPort buildings.	**None**	**Not Visible**	**None**	**None**	**None**	**None**
KOP 3 **GRAND BOULEVARD**	View to the east from Grand Boulevard, near Pacific Street.	**Low to Moderate** Foreground to middleground rural/urban transitional landscape dominated by flat, undeveloped fields, ringed by urban development and backdropped by Mission Peak and the East Bay Hills to the east.	**High** Residents anticipate predominantly open, panoramic views across undeveloped lands to Mission Peak and the East Bay Hills to the east.	**Not Visible**	**Distant Middleground**	**Low**	**Moderate to Extended**	**None**	**Low to Moderate**	Proposed project would not be visible because of screening provided by US DataPort buildings.	**None**	**Not Visible**	**None**	**None**	**None**	**None**

VIEWPOINT		EXISTING VISUAL SETTING WITHOUT US DATAPORT								VISUAL CHANGE WITHOUT US DATAPORT					IMPACT SIGNIFICANCE	
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Viewer Exposure: Visibility	Viewer Exposure: Distance Zone	Viewer Exposure: Number of Viewers	Viewer Exposure: Duration of View	Viewer Exposure: Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Conditions	Impact Significance With Conditions
KOP 1 **EASTBOUND SR 237** **Visual Resources Figures 2, 5, 6, & 7**	View to the northeast from SR 237, just east of Zanker Road.	**Moderate** Foreground to middleground panoramic view of an open rural landscape bordered by transportation infrastructure and backdropped by Mission Peak and the East Bay Hills to the east.	**Moderate** Motorists on SR 237 anticipate open, panoramic views to the East Bay Hills across one of the few remaining undeveloped parcels to the north of SR 237.	**High**	**Foreground**	**High**	**Moderate**	**High**	**Moderate to High**	Introduction of complex, geometric forms with prominent vertical lines and noticeable industrial character. Structural masses would dominate immediate project vicinity and appear co-dominant with East Bay Hills. Vista views across the site to the East Bay Hills would be impaired.	**Moderate to High**	**Co-Dominant**	**Moderate**	**Moderate**	**VIS-2 VIS-3 VIS-4**	**Adverse but Not Significant** **(Significant without Conditions)**
KOP 2 **ZANKER ROAD** **Visual Resources Figures 8, 10, 11, & 12**	View to the east from Zanker Road, approximately 0.4 mile north of SR 237.	**Moderate** Foreground to middleground panoramic view of a predominantly rural landscape dominated by the level landform of grass-covered fields and backdropped by the rolling landforms of Mission Peak and the East Bay Hills to the east.	**Low to Moderate** Motorists on Zanker Road anticipate the presence of public service facilities (wastewater treatment and landfill) and a predominantly open foreground to middleground landscape that affords open panoramic views to the East Bay Hills.	**High**	**Foreground**	**Moderate**	**Brief to Moderate**	**Moderate to High**	**Moderate**	Introduction of complex, geometric forms with vertical lines and noticeable industrial character. Structural masses would appear co-dominant with East Bay Hills.	**Moderate to High**	**Co-Dominant**	**Low to Moderate**	**Moderate**	**VIS-2 VIS-3 VIS-4**	**Adverse but Not Significant**
KOP 3 **GRAND BOULEVARD** **Visual Resources Figures 13 & 14**	View to the east from Grand Boulevard, near Pacific Street.	**Low to Moderate** Foreground to middleground predominantly rural landscape in transition to urban uses yet still dominated by the level landform of grass-covered fields and backdropped by the rolling landforms of Mission Peak and the East Bay Hills to the east.	**High** Residents anticipate predominantly open, panoramic views to the east across undeveloped lands to Mission Peak and the East Bay Hills.	**Low**	**Distant Middleground**	**Low**	**Extended**	**Low to Moderate**	**Moderate**	The introduction of complex, geometric forms with industrial character would be minimally noticeable at this distant middleground viewing distance. Backdrop of development along the SR 237 corridor and along East Bay Hills helps to obscure the proposed project structures.	**Low**	**Subordinate**	**Low**	**Low**	**VIS-2 VIS-3 VIS-4**	**Adverse but Not Significant**

APPENDIX VR – 2: ANALYSIS METHODOLOGY

Visual resources analysis has an inherent subjective aspect. However, the use of generally accepted criteria for determining impact significance and a clearly described analytical approach aid in developing an analysis that can be readily understood.

Significance Criteria

Commission staff considered the following criteria in determining whether a visual impact would be significant.

State

The CEQA Guidelines defines a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including...objects of historic or visual significance (Cal. Code Regs., tit.14, § 15382).

Appendix G of the Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant:

1. Would the project have a substantial adverse effect on a scenic vista?

2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Local

Energy Commission staff considers any local goals, policies, or designations regarding visual resources. Conflicts with such laws, ordinances, regulations, and standards can constitute significant visual impacts. See the section on Applicable Laws, Ordinances, Regulations, and Standards.

Professional Standards

Professionals in visual impact analysis have developed a number of questions as a means of evaluating the potential significance of visual impacts (see Smardon 1986). The questions listed below address issues commonly raised in visual analyses for energy facilities. Staff considers these questions in assessing whether a project would cause a significant impact in regard to any of the four CEQA criteria listed above.

- Will the project substantially alter the existing viewshed, including any changes in natural terrain?

- Will the project deviate substantially from the form, line, color, and texture of existing elements of the viewshed that contribute to visual quality?
- Will the project eliminate or block views of valuable visual resources?
- Will the project result in significant amounts of backscatter light into the nighttime sky?
- Will the project be in conflict with directly identified public preferences regarding visual resources?
- Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?
- Will the project result in a substantial and persistent visible exhaust plume?

View Areas and Key Observation Points

The proposed project is visible from a number of areas in the project region. Energy Commission staff evaluated the visual impact of the project from each of these areas. Staff used Key Observation Points[1], or KOPs, as representative locations from which to conduct detailed analyses of the proposed project and to obtain existing conditions photographs and prepare visual simulations. KOPs are selected to be representative of the most critical locations from which the project would be seen. However, KOPs are not the only locations that staff considered in each view area.

Evaluation Process and Terminology

For each view area, staff considered the existing visual setting and the visual changes that the project would cause to determine impact significance. Staff conducted a site visit and concluded that the KOPs presented in the Application were appropriate for this analysis. However, staff did request that all photographs and simulations be revised to be presented at life-size scale. The results of staff's analysis are summarized in VISUAL RESOURCES Appendix VR-1. Existing conditions photographs and photosimulations from each KOP are presented with all other figures in VISUAL RESOURCES Appendix VR-4.

Elements of the Visual Setting

To assess the existing visual setting, staff considered the following elements:

Visual Quality

Visual quality is an expression of the visual impression or appeal of a given landscape and the associated public value attributed to the visual resource. This analysis used an approach that considers visual quality as ranging from outstanding to low. Outstanding visual quality is a rating reserved for landscapes that would be what a viewer might think of as "picture postcard" landscapes. Low visual quality describes landscapes that are often dominated by visually discordant human alterations, and do not provide views that people would find inviting or interesting (Buhyoff et al., 1994).

[1] The use of KOPs or similar view locations is common in visual resource analysis. The US Bureau of Land Management and the US Forest Service use such an approach.

Viewer Concern

Viewer concern is a measurement of the level of viewer interest regarding the visual resources in an area. Official statements of public values and goals reflect viewers' expectations regarding a visual setting. This analysis also employed land use as an indicator of viewer concern. Uses associated with 1) designated parks, monuments, and wilderness areas, 2) scenic highways and corridors, 3) recreational areas, and 4) residential areas are generally considered to have high viewer concern. Travelers on other highways and roads, including those in agricultural areas, may have moderate viewer concern depending on viewer expectations as conditioned by regional and local landscape features. Commercial uses, including business parks, typically have low-to-moderate viewer concern, though some commercial developments have specific requirements related to visual quality, with respect to landscaping, building height limitations, building design, and prohibition of above-ground utility lines, that indicate high viewer concern. Industrial uses typically have the lowest viewer concern because workers are focused on their work, and generally are working in surroundings with relatively low visual value.

Viewer Exposure

The visibility of a landscape feature, the viewing distance to the landscape feature, the number of viewers, and the duration of the view all affect the exposure of viewers to a given landscape feature. Visibility is highly dependent on screening and angle of view. The smaller the degree of screening and/or the closer the feature is to the center of the view area, the greater its visibility is. Increasing distance reduces visibility. Viewer exposure can range from low values for all factors, such as a partially obscured and brief background view for a few motorists, to high values for all factors, such as an unobstructed foreground view from a large number of residences.

Visual Sensitivity

The overall level of sensitivity of a view area to impacts due to visual change is a function of visual quality, viewer concern, and viewer exposure and can range from low to high.

Types of Visual Change

To assess the visual changes that the project would cause, staff considered the following factors:

Contrast

Visual contrast describes the degree to which a project's visual characteristics or elements (consisting of form, line, color, and texture) differ from the same visual elements established in the existing landscape. The degree of contrast can range from low to high. The presence of forms, lines, colors, and textures in the landscape similar to those of a proposed project indicates a landscape more capable of accepting those project characteristics than a landscape where those elements are absent. This ability to accept alteration is often referred to as visual absorption capability and typically is inversely proportional to visual contrast.

Dominance

Another measure of visual change is project dominance. Dominance is a measure of a feature's apparent size relative to other visible landscape features and the total field of view. A feature's dominance is affected by its relative location in the field of view and the distance between the viewer and the feature. The level of dominance can range from subordinate to dominant.

View Blockage

View blockage describes the extent to which any previously visible landscape features are blocked from view by the project. Blockage of higher quality landscape features by lower quality features causes adverse visual impacts. The degree of view blockage can range from none to high.

APPENDIX VR – 3

LIGHTING COMPLAINT RESOLUTION FORM

Los Esteros Critical Energy Facility San Jose, California
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
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.)

VISUAL RESOURCES APPENDIX VR – 4: VISUAL RESOURCES FIGURES

VISUAL RESOURCEs Figures 1 through 16

WASTE MANAGEMENT

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

This section discusses potential impacts of the proposed Los Esteros Critical Energy Facility from the generation and management of hazardous and nonhazardous wastes. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts from wastes generated during project pre-construction, construction, operation and closure. A brief overview of the project is provided, as are discussions regarding selected CEQA checklist items with respect to hazardous and nonhazardous wastes. A discussion of additional items listed in the Hazards and Hazardous Materials portion of the checklist may be found in the **Hazardous Materials Management** section of this staff analysis.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 established a nationwide emergency planning and response program, and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The Act (codified in 40 C.F.R., § 68.110 et seq.) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility through preparation of Risk Management Plans. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

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 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.

California Health and Safety Code, Section 41700

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."

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.

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 energy center.

The Santa Clara County Certified Unified Permitting Agency (CUPA) is the local agency which administers and enforces compliance with the Hazardous Waste Control Act. This

agency will also regulate hazardous waste management, handling and disposal procedures at the proposed energy center.

In the event of an emergency spill of hazardous materials/waste the Santa Clara Hazardous Materials Response Team or the San Jose Hazardous Incidence Team (HIT) will respond for containment and cleanup.

SETTING

Calpine c*Power proposes to design, construct, and operate an electrical energy generating station within a portion of the City of San Jose, in Santa Clara County, California. This facility, designated as the Los Esteros Critical Energy Facility (LECEF), is proposed as mitigation for a Planned Development Zoning (PDZ) Project approved for U.S. DataPort by the City Council of San Jose. As proposed, the LECEF will be constructed in three phases, comprised initially of four, natural-gas-fired, simple cycle combustion turbines to produce a nominal 180 megawatt (MW) generation output, which is the subject of this Staff Analysis. The subsequent phases still under evaluation are proposed to add steam-generating capabilities that will increase the project's nominal output to 260 MW, as well as modifications to enhance reliability and availability.

The proposed project site for the LECEF is a 55+/- acre property owned by c*Power and located near the northwest corner of the intersection of Highway 237 and Coyote Creek at 1515 Alviso-Milpitas Road. The proposed project will be accessed via Zanker Road, a cross street to Alviso-Milpitas Road. The site is in an agricultural, residential, and commercial area bounded by properties maintaining those uses as well as vacant land. It was recently annexed by the City of San Jose from Santa Clara County with a Light Industrial zoning; a designation that will be modified in the PDZ process. The San Jose-Santa Clara Water Pollution Control Plant (WPCP) is situated to the northwest of the proposed site. WPCP buffer land exists to the west, and the facility's sludge drying ponds exist to the north of the proposed project site. The WPCP will be the treatment facility for project non-hazardous wastewater via a connection with the City sewer system.

The site was originally developed as an orchard, which was subsequently replaced by nursery facilities and several residences. The nursery complexes included facilities for the storage of pesticides and petroleum products (gasoline and diesel fuel), greenhouses, boilers, water wells and storage tanks. These facilities were in an array of conditions from operational to abandoned and decaying. At the request of the City of San Jose, the site recently underwent demolition and remediation associated with previous agricultural activities which had left the site in with dilapidated buildings, greenhouses, and associated facilities.

Waste of both non-hazardous and hazardous natures will be generated during all phases of the facility's permitted existence as described below, beginning with the pre-construction demolition and removal of the existing facilities and debris. The following construction phase will generate normal construction solids, wastewater, and cleaning and flushing liquids. The operation phase will generate such wastes as maintenance

solids, non-hazardous wastewater, and spent operational, analysis and cleanup materials.

Please refer to the **Project Description** section for more detail.

ANALYSIS OF IMPACTS

WASTE MANAGEMENT

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport or use of hazardous materials?		X		
b) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
c) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
UTILITIES AND SERVICE SYSTEMS – Would the project:				
d) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
e) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

DISCUSSION OF IMPACTS

A. Create a Significant Hazard to the Public

The Los Esteros Critical Energy Facility (LECEF) would generate minor quantities of hazardous wastes during project pre-construction, construction and operation. Consequently, both the project construction contractor (see AFC section 8.13.2.2.3) and the project operator would be a generators of hazardous waste and would fall under the jurisdiction of federal law (the Resource Conservation and Recovery Act – 42 U.S.C. 6901 et seq.) and state law (California Hazardous Waste Control Act – Health and safety Code Sections 25100 et seq.). These laws govern the storage, transport, and

disposal of hazardous waste. Condition of Certification WASTE-5 requires both LECEF and its construction contractor to obtain unique hazardous waste generator identification numbers.

Pre-Construction

Section 8.13.2.1 of the Application lists the types and quantities of wastes which may be generated during pre-construction, as well as the proposed management method for each. The types of hazardous wastes which may be generated during pre-construction (demolition) activities include asbestos, lead-based paints, pesticide contaminated soils, and underground storage tanks.

Because of the age (pre-1980's) of the existing structures that will be removed, asbestos and lead-based paints were suspected to be present on the project site. Further on-site investigation was conducted to establish the existence and degree of contamination of these wastes and their potential for entering the environment and impacting worker health. AFC section 8.13.2.1 indicates that such a survey was to be conducted and indeed, staff received information from the applicant (Calpine 2001b) that the site has been remediated to staff's satisfaction.

The previous agricultural activities on the proposed site have resulted in elevated levels of several pesticides and associated metals (arsenic and lead) in the soil as described by the Phase II Soil and Groundwater Quality Evaluation and Supplemental Soil Quality Evaluation. In general, detected levels of these contaminants are below both State of California Total Threshold Limit Concentration (TTLC) values and Federal EPA Preliminary Remediation Goal (PRG) values, indicating no significant threat to human health in an industrial setting. However, two significant exceptions exist. First, three distinct sampling locations yielded total DDT concentrations in shallow soil in excess of the TTLC value, but less than the Industrial PRG value, making the soil in those locations a hazardous waste if hauled off-site, but not mandating a cleanup effort. (The Phase II Supplemental Soil Quality Evaluation *recommends* excavation and disposal of approximately 15 cubic yards of the DDT contaminated soil anyway). Second, detected concentrations of toxaphene at a single location previously used as a pesticide storage and mixing area exceed <u>both</u> the TTLC and PRG values. The Phase II Supplemental Assessment recommends the excavation and proper off-site disposal of the soil within a 7-foot by 7-foot by 2-foot deep area encompassing this location. Again, staff received information from the applicant (Calpine 2001b) that the site has been remediated to staff's satisfaction.

One gasoline and two diesel fuel underground storage tanks (USTs) are known to exist on the proposed project site, as is one 10,000 gallon tank previously used for storing diesel fuel but now empty and resting on the site surface. A Phase II soil and groundwater evaluation did not detect the presence of any petroleum hydrocarbons, BTEX, or fuel oxygenates in the vicinity of these tanks. LECEF proposes to remove the tanks before construction activities commence. Consequently, the applicant conducted remedial actions including tank removal and the preparation of a Tank Closure Inspection Report to staff's satisfaction (Calpine 2001b).

Construction

The types of hazardous wastes normally generated during construction include waste lubricating oil, cleaning solvents, paints, batteries, oily rags and absorbent, and welding materials. Section 8.13.2.2.3 of the Application lists pipe flushing and cleaning fluids, passivating fluids, and solvents as the primary hazardous wastes generated during construction. The construction contractor will be responsible for all hazardous wastes during the construction phase. All hazardous wastes generated during construction will be recycled or disposed of in a licensed hazardous waste treatment or disposal facility. (See recommended condition of certification **WASTE-2**).

Hazardous waste generated during construction could also include contaminated soil as describe above under **Pre-Construction**.

Operation

Table 8.13-1 of the Application lists the hazardous wastes expected to be generated during facility operation, along with the origin, composition, estimated quantity, classification, and disposal method of each. These wastes include spent air pollution control catalyst, used oil and sorbents, cooling tower sludge, laboratory analysis waste, and chemical feed area drainage. Other typical operational hazardous wastes might include paints, thinners, solvents and batteries.

Some of the hazardous wastes can be recycled, such as used oil, solvents, batteries, and the spent SCR catalyst. Other wastes can be treated on-site (neutralized), and still others will require off-site disposal. LECEF intends to follow the hierarchical approach to waste management that begins with reduction, then recycling, then treatment, followed finally by disposal when necessary.

All hazardous wastes generated during pre-construction, construction and operation will be managed in accordance with federal and state laws and regulations including licensing, personnel training, waste storage times, and reporting and record keeping. The wastes will be properly characterized, segregated in bermed storage areas, and accumulated for time periods less than 90 days. They will then be transported offsite to approved treatment, storage, or disposal (TSD) facilities by licensed hazardous waste haulers using appropriate manifests. To help ensure the use of appropriate hazardous waste disposal facilities, staff proposes condition of certification **WASTE-1**, which requires the project owner to notify staff of any known enforcement actions against hazardous waste facilities or companies used for project wastes.

Because the waste management and disposal measures proposed by the Applicant will comply with all applicable federal and state laws, ordinances, regulations, and standards, staff expects that there will be no significant impacts to the public or the environment from disposal of project-related hazardous wastes. Since final facility design and operational procedures may impact the amounts and types of wastes ultimately generated, the project owner would be required to submit waste management plans for pre-construction, construction and operation to staff under condition of certification **WASTE-2**.

B. Emit Hazardous Emissions or Waste Within One-Quarter Mile of an Existing or Proposed School?

There are no schools within one-quarter mile of the proposed project.

In all cases, licensed hazardous waste transporters using proper containers and transportation procedures conforming to applicable Caltrans requirements would be used. Staff therefore concludes that impacts from the transportation of project-related hazardous wastes would be less than significant.

C. Be Located On a Site Which Would it Create a Significant Hazard to the Public or the Environment?

Lowney Associates performed a Phase I Environmental Site Assessment (ESA), a Phase I ESA Update, and a partial Phase II ESA with a Supplemental Soil Quality Evaluation, for Calpine c*Power. The reports of these efforts were included in the U.S. Dataport Planned Development Zoning Draft Environmental Impact Report which was published by the City of San Jose in November, 2000. The purpose of these investigations was to identify and document recognized environmental conditions at the site resulting from present or past activities and to evaluate the possibility and impacts of potential hazardous materials releases from both on-site and off-site sources. The notable results of the Assessments, as they relate to hazardous wastes, are discussed above. Staff has received information from the applicant (Calpine 2001b) that the site has been remediated to staff's satisfaction.

Soil sampling does not guarantee that all contamination will necessarily be detected. Thus, proposed Conditions of Certification WASTE-3 and -4 would require that a Professional Engineer or Geologist be given oversight authority if unforeseen contamination is encountered.

D. Be Served By A Landfill With Sufficient Permitted Capacity To Accommodate The Project's Solid Waste Disposal Needs?

Waste disposal sites suitable for recycling and disposal of project-related non-hazardous construction and operation wastes are described in Section 8.13.3.1 and summarized in Table 8.13-2 of the AFC. Because San Jose has a "free market" system for the collection of solid waste, LECEF will have to select from 11 different franchised companies to determine both who will collect the waste and where it will be disposed of. The listed landfills have estimated remaining capacities ranging from 9 to 40 years. The Newby Island Sanitary Landfill, for example, is permitted to receive 3,260 tons per day, is operating at 2,700 tons per day, and has an estimated remaining capacity for 31 more years.

The pre-construction activities of the proposed project will generate an estimated 1,000 cubic yards of nonhazardous solid waste. During construction of the proposed project, a total of 40 tons of nonhazardous waste is anticipated to be generated. This will consist of 10 tons of wood, glass, paper, and plastic; 20 tons of concrete; and 10 tons of metal. Recycling will reduce much of the wastes, including paper, wood, glass, plastic, and scrap metal. Project operation will generate minimal amounts of nonhazardous waste, on the order of 20 cubic yards per year. Thus, the total amount of nonhazardous waste generated from project construction and operation will contribute only a fraction of

one percent of available landfill capacity. Staff concludes that this potential impact will be less than significant.

E. Comply With Federal, State, and Local Statutes and Regulations Related To Solid Waste?

Project-related solid wastes will typically be placed in covered dumpsters. Recyclable materials, especially metals, will be placed in segregated collection centers for accumulation. All solid wastes will be transported by certified haulers to appropriately permitted facilities in accordance with applicable laws, ordinances, regulations, and standards. Staff concludes that the proposed project will comply with all applicable federal, state, and local statutes and ordinances regarding solid waste management.

CUMULATIVE IMPACTS

Due to the minor amounts of wastes generated during project pre-construction, construction and operation, the insignificant impacts on individual recycling and disposal facilities, and the availability of additional regional landfills, cumulative impacts will be insignificant for both hazardous and nonhazardous wastes.

In addition, staff evaluated the impacts on Waste Management of the combined construction of the LECEF and the proposed US Dataport facility. It is staff's opinion that, given the lack of significant impact that the LECEF will have on hazardous and nonhazardous waste recycling and disposal facilites, it is doubtful that the combined impact of adding the US Dataport facility would be any different.

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows that there are minority populations within six miles of the project. Since staff has concluded that there will be no significant direct or cumulative waste management-related impacts, there will also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues.

FACILITY CLOSURE

Facility closure, with respect to waste management, is discussed in section 8.13.4.4 of the AFC. During any type of facility closure (see staff's **General Conditions and Compliance** section which discusses planned, unexpected temporary, and unexpected permanent closure), the primary waste management related concern is that project wastes not pose any potentially significant problem to the public, workers, or the environment. Staff has determined that conditions of certification in the **General Conditions and Compliance** section will adequately address waste management issues related to closure.

In the case of unexpected temporary closure, waste management practices normally required by LORS and already in-place (such as limiting hazardous waste accumulation time to 90 days and requiring proper containment) would likely be adequate to avoid significant problems. In addition, staff's General Conditions for Facility Closure require preparation of an on-site contingency plan which shall provide for removal of hazardous

wastes and draining of all chemicals from storage tanks and other equipment for temporary closures exceeding 90 days.

An approved on-site contingency plan is also required to protect public health and safety in the case of unexpected permanent closure. As above, the plan must provide for the removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

AGENCY COMMENTS

City of San Jose, Rob Eastwood, Planner II – Mr. Eastwood noted that the Newby Island Sanitary Landfill is in San Jose, not Milpitas as the AFC incorrectly stated.

Response – comment noted.

CONCLUSIONS

As discussed under section (e) above, staff concludes that the project will comply with all applicable LORS pertaining to the management and disposal of nonhazardous wastes. Additionally, because Calpine c*Power must implement a comprehensive program to manage hazardous wastes and obtain a hazardous waste generator identification number (required by law for any generator of hazardous wastes), staff also concludes that the project will comply with all applicable LORS pertaining to the management and disposal of hazardous wastes. All hazardous wastes will be properly managed on site, transported by permitted hazardous waste haulers, and treated or disposed of at permitted facilities.

Management of hazardous and nonhazardous wastes generated during pre-construction, construction and operation of the Los Esteros Critical Energy Facility will not result in any significant adverse impacts if Calpine c*Power implements the waste management procedures described in the Application (Calpine c*Power 2001a) and staff's proposed conditions of certification.

PROPOSED 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 pre-construction, construction and operation, the project owner shall prepare and submit to the CEC CPM, for review and comment, a 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 The project owner shall have a Registered Professional Engineer or Geologist, with experience in remedial investigation and feasibility studies, available for consultation during soil excavation and grading activities. The Registered Professional Engineer or Geologist shall be given full authority to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the qualifications and experience of the Registered Professional Engineer or Geologist contracted for consultation to the CPM for approval.

WASTE-4 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and the CPM stating the recommended course of action. Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall contact representatives of the San Francisco Regional Water Quality Control Board, the Santa Clara County Certified Unified Permitting Agency (CUPA), and the Berkeley Regional Office of the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the Registered Professional Engineer or Geologist to the CPM within five days of their receipt.

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.

REFERENCES

Calpine c*Power 2001a. Los Esteros Critical Energy Facility, Application for Certification. Prepared for submission to the California Energy Commission, August, 2001.

Calpine c*Power 2001b. Documents provided by Mr. Dave Shelby to CEC and DTSC on Site Remediation. December 14.

Lowney Associates, 2000. Phase I Environmental Site Assessment Update, prepared for Calpine, April 13, 2000.

Lowney Associates, 2000. Phase II Supplemental Soil Quality Evaluation, 55-acre Lin/Hom Parcel, San Jose, California. Prepared for Calpine, July 20, 2000.

Lowney Associates, 2000. Phase II Soil and Groundwater Quality Evaluation, 55-acre Lin/Hom Parcel, San Jose, California. Prepared for Calpine, July 14, 2000.

WORKER SAFETY & FIRE PROTECTION

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

The worker safety and fire protection section of this Staff Assessment provide a discussion of staff's evaluation of the potential for impacts of the proposed Los Esteros Critical Energy Facility (LECEF) (Calpine 2001a) associated with worker safety and fire protection issues. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts during project construction, operation and closure. Energy Commission staff has determined that all CEQA checklist items for worker safety and fire protection are either "less than significant impact" or "no impact". A brief overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to these subject items. The section concludes with the staff's proposed monitoring and mitigation measures and with the inclusion of three conditions of certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

A framework, based on environmental laws, ordinances, regulations and standards (LORS), exists to reduce risks of accidents and reduce routine hazards. The following federal, state, and local laws generally apply **Worker Safety and Fire Protection.** Their provisions have established the basis for staff's determination regarding the significance and acceptability of the Los Esteros Critical Energy Facility.

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500 and clearly define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the general industry safety and health standards now in force under this 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 congressional 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 USC § 651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.

Applicable Federal requirements include:

- 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 CFR §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 CFR §1952.170 – 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR §1910.1 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 ("Cal/OSHA") as published in the California Labor Code § 6300. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with §337-560 and continuing with §1514 through 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)) and thus all Cal/OSHA health and safety standards meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 CFR §1910.1 - 1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible for informing their employees about workplace hazards, potential exposure and the work environment (Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (8 CCR §5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1980. It was later revised to mirror the Federal Hazard Communication Standard (29 CFR §1910.1200) which established on the federal level an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers. A major component of this regulation is the required provision of Material Safety Data Sheets (MSDSs) to workers. MSDSs provide information on the identity, toxicity, and precautions to take when using or handling hazardous materials in the workplace.

Finally, 8 CCR §3203 requires that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Applicable State requirements include:

- 8 CCR §339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- 8 CCR §337, et seq. Cal/OSHA regulations;
- 24 CCR § 3, et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;
- Health and Safety Code § 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations § 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 (H&S Code §18901 et seq.) pertaining to the California Fire Code.

Similarly, the Uniform Fire Code Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local (or locally enforced) requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);
- California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.).
- Uniform Fire Code, Article 80, 1997
- City of San Jose Fire Code, Section 17.12
- City of San Jose Building Code, Section 24.03

The California Fire Code requires that industrial plants submit plans for review and approval by the City of San Jose Fire Department.

SETTING

Calpine c*Power (2001a) proposes to construct, own, and operate an energy generating facility in the north part of the City of San Jose, Santa Clara County, California, to be known as the Los Esteros Critical Energy Facility (LECEF). Phase I of the LECEF project is addressed in the AFC. The Phase I project will be a natural gas-fired, simple-cycle electric generating facility consisting of four modern combustion turbines and rated at a nominal gross generating capacity of 180 megawatts (MW). The second phase of this project is not addressed in the AFC. Phase II is currently being considered for future development and planning and would involve converting the facility from simple cycle to combined cycle by adding four Heat Recovery System Generators (HRSGs), two Steam Turbine Generators (STGs) and associated accessory equipment for a total generation capacity of about 260 MW.

The applicant has purchased a 55-acre parcel of land, classified as “other land” by the Department of Conservation, in north San Jose at 1515 Alviso-Milpitas Road, on the north side of State Route 237 near Coyote Creek. The proposed facility will comprise 15-acres. West of the site are the Water Pollution Control Plant (WPCP) buffer lands, northwest is the WPCP and north of the site is PG&E’s planned Los Esteros Substation and WPCP sludge drying ponds. Please refer to the **Project Description** section for more detail.

IMPACTS

WORKER SAFETY

Industrial environments are potentially dangerous, during construction and operation of facilities. Workers at the proposed project will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for the Los Esteros Critical Energy Facility project to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards. The construction phase is expected to last approximately 4-6 months and will include site preparation, foundation work, installation of major equipment, and installation of major structures.

FIRE HAZARDS

During construction and operation of the proposed Los Esteros Critical Energy Facility project there is the 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 be caused by large explosions of natural gas or other flammable gasses or liquids. Compliance with all LORS will be adequate to assure protection from all fire hazards.

APPLICANT'S PROPOSED MITIGATION

WORKER SAFETY

A Safety and Health Program will be prepared by the applicant to minimize worker hazards during construction and operation (AFC section 8.7.3). Staff uses the phrase "Safety and Health Program" to refer to the measures that will be taken to ensure compliance with the applicable LORS during the construction and operational phases of the project.

Construction Safety and Health Program

The Los Esteros Critical Energy Facility project encompasses construction and operation of a natural gas fired facility with ancillary facilities such as transmission lines and pipelines. Workers will be exposed to hazards typical of construction and operation of a gas-fired combined cycle facility. In regards to worker exposures during construction activities, information provided by the applicant in the AFC sections on **Air Quality** and **Public Health** impacts demonstrates that workers may be exposed to construction equipment diesel particulate (PM_{10}) exhaust at airborne concentrations exceeding the Proposition 65 warning level. Therefore, staff proposes additional mitigation in the form of soot traps and low sulfur fuel, as well as outdoor air monitoring for particulates and appropriate personal protective equipment (i.e., respirators) if the Cal/EPA Reference Exposure Level (REL) or a cancer risk in excess of 10 in one million are exceeded.

Construction Safety Orders are published at 8 CCR § 1502, et seq. These requirements are promulgated by Cal/OSHA and are applicable to the construction phases of the project. The Construction Safety and Health Program will include the following:

- Construction Injury and Illness Prevention Program (8 CCR § 1509);
- Construction Fire Protection and Prevention Plan (8 CCR § 1920); and
- Personal Protective Equipment Program (8 CCR §§ 1514 - 1522).

Additional programs under General Industry Safety Orders (8 CCR §§ 3200 - 6184), Electrical Safety Orders (8 CCR §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 - 544) will include:

- Electrical Safety Program;
- Unfired Pressure Vessel Safety Orders;
- Equipment Safety Program;
- Forklift Operation Program;
- Excavation/Trenching Program;
- Fall Prevention Program;
- Scaffolding/Ladder Safety Program;
- Articulating Boom Platforms Program;

- Crane and Material Handling Program;
- Housekeeping and Material Handling and Storage Program;
- Hot Work Safety Program;
- Respiratory Protection Program;
- Employee Exposure Monitoring Program;
- Confined Space Entry Program;
- Hand and Portable Power Tool Safety Program;
- Hearing Conservation Program;
- Back Injury Prevention Program;
- Hazard Communication Program;
- Air Monitoring Program;
- Heat and Cold Stress Monitoring and Control Program; and
- Pressure Vessel and Pipeline Safety Program.

The AFC includes adequate outlines of each of the above programs. Prior to construction at the Los Esteros Critical Energy Facility project, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

Operations and Maintenance Safety and Health Program

Upon completion of construction and prior to operations at the Los Esteros Critical Energy Facility project, the Operations and Maintenance Safety and Health Program will be prepared. This operational safety program will include the following programs and plans:

- Injury and Illness Prevention Program (8 CCR § 3203);
- Emergency Action Plan (8 CCR § 3220);
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (8 CCR § 3221); and
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

In addition, the requirements under General Industry Safety Orders (8 CCR §§ 3200 - 6184), Electrical Safety Orders (8 CCR §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 - 544) will be applicable to the project. Written safety programs, which the applicant will develop, for the Los Esteros Critical Energy Facility project will ensure compliance with the above-mentioned requirements.

The AFC includes adequate outlines of the Construction Training Program (AFC Table 8.7-3) and the Operations Training Program (AFC Table 8.7-4). Prior to operation of the Los Esteros Critical Energy Facility project, all detailed programs and plans will be provided pursuant to condition of certification **WORKER SAFETY-2**.

Safety and Health Program Elements

The Applicant provided the proposed outlines for both a Construction Safety and Health Program and an Operation Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major items required in both Safety and Health Programs are as follows:

Injury and Illness Prevention Program (IIPP)

The Applicant will submit an expanded Construction and Operations Illness and Injury Prevention Program to Cal/OSHA for review and comment 30 days prior to construction and operation of the project.

The IIPP will include the following components as presented in the AFC:

- Identity of person(s) with authority and responsibility for implementing the program;
- Safety and Health Policy
- Work rules and safe work practices
- System ensuring employees comply with safe and healthy work practices;
- System facilitating employer-employee communications;
- Procedures identifying and evaluating workplace hazards, including inspections to identify hazards and unsafe conditions;
- Methods for correcting unhealthy/unsafe conditions in a timely manner;
- Specific safety procedures (e.g. fall protection, lockout/tagout, respiratory protection
- A training and instruction program.

Emergency Action Plan

California regulations require an Emergency Action Plan (8 CCR § 3220). The AFC contains a satisfactory outline for an emergency action plan (section 8.7.3.2.3).

The outline lists among many the following features:

- Supervisor/Emergency Coordinator role
- Health and Safety Manager role
- Public relations (news media, etc.) procedures
- Emergency notification list
- Emergency telephone number list
- Emergency equipment locations
- Accident reporting and investigation procedures
- Hazard communication procedures
- Spill containment and reporting procedures
- Releases into the environment and reporting

- Response procedures
- Site security measures
- Evacuation routes, assembly areas, and procedures
- Emergency plant shutdown procedures
- Fire response procedures
- Decontamination procedures
- Evacuation plan
- Personal protective equipment requirements

Fire Prevention Plan

California Code of Regulations requires an Operations Fire Prevention Plan (8 CCR § 3221). The plan should include the following topics:

- General requirements
- 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
- Fire prevention training programs and requirements

Staff proposes that the Applicant submit a final Fire Protection and Prevention Plan to the California Energy Commission Compliance Project Manager (CPM) and the City Of San Jose Fire Department for review and approval to satisfy proposed conditions of certification **WORKER SAFETY-1, 2** and **3**.

Personal Protective Equipment Program

California regulations require Personal Protective Equipment (PPE) and first aid supplies whenever hazards are encountered which, due to process, environment, chemicals or mechanical irritants can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (8 CCR § 3380-3400). The Los Esteros Critical Energy Facility project operational environment will likely require PPE.

Information provided in the AFC indicates that all employees required to use PPE will be checked for proper fit and to see if they are medically capable of wearing the equipment. All safety equipment will meet NIOSH or ANSI standards and will carry markings, numbers, or certificates of approval. Respirators will meet NIOSH and California Department of Health and Human Services Standards. Each employee will be provided with information pertaining to protective clothing and equipment.

The PPE Program ensures that employers comply with the applicable requirements for PPE and provide employees with the information and training necessary to implement the program.

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment (AFC page 2-14) to determine if the project would adequately protect workers and if it would affect the fire protection services in the area. The project will rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. In the event of a major fire, fire support services including trained firefighters and equipment for a sustained response would be required by the City Of San Jose Fire Department.

Elements of the fire protection and suppression systems include a carbon dioxide fire protection system (FM200) to protect the turbine, generator and accessory equipment, and fire detection sensors. Fire hydrants, hose stations, and the source of the on-site firewater is described in a response to staff's Data Request (Calpine 2001b). In conclusion, the fixed fire protection system is well described as are the smoke detectors, combustible gas detectors, and portable extinguishers which will be located throughout the plant in accordance with the Uniform Fire Code.

The applicant will be required to provide the final Fire Protection and Prevention Program to the CPM and to the City Of San Jose Fire Department, prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

IMPACTS

WORKER SAFETY & FIRE PROTECTION

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
WORKER SAFETY/FIRE PROTECTION – Would the project:				
a) Exposes workers to inappropriate occupational safety and health risks and/or structural or chemical fires of undue duration?		X		
b) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
c) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
d) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
e) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

DISCUSSION OF IMPACTS

A. Exposure of workers to inappropriate health, safety and fire risks:

The Los Esteros Critical Energy Facility project has provided adequate information that all occupational safety and health LORS will be followed. Staff proposed COCs **WORKER SAFETY-1, 2** and **3** to ensure compliance with these LORS and that the City of San Jose Fire Department is provided with fire prevention plans prior to construction and operation.

B. Exposure of workers or residents to risks from public airport activity:

The Los Esteros Critical Energy Facility project is not located within an airport use plan.

C. Exposure of workers or residents to risks from private airport activity:

The Los Esteros Critical Energy Facility project is not located within the vicinity of a private airstrip.

D. Impair or impede implementation of an emergency response or evacuation plan:

It appears that the construction and operation of the project would improve upon the reliability of the local power system and therefore benefit the local emergency response capabilities. The City of San Jose Fire Department is not fully comfortable in its ability to provide first response services to a project fire. First response from Fire Station 25 located at 1590 Gold Street is estimated at 5-6 minutes, in excess of the travel standard of 4 minutes in the City of San Jose (but within the response time recommended by NFPA guidelines). Station 25 is located at the edge of the San Francisco Bay and is proposed for relocation. Should the relocation to a more centralized location occur as planned, the station will be closer to LECEF and the City of San Jose Fire Department would feel more comfortable in its ability to respond to a fire at the proposed facility within its standard response time (SJFD 2001a). Additional resources have been requested in a memo to the San Jose Planning Department to provide ongoing training of fire fighters to respond to fire emergencies at the proposed facility (SJFD 2001b). Thus, staff concludes that no impact on fire-fighting response would exist if the LECEF is built.

E. Exposure of people or structures to risk of loss, injury or death from resulting from wildland fires:

The proposed site was used as agricultural land. The site has been cleared and remediated. Therefore, no threat of wildland fire exists.

CUMULATIVE IMPACTS

Staff reviewed the potential for the construction and operation of Los Esteros Critical Energy Facility project, combined with existing industrial facilities, to result in impacts on the fire and emergency service capabilities of the City Of San Jose Fire Department. Staff found that at this time, cumulative impacts during operations would be insignificant.

In addition, staff evaluated the impacts on worker safety and fire protection issues of the combined construction of the LECEF and the proposed U.S. DataPort facility. It is staff's opinion that, given the lack of significant impact that the LECEF will have on worker safety, the combined impact of adding the U.S. DataPort facility would have no significant impact. However, fire protection issues that may result from the proximity of the proposed U.S. DataPort buildings to the LECEF will need to be addressed as plans for that facility are developed. Staff recommends that the San Jose Fire Department review this issue as plans for a DataPort facility are developed, and make recommendations for fire prevention, detection, and response to a fire at LECEF that would protect the U.S. DataPort facility.

FACILITY CLOSURE

The project owner/operator is responsible for maintaining an operational fire protection system during closure activities. The project must also stay in compliance with all applicable health and safety LORS during that time. A facility closure plan will be developed prior to closure to incorporate these requirements.

CONCLUSIONS

If the Applicant for the proposed Los Esteros Critical Energy Facility project provides a Project Construction Injury and Illness Prevention Program, a Project Operations Safety and Health Program and a Operations Fire Prevention Plan as required by conditions of certification **WORKER SAFETY-1, 2,** and **3** staff believes that the project will incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable LORS. Staff also concludes at this time that the proposed plant will not have significant impacts on local fire protection services if the relocation of the first responder fire station occurs as planned.

PROPOSED CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Injury and Illness Prevention Program, containing the following:

1. a Construction Safety Program;
2. a Construction Personal Protective Equipment Program;
3. a Construction Exposure Monitoring Program;
4. a Construction Emergency Action Plan; and
5. a Construction Fire Protection and Prevention Plan.

The Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Fire Protection and Prevention Plan and Emergency Action Plan shall be submitted to the City of San Jose Fire Department for review and comment prior to submittal to the CPM.

Verification: At least 30 days prior to the start of construction, or a time mutually agreeable to the applicant and the CPM, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Injury and Illness Prevention Program. The project owner shall provide a letter from the City of San Jose Fire Department stating that they have reviewed and accept the Construction Fire Protection and Prevention Plan Emergency Action Plan.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

1. an Operation Injury and Illness Prevention Plan;

2. an Emergency Action Plan;

3. Hazardous Materials Management Program;

4. Operations and Maintenance Safety Program;

5. Fire Protection and Prevention Program (8 CCR § 3221); and;

6. Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for 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 acceptance.

Verification: At least 30 days prior to the start of operation, or a time mutually agreeable to the applicant and the CPM, the project owner shall submit to the CPM a copy of the final version of the Project Operations and Maintenance Safety & Health Program. It shall incorporate Cal/OSHA Consultation Service's comments, stating that they have reviewed and accepted the specified elements of the proposed Operations and Maintenance Safety and Health Plan.

WORKER SAFETY-3 The project owner shall prepare and submit to the CPM an Operations Fire Prevention Plan describing the onsite fire protection systems 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, or a time mutually agreeable to the applicant and the CPM, 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.

REFERENCES

Calpine 2001a. Application for Certification (01-AFC-12), submitted by Calpine c*Power. Submitted to the California Energy Commission on August 3, 2001.

Calpine 2001b. Response to staff Data Request set 1 #116 and 117. November 2.

NFPA (National Fire Protection Association). 1987. NFPA 85A, Prevention of Furnace Explosions in Fuel Oil and Natural Gas Fired Single Burner Boiler Furnaces, National Fire Protection Association, Batterymarch Park, Quincy, MA, 1987.

San Jose Fire Department. 2001a. Personal communication with Deputy Chief John McMillan. November.

San Jose Fire Department. 2001b. Personal communication with Fire Protection Engineer Patrick Chu. November.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

1998 California Fire Code. Published by the International Fire Code Institute comprised of the International Conference of Building Officials, the Western Fire Chiefs Association, and the California Building Standards Commission. Whittier, Ca.

1997 Uniform Fire Code, Vol. 1. Published by the International Fire Code Institute comprised of the International Conference of Building Officials and the Western Fire Chiefs Association, Whittier, Ca.

FACILITY DESIGN

Testimony of Shahab Khoshmashrab, Al McCuen and Steve Baker

INTRODUCTION

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

- verify that the laws, ordinances, regulations and standards (LORS) applicable to the engineering design and construction of the project have been identified;
- verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable engineering LORS, and in a manner that assures public health and safety;
- determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety; and
- describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the intent of the engineering LORS and any special design requirements.

FINDINGS REQUIRED

The Warren Alquist Act requires the commission to "prepare a written decision ….which includes…(a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety [and] (d)(1) Findings regarding the conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state and federal standards, ordinances, or laws…" (Pub. Resources Code, §25523).

SUBJECTS DISCUSSED

Subjects discussed in this analysis include:

- Identification of the engineering LORS applicable to facility design;
- Evaluation of the applicant's proposed design criteria, including the identification of those criteria that are essential to ensuring public health and safety;
- Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable engineering LORS; and
- Conditions of Certification proposed by staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable engineering LORS.

SETTING

Calpine c*Power (c*Power) proposes to construct and operate a nominally rated 180 megawatt simple cycle power plant known as Los Esteros Critical Energy Facility (LECEF). The project will be located in north San Jose, Santa Clara County. The site will occupy approximately 15 fenced acres located at the north side of State Route 237 near Coyote Creek and will lie in seismic zone 4. For more information on the site and related project description, please see the **Project Description** section of this document. References to "the City" and "the County" designate the City of San Jose and Santa Clara County, respectively. Additional engineering design details are contained in the Application for Certification (AFC), in Appendices 10A through 10G (LECEF 2001a).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (LECEF 2001a, Appendices 10A through 10G and Table 10.4-1). Some of these LORS include; California Building Code (CBC), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM) and American Welding Society (AWS).

ANALYSIS

The basis of this analysis is the applicant's proposed analysis and construction methods and list of engineering LORS and design criteria set forth in the AFC.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as a natural gas pipeline and electric transmission line. The applicant proposes to use accepted industry standards (see AFC Appendices 10A through 10G for a representative list of applicable industry standards), design practices, and construction methods in preparing and developing the site. Staff concludes that the project, including its linear facilities, will likely comply with all applicable site preparation LORS, and proposes Conditions of Certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly to repair or replace, that require a long lead time to repair or replace, or that are used for the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment will be identified through compliance with proposed condition of certification **GEN-2** (below).

The AFC contains lists of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable engineering LORS, and that staff believes are essential to ensuring that the project is designed in a manner that protects public health and safety.

The project shall be designed and constructed to the 1998 edition of the California Building Code (CBC), and other applicable codes and standards in effect at the time design and construction of the project actually commence. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 1998 CBC is in effect, the 1998 CBC provisions, identified herein, shall be replaced with the applicable successor provisions.

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

PROJECT QUALITY PROCEDURES

The AFC (LECEF 2001a, § 2.4.5) 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 will ensure that the project is actually designed, procured, fabricated and installed as contemplated in this analysis.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and 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.

Engineering and compliance staff will invite the local building authority, either the City or the County, or a third party engineering consultant, to act as CBO for the project. When an entity has been identified to perform the duties of CBO, Energy Commission staff will complete a Memorandum of Understanding (MOU) with that entity that outlines its roles and responsibilities and those of its subcontractors and delegates.

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

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, these conditions are written to require that no element of construction of permanent facilities subject to CBO review and approval, which would be difficult to reverse or correct, may proceed without prior approval of plans by the CBO. For those elements of construction that are not difficult to reverse and are allowed to proceed without approval of the plans, the applicant shall bear the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's plan review and approval process.

FACILITY CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from "mothballing" to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe, and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of the following items:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans, and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;

- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

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

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The laws, ordinances, regulations, and standards (LORS) identified in the AFC and supporting documents are those applicable to the project.

2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.

4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the General Conditions portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

RECOMMENDATIONS

Energy Commission staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;

2. The project be designed and built to the 1998 CBC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review); and

3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction, and Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

PROPOSED CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC) and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission 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 [1998 CBC, Section 109 – Certificate of Occupancy].

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

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

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine 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 Connections	1
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
Potable Water Systems	1 Lot
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping	1 Lot

Equipment/System	Quantity (Plant)
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 1998 CBC [Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

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

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

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

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 a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the name, qualifications and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

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

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

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

A: The civil engineer shall:

1. Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and

2. Provide consultation to the RE during the construction phase of the project, and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

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

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

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

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

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

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

This engineer shall be authorized to halt earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations [1998 CBC, section 104.2.4, Stop orders].

C: The design engineer shall:

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

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

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

4. Evaluate and recommend necessary changes in design; and

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

D: The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

E: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section, 1701.5 Type of Work (requiring special inspection), and Section 106.3.5, Inspection and observation program. 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 [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and

4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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

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

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

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

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

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections]. The project owner shall retain one set of approved engineering plans, specifications and calculations at the project site or at another accessible location during the operating life of the project [1998 CBC, Section 106.4.2, Retention of plans].

Verification: Within 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 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;

2. An erosion and sedimentation control plan;

3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. Soils report as required by the 1998 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report and Section 3309.6, Engineering Geology Report].

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

CIVIL-2 The resident engineer shall, if appropriate, stop all earthworks and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area [1998 CBC, Section 104.2.4, Stop orders].

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

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations for which a grading permit is required shall be subject to inspection by the CBO.

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

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

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy].

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in **Table 1** of condition of certification **GEN-2**, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 1**, above):

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

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

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 60 days (or a lesser number of

days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents]; and

4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction of any structure or component listed in **Table 1** of condition of certification **GEN-2** above, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

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

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

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

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, Section 1701,

Special Inspections, Section 1701.5, Type of Work (requiring special inspection), Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy of the transmittal letter to the CPM [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, Section 106.3.2, Submittal documents, and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of 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 Prior to the start of any increment of major piping or plumbing construction, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **Table 1**, condition of certification **GEN 2**, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal Documents, Section 108.3, Inspection Requests, Section 108.4, Approval Required; 1998 California Plumbing Code, Section 103.5.4, Inspection Request, Section 301.1.1, Approval].

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 [1998 CBC, Section 104.2.2, Deputies].

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

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

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [1998 CBC, Section 108.3 – Inspection Requests].

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

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

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

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications and calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans,

drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [1998 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

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

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

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 a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

REFERENCES

LECEF. 2001a. Application for Certification for Los Esteros Critical Energy Facility (01-AFC-12). Submitted to the California Energy Commission on August 06, 2001.

GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

Testimony of Patrick Pilling

INTRODUCTION

The geology and paleontology section discusses potential impacts of the proposed Los Esteros Critical Energy Facility (LECEF) regarding geological hazards, geological (including mineralogical) and paleontological resources. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts to significant geological and paleontological resources during project construction, operation and closure. All of the California Environmental Quality Act (CEQA) checklist items for geology and paleontology were designated by Energy Commission staff as "no impact." A brief geological and paleontological overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to geological hazards and resources, and paleontological resources. The section concludes with the staff's proposed monitoring and mitigation measures with respect to geological hazards and geological and paleontological resources, and the inclusion of seven Conditions of Certification

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The applicable LORS are listed in the Application For Certification (AFC), in Section 8.15.4 of the AFC (Calpine c* Power [Calpine], 2001). 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 California Building Code (CBC), 1998 edition, is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC is a series of standards that are used in the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The CBC supplements the UBC's grading and construction ordinances and regulations.

The CEQA Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The “Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources” (Society of Vertebrate Paleontologists [SVP], 1994) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (SVP).

SETTING

REGIONAL AND SITE GEOLOGY

The proposed LECEF is located within the Coast Ranges geomorphic province at the northern end of the Santa Clara Valley. This area within the Coast Ranges is characterized by the San Francisco Bay, tidal marshes, and adjacent alluvial fans sloping upward away from the bay. Major geologic units present in the vicinity of the site include Quaternary alluvial deposits and the Jurassic Franciscan Complex (Iwamura, 1995; Norris and Webb, 1990; CDMG, 1990). The Quaternary alluvial deposits consist of gravels, stiff clays, loose clayey silts, and clayey sands. The Franciscan Complex consists of a melange assemblage of sandstone, shale, chert, greenstone, and serpentinite due to the tectonics associated with a subduction zone.

Exploration at the site generally encountered variable sandy clay and silty clay, with thin interbedded sand and clayey silt layers. The sandy clay and silty clay classified as brown to grayish-brown, medium stiff to very stiff, and as exhibiting low to medium plasticity. This material is considered as exhibiting low to moderate expansion. The ground water is reported to exist approximately 7 to 10.5 feet below the existing ground surface (Calpine, 2001).

SITE SEISMICITY

Energy Commission staff reviewed the CDMG publication “Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions,” dated 1994 (CDMG, 1994), Maps of Known Active Fault Near-source Zones in California and Adjacent Parts of Nevada (International Conference of Building Officials [ICBO], 1998), and the Alquist-Priolo Milpitas Special Studies Zone Map (CDMG, 1982). The project is located within Seismic Zone 4 as delineated on Figure 16-2 of the CBC. The Coyote Creek fault crosses the proposed LECEF site and proposed linear improvements. However, since the Coyote Creek fault is not Holocene in age, it is not considered an active or potentially active fault. The closest known Holocene fault is the Hayward Fault, located approximately 5 km east of the site. CEC staff estimates a deterministic peak horizontal ground acceleration for the project would be on the order of 0.6g to 0.7g. This estimate is based upon a moment magnitude 7.5 earthquake on the Hayward Fault.

Liquefaction, Dynamic Compaction, Hydrocompaction, Subsidence, Expansive Soils, Landslides, Tsunamis, and Seiches

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 (Calpine, 2001). The borings also indicate the site is underlain by sandy to silty clay soils to the depths explored (60 feet). The applicant has identified a potentially liquefiable sand layer at approximately 23 feet from the ground surface. CEC staff have verified 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.

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.

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.

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 will obtain water from the San Jose/Santa Clara Water Pollution Control Plant via a new 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.

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.

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. Based on the staff's review of the site topography and geology as presented in the AFC (Calpine, 2001), the potential for landslides and debris-flows at the site is considered low.

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. As a result, the potential for tsunamis and seiches to affect the site is considered negligible.

GEOLOGICAL, MINERALOGICAL, AND PALEONTOLOGICAL RESOURCES

Energy Commission staff have reviewed applicable geologic maps for this area (CDMG, 1990). Based on this information and the information contained in the AFC (Calpine, 2001), 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 LECEF and the proposed linear facility improvements to support the LECEF. 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 LECEF site may contain significant paleontological resources such that mitigation procedures will be necessary (see **PAL-1** through **PAL-7)**.

GEOLOGY, MINERAL RESOURCES AND PALEONTOLOGY

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
GEOLOGY – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?		X		
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?		X		
MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
PALEONTOLOGICAL RESOURCES – Would the project:				
a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

GEOLOGY

A. Expose People or Structures to Potential Substantial Adverse Effects:

I. Rupture of Known Earthquake Faults:

The proposed LECEF and related linear facilities are not located on a fault, as delineated by the ICBO (1998).

II. Strong Seismic Ground Shaking:

The proposed project is located in CBC Seismic Zone 4. The estimated peak horizontal ground acceleration for the site is approximately 0.6g to 0.7g. All structures should be designed accordingly (See **GEN-1, GEN-5, CIVIL-1,** and **CIVIL-3** under **FACILITY DESIGN**).

III. Seismic Related Ground Failure, Including Liquefaction:

Based on site geology, impacts due to potential liquefaction of deep sand layers is considered low.

IV. Landslides:

Based on the site geology and configuration of the proposed improvements, the potential for landsliding at or adjacent to the site is considered to be low.

C. Be Located on a Geologic Unit or Soil that is Unstable:

Based on site geology, the potential for lateral spreading, subsidence, or collapse is considered low. Impacts due to potential liquefaction of deep sand layers is also considered low.

D. Be Located on an Expansive Soil:

Expansive soils are present at this site. Mitigation of expansive soils will be necessary (see **GEN-5, CIVIL-1,** and **CIVIL-3** under **FACILITY DESIGN**).

MINERAL RESOURCES

A. Result in the Loss of Availability of a Known Mineral Resource:

There are no known mineral resources beneath the project site**.**

B. Result in the Loss of Availability of a Locally Important Mineral Resource:

The site is not delineated as an important mineral resource recovery area in any land use plan or resource map.

PALEONTOLOGICAL RESOURCES

A. Directly or Indirectly Destroy a Unique Paleontological Resource:

No fossils were encountered or are known to be located on site; however, known paleontological sites have been documented near the site. As a result, a strict protocol will be required during construction (see **PAL-1** through **PAL-7**).

CUMULATIVE IMPACTS

If the LECEF project is constructed according to the proposed Conditions of Certification, it will have little or no impact on paleontologic and geologic resources. Therefore, it is staff's opinion that the project is unlikely to contribute to any significant adverse cumulative impacts on geologic or paleontologic resources.

CONCLUSIONS

The project will result in no significant impacts to the public or the environment with respect to geological hazards, geological, mineralogical, paleontological resources or to soils provided that the proposed Conditions of Certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

Conditions of Certification with respect to Geology are covered under Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** in the **FACILITY DESIGN** section. Conditions of certification for Paleontological Resources are as follows:

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.

Verification: At least 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.

At least 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:

1. A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;

2. 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;

3. 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;

4. 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;

5. 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;

6. Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

7. 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 45 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 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, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological 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.

Verification: At least 30 days prior to site mobilization (or a lesser number of days mutually agreed to by the project owner and the CPM), 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 appropriate.

PAL-4 The designated paleontological resource specialist shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potential fossil-bearing sediments have been identified. If the designated paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resource specialist.

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.

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 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 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.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activities' potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

REFERENCES

CBC (California Building Code). 1998

Calpine (Calpine c* Power), 2001. Los Esteros Critical Energy Facility Application for Certification, Volume 1, submitted to California Energy Commission on August 2001.

CDMG, 1994. Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, Scale: 1:750,000.

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CDMG, 1982. Milpitas Special Studies Zone (Alquist-Priolo) Map, Scale 1:24,000.

ICBO (International Conference of Building Officials), 1998. Map of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.

Iwamura, T.I., 1995. Hydrogeology of the Santa Clara and Coyote Valleys Groundwater Basins in Recent Geologic Studies in the San Francisco Bay Area, Sangines, E.M., Anderson, D.W., and Buising, A.V., eds. Pacific Section of the Society of Economic and Paleontologists and Mineralogists.

Norris, R.M. and Webb, R.W., 1990. Geology of California (second edition). John Wiley and Sons. New York. 365 pp.

SVP (Society for Vertebrate Paleontology), 1994. Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures.

POWER PLANT EFFICIENCY

Testimony of Steve Baker

INTRODUCTION

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

In order to support the Energy Commission's findings, this analysis will:

- examine whether the facility would likely present any adverse impacts upon energy resources;
- examine whether these adverse impacts are significant; and if so,
- examine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality Act Guidelines

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

Warren-Alquist Act

The Warren-Alquist Act allows a simple-cycle power plant, with its typically lower efficiency and greater air emissions, to be sited and operated for a period not to exceed three years, providing the plant is then either shut down or modified to combined cycle configuration and currently required air emissions control technology. The Act states "[t]hat the thermal powerplant will be modified, replaced, or removed within a period of three years with a combined-cycle thermal powerplant that uses the best available

control technology and obtains necessary offsets, as determined at the time the combined-cycle thermal powerplant is constructed, and that complies with all other applicable laws, ordinances and standards" (Pub. Resources Code, § 25552(e)(5)(B).

LOCAL

No local or county ordinances apply to power plant efficiency.

SETTING

Calpine c*Power (c*Power) proposes to construct and operate a (nominal) 180 MW simple cycle power plant to generate peaking, load following and/or baseload power, selling under contract with the California Department of Water Resources (CDWR) and on the deregulated energy market (c*Power 2001a, AFC §§ 1.1, 2.1.2, 2.2.15, 9.6, 9.6.1, 10.2.2, 10.3). (Note that this nominal rating is based upon preliminary design information and generating equipment manufacturers' guarantees. The project's actual maximum generating capacity will differ from, and may exceed, this figure.) The LECEF will consist of four General Electric LM6000 Sprint combustion turbine generators with inlet air chillers producing up to 46.5 MW each, for a total of 186 MW. The gas turbines will be equipped with water spray intercooling for power augmentation, and with water injection, selective catalytic reduction (SCR) and oxidation catalysts to control air emissions (c*Power 2001a, AFC §§ 1.1, 1.6, 2.2.2, 2.2.4).

c*Power refers to this simple cycle peaking project as LECEF Phase I. c*Power proposes to later convert the project to a 260 MW combined cycle power plant (Phase II) by adding four heat recovery steam generators and two steam turbine generators. Subsequently, c*Power may implement Phase III, which entails converting the Phase II plant to a cogeneration power plant that will provide cooling and high-reliability electric power to the planned US Dataport "Super Hub" internet server farm (c*Power 2001a, AFC §§ 1.1, 2.1, 2.1.1, 2.2.2, 9.6.2.1.3, 9.6.2.1.4, 10.2.2).

ANALYSIS

ADVERSE IMPACTS ON ENERGY RESOURCES

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

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

Project Energy Requirements and Energy Use Efficiency

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. The LECEF will burn natural gas at a nominal rate

up to 40.9 billion Btu per day LHV[1] (c*Power 2001a, AFC § 2.2.6). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies.

Under expected project conditions, electricity will be generated at a full load efficiency of 38 percent LHV (c*Power 2001a, AFC Figure 2.2-3; § 10.3; 2001b, Figure 2.2-3). This can be compared to the average fuel efficiency of a typical 1960s-era utility company baseload power plant, commonly used for peaking power, at approximately 35 percent LHV. As will be seen below, the project's fuel efficiency compares favorably to other possible peaking technologies.

Adverse Effects on Energy Supplies and Resources

The applicant has described its sources of supply of natural gas for the LECEF (c*Power 2001a, AFC §§ 1.1, 2.1.2, 2.4.3, 6, 10.2.1; Appendix 6.0). The project will burn natural gas from the existing Pacific Gas & Electric Company (PG&E) pipelines 101 and 109, which pass within 550 feet of the project site. The PG&E gas supply infrastructure is extensive, offering access to vast reserves of gas from the Rocky Mountains, Canada and the Southwest. This source represents far more gas than would be required for a project of this size. Energy Commission predictions are that natural gas supplies will be adequate for many years into the future. It is therefore highly unlikely that the LECEF could pose a substantial increase in demand for natural gas in California.

Additional Energy Supply Requirements

Natural gas fuel will be supplied to the project by a new 550 foot long, 10 inch diameter pipeline from the existing PG&E pipelines 101 and 109 (c*Power 2001a, AFC §§ 1.1, 2.1.2, 2.4.3, 6, 10.2.1). This line is of sufficient size to serve the project, and should provide adequate access to natural gas fuel. There is no real likelihood that the LECEF will require the development of additional energy supply capacity.

Compliance with Energy Standards

No standards apply to the efficiency of the LECEF or other non-cogeneration projects.

The Warren-Alquist Act requires that the project be converted to a combined cycle facility incorporating best available air emissions control technology, or be shut down, within a period of three years. This requirement is addressed in a proposed Condition of Certification, below.

Alternatives to Reduce Wasteful, Inefficient and Unnecessary Energy Consumption

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.

[1] Lower heating value.

Project Configuration

The LECEF will be configured as four simple cycle power plants in parallel, in which electricity is generated by four gas turbine generators (c*Power 2001a, AFC §§ 1.1, 2.1, 2.2.2, 2.2.4, 9.5). This configuration, with its short start-up time and fast ramping[2] capability, is well suited to providing peaking power.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The LM6000 Sprint gas turbine to be employed in the LECEF represents one of the most modern and efficient such machines now available. The applicant will employ four General Electric LM6000PC Sprint gas turbine generators (c*Power 2001a, AFC §§ 1.1, 2.2.2, 2.2.4; Figure 2.2-5; 2001b). The Sprint version of this machine is nominally rated at 48.1 MW and 39.6 percent efficiency LHV at ISO[3] conditions (GTW 2000a).

Efficiency of Alternatives to the Project

The project objective is to generate peaking, load following and/or baseload power. Power will be sold on the spot market or via contract with the CDWR (c*Power 2001a, AFC §§ 2.2.15, 9.6, 9.6.1, 10.2.2, 10.3).

Alternative Generating Technologies

The applicant addresses alternative generating technologies in its application (c*Power 2001a, AFC § 9.6.2). Oil-, coal-, gas- and municipal solid waste-burning technologies, nuclear, solar, ocean energy conversion, geothermal, hydroelectric and biomass were all considered. Given the project objective, location and air pollution control requirements, staff agrees with the applicant that only natural gas-burning, simple-cycle gas turbines are feasible. The only more efficient alternative, a combined cycle gas turbine power plant, is planned for Phase II of this project.

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel efficient machinery.

Capital cost is also important in selecting generating machinery. Recent progress in the development of gas turbines, incorporating technological advances made in the development of aircraft (jet) engines, combined with the cost advantages of assembly-line manufacturing, has made available machines that not only offer the lowest available fuel costs, but at the same time sell for the lowest per-kilowatt capital cost.

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[2] Ramping is increasing and decreasing electrical output to meet fluctuating load requirements.

[3] International Standards Organization (ISO) standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure (equivalent to sea level).

c*Power has selected the General Electric (GE) LM6000 Sprint, one of the most modern simple cycle gas turbine generators available. Alternative machines that can meet the project's objectives are:

Machine	Generating Capacity (MW)	ISO Efficiency (LHV)
GE LM2500	24.0	35.1 %
GE LM2500+	31.0	36.7 %
GE LM6000	43.5	40.2 %
GE LM6000 Sprint	**48.1**	**39.6 %**
Turbo Power FT8 Twin Pac	51.4	38.4 %

Source: GTW 2000a

The LM2500 and FT8 are aeroderivative machines, adapted from General Electric and Pratt & Whitney aircraft engines, respectively. The LM2500 is popular in ships, and sees much service in new and refitted commercial and naval vessels. The LM6000 is also an aeroderivative, based on a larger aircraft engine.

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.[4] 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 2000b).

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods.[5] The three commonly used techniques are the evaporative cooler, the fogger and the chiller. A mechanical chiller can offer greater power output than the evaporative cooler or fogger 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 boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The fogger offers the benefits of evaporative cooling without the need to handle and recycle blowdown wastewater. The difference in efficiency among these techniques is relatively insignificant.

The applicant proposes to employ mechanical chillers (c*Power 2001a, AFC §§ 2.2.2, 2.2.4, 2.2.7.1, 7.1). Given the climate at the project site and the relative lack of clear

[4] The larger industrial type gas turbines typically are single-shaft machines, with single-stage compressor and turbine. Aeroderivatives are two-shaft (or, in some cases, three-shaft) machines, with two-stage (or three-stage) compressors and turbines.

[5] A gas turbine's power output decreases as ambient air temperatures rise. The LM6000 Sprint produces peak power at 50°F; this peak output can be maintained in much hotter weather by cooling the inlet air.

superiority of one system over the other, staff agrees that the applicant's approach will yield no significant adverse energy impacts.

In conclusion, the project configuration (four simple cycle units in parallel) and generating equipment (LM6000 Sprint gas turbines) chosen appear to represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

Staff knows of two nearby major natural gas-fueled power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the LECEF. These are Calpine's 600 MW Metcalf Energy Center and 600 MW Russell City Energy Center projects. Due to the robust nature of the deregulated market for natural gas, and to the active participation of the pipeline companies that compete to serve California, Energy Commission staff believes there will be no cumulative impacts on fuel supplies due to the LECEF.

Staff further believes that construction and operation of the LECEF will not bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the LECEF. California's electric power will be generated by those power plants that bid most successfully to sell their output to the competitive market. Since no significantly more efficient peaking power plants are envisioned to compete against the LECEF, no indirect impacts are likely.

FACILITY CLOSURE

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.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The LECEF, if constructed and operated as proposed, would generate approximately 180 MW of electric power at an overall project fuel efficiency around 38 percent LHV. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the LECEF 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.

The project will either be converted to a combined cycle facility incorporating best available air emissions control technology, or will be shut down, within a period of three years.

RECOMMENDATION

Staff recommends that the Condition of Certification proposed below be adopted.

PROPOSED CONDITION OF CERTIFICATION

EFF-1 The project owner shall either convert the project to a combined cycle generating facility employing best available air emissions control technology, or shall close the plant permanently, within a period of three years from the date of this Energy Commission decision, in accordance with Public Resources Code section 25552(e)(5)(B).

Verification: Within one year of the date of this Energy Commission decision, the project owner shall submit to the CPM, for review and approval, a schedule for submitting an Application for Certification for conversion of the project to a combined cycle facility employing best available air emissions control technology. Alternatively, within one year of the date of this Energy Commission decision, the project owner shall submit to the CPM, for review and approval, a schedule for submitting a Facility Closure Plan. Either the AFC or the Closure Plan shall be pursued on a schedule that ensures that the project will be either converted to a combined cycle facility or permanently closed within three years of this Energy Commission decision.

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POWER PLANT RELIABILITY

Testimony of Steve Baker

INTRODUCTION

In this analysis, Energy Commission staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because the resulting project would likely not degrade the overall reliability of the electric system it serves (see **Setting** below).

The scope of this power plant reliability analysis covers:

- equipment availability;
- plant maintainability;
- fuel and water availability; and
- power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While Calpine c*Power (c*Power) has predicted a level of reliability for the power plant (see below), staff believes c*Power should not be held responsible for achieving this goal, so long as the plant's reliability matches or exceeds that of similar plants.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

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

In the regulated monopoly electric industry of past decades, the utility companies assured overall system reliability, in part, by maintaining a "reserve margin." This amounted to having on call, at all times, sufficient generating capacity, in the form of standby power plants, to quickly handle unexpected outages of generating or transmission facilities. The utilities generally maintained a seven-to-ten percent reserve margin, meaning that sufficient capacity was on call to quickly replace from seven to ten percent of total system resources. This margin proved adequate, in part because of the reliability of the power plants that constituted the system.

Now, in the newly restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California Independent System Operator (CaISO), which purchases, dispatches and sells electric power throughout the state. How CaISO will ensure system reliability is currently being determined; protocols are being employed that will, it is anticipated, allow sufficient reliability to be maintained under the competitive market system. "Must-run" power purchase agreements and "participating generator" agreements are two mechanisms being employed to ensure an adequate supply of reliable power (Mavis 1998, pers. comm.).

The CaISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the CaISO (Detmers 1999, pers. comm.).

The CaISO's mechanisms to ensure adequate power plant reliability apparently are being devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures may act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants exhibit individual reliability sufficiently lower than this historical level, the assumptions used by CaISO to ensure system reliability will prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone a shakeout period, and the effects of varying power plant reliability are understood and compensated for, staff deems it wise to encourage power plant owners to continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

c*Power proposes to operate the (nominal) 180 MW Los Esteros Critical Energy Facility (LECEF) as a simple cycle peaking power plant, selling peaking power through contract with the California Department of Water and Power (CDWR) and on the competitive market and providing load following and/or baseload power (c*Power 2001a, AFC §§ 1.1, 2.2.15, 2.4.1, 9.6, 9.6.1, 10.2.2, 10.3). The project is expected to operate at an annual equivalent availability factor ranging from 92 to 98 percent (c*Power 2001a, AFC §§ 2.2.2, 10.2.2).

ANALYSIS

A reliable power plant is one that is available when called upon to operate. Throughout its intended life, the LECEF will be expected to perform reliably in peaking duty. Peaking power plant systems must be able to operate for only a few hours per day without shutting down for maintenance or repairs. The plant will be shut down at night, on weekends, and in the fall, winter and spring, allowing time for maintenance and repairs. Achieving acceptable reliability is accomplished by ensuring adequate levels of

equipment availability, plant maintainability, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the project and compares them to industry norms. If they compare favorably, staff can conclude that the LECEF will be as reliable as other peaking power plants on the electric system, and will therefore not degrade system reliability.

EQUIPMENT AVAILABILITY

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

QA/QC Program

The applicant describes a QA/QC program (c*Power 2001a, AFC § 2.4.5.2) typical of the power industry. Equipment will be purchased from qualified suppliers that employ an approved QA program. Designs will be checked and equipment will be inspected on receipt; installation will be inspected and systems tested. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

Maintenance Program

c*Power proposes to establish a plant maintenance program typical of the industry (c*Power 2001a, AFC §§ 2.4.5.2, 10.2.2). A peaking plant is shut down every night, affording plenty of opportunity to perform any needed maintenance and repairs without compromising plant availability. c*Power will develop a maintenance plan during plant construction and startup that will ensure plant maintenance consistent with typical industry standards. In light of these plans, staff expects that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

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

Fuel Availability

The LECEF will burn natural gas from the Pacific Gas & Electric Company (PG&E) system. Gas will be supplied to the plant from PG&E's high pressure backbone transmission lines 101 and 109 via a new 550 foot long, ten-inch diameter pipeline (c*Power 2001a, AFC §§ 1.1, 2.1.2, 2.4.3, 6, 10.2.1). This natural gas system, which provides access to gas from the Rocky Mountains, Canada and the Southwest, represents a resource of considerable capacity. This system offers access to far more gas than the plant would require. Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs.

Water Supply Reliability

The LECEF will obtain recycled water for gas turbine injection, inlet air chiller cooling and other plant uses from the San Jose/Santa Clara Water Pollution Control Plant via a new 1,000 foot long, 18- to 24-inch diameter pipeline (c*Power 2001a, AFC §§ 1.1, 1.5.2, 2.1.2, 2.2.7.1, 2.2.7.2, 2.4.4, 7.2.1, 7.2.2). Potable water will be supplied by truck (c*Power 2001a, AFC §§ 1.1, 1.5.2, 2.4.4, 7.2.1). Note that there is no substantial consumptive use of cooling water, as would be the case with a combined cycle power plant. Staff believes these sources yield sufficient likelihood of a reliable supply of water. (For further discussion of water supply, see that portion of this document entitled **Water Resources**.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, flooding, tsunamis (tidal waves) and seiches (waves in inland bodies of water) will not likely represent a hazard for this project, but seismic shaking (earthquake) presents a credible threat to reliable operation (see those portions of this document entitled **Facility Design** and **Geology and Paleontology**).

Seismic Shaking

The site lies within Seismic Zone 4 (c*Power 2001a, AFC §§ 2.3.1, 10.2.2); see that portion of this document entitled **Geology and Paleontology**. The project will be designed and constructed to the current LORS. Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking, compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

Flooding

The 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 (c*Power 2001a, AFC § 2.3.1). Staff therefore believes that flooding presents no threat to the project.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1995 through 1999 (NERC 2000):

For Gas Turbine units (20 - 49 MW)

Availability Factor = 88.19 percent

For Gas Turbine units (50 + MW)
Availability Factor = 90.29 percent

The gas turbine that will be employed in the project, the General Electric (GE) LM6000PC, has been on the market for several years now, and can be expected to exhibit typically high availability. The applicant's prediction of an annual equivalent availability factor in the range of 92 to 98 percent (c*Power 2001a, AFC §§ 2.2.2, 10.2.2) appears reasonable compared to the NERC figures for similar plants throughout North America (see above) for two reasons.

First, since the plant will be utilized chiefly for peaking, it will be shut down many nights and weekends. Necessary maintenance, and noncritical repairs, can be performed when the plant is not dispatched, thus not affecting availability.

Second, the GE LM6000PC gas turbine generator exhibits a documented availability of 97.8 percent (c*Power 2001a, AFC § 2.2.4). This is considerably better than the NERC statistics for such machines because those statistics are heavily weighted by much older machines, some of which have seen service for over 25 years. The modern LM6000, then, can be expected to show much higher availability and reliability than the NERC statistical population.

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.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, cannot impact project reliability. Reliability impacts on the electric system from facility closure, should there be any, are dealt with in that portion of this document entitled **Transmission System Engineering**.

CONCLUSION

The applicant predicts an equivalent availability factor in the range of 92 to 98 percent, which staff believes is achievable in light of the industry norm of 88 to 90 percent availability factor for similar plants incorporating older gas turbines, and the reliability record, to date, of the gas turbines selected for this project. Based on a review of the proposal, staff concludes that the plant will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No Conditions of Certification are proposed.

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TRANSMISSION SYSTEM ENGINEERING

Testimony of Mark Hesters and Al McCuen

INTRODUCTION

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 evaluates the power plant switchyard, outlet line, termination and downstream facilities identified by the applicant and provides proposed conditions of certification to ensure the project complies with applicable LORS during the design review, construction, operation and potential closure of the project.

Additionally, under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the action," that may include facilities not licensed by the Energy Commission (Cal. Code 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 and also beyond the project's interconnection with the existing transmission system that are required as a result of the power plant addition to the California transmission system. The California Independent System Operator (Cal-ISO) is responsible for ensuring electric system reliability for all participating transmission owning utilities and determines both the standards necessary to achieve reliability and whether a proposed project conforms with those standards. The Cal-ISO will provide testimony at the Energy Commission's hearings.

SUMMARY OF CONCLUSIONS

The LECEF switchyard and the facilities connecting to the PG&E grid by temporarily tapping the Nortech – Trimble 115 kV line and then permanently connecting to the Los Esteros substation will be adequate. The power plant switchyard, outlet lines, and terminations are in accordance with good utility practices and are acceptable. Staff concludes that these facilities will comply with LORS, assuming the conditions of certification **TSE-1** through **TSE-7** are met.

The applicant has made a good faith effort to analyze the impacts of the project on the existing and planned transmission network. Due to circumstances beyond the control of the applicant, staff is unable to evaluate and identify downstream impacts, transmission facilities and/or mitigation measures required for reliable operation of the electrical transmission system after interconnection of the LECEF project. If, at a later date, it is determined that the interconnection of this project will require significant downstream transmission facilities, those facilities will be analyzed by a responsible agency.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), “Rules for Overhead Electric Line Construction,” formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.
- CPUC General Order 128 (GO-128), “Rules for Construction of Underground Electric Supply and Communications Systems,” establishes uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety.
- The National Electric Safety Code, 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- Western Systems Coordinating Council (WSCC) Reliability Criteria provides the performance standards used in assessing the reliability of the interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 “Criteria for Transmission System Contingency Performance,” which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas during major disturbances (such as loss of all lines in a right of way). While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).
- North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC’s Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions; however, the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Reliability Criteria also provide policies, standards, principles and guidelines 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.

- Cal-ISO Participating Generator Interconnection Agreement consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the paralleled generating unit.

SETTING

Existing and planned bulk transmission facilities near the proposed LECEF project area include:

EXISTING:

- Newark Substation
- Trimble Substation
- Kifer Substation
- Nortech Substation
- Metcalf Substation

PLANNED:

- Los Esteros Substation

Most of the power serving San Jose is delivered through the Metcalf and Newark substations to the local bulk power network. The local network in San Jose consists of many 115 kV substations and transmission lines. PG&E is planning to build a new Los Esteros substation as part of a new 230 kV backbone for the existing 115 kV network in the San Jose area. The LECEF project will connect directly to this system through a tap (see definition of terms) into the existing Nortech-Trimble 115 kV line until the planned Los Esteros substation is completed.

The Los Esteros substation is part of the Northeast San Jose Transmission Project that has been approved by the Cal-ISO, PG&E and, on December 17, 2001, by the California Public Utilities Commission (CPUC). The planned operation date for the Los Esteros substation was mid- to late-2002, however, with the current delays it may not be online until sometime in 2003.

PROJECT DESCRIPTION

SWITCHYARD AND INTERCONNECTION FACILITIES

The applicant will temporarily connect the plant to PG&E's transmission network by tapping into the Nortech-Trimble 115 kV line. When the Los Esteros substation is completed the LECEF will connect directly to a 115 kV bay at the new substation.

A new switchyard will be constructed adjacent to the power plant. This will be a two bus switchyard with a breaker-and-a-half arrangement. Each generator will connect to the switchyard through it's own transformer (LECEF 2001a, page 5-5). This configuration for the switchyard is acceptable.

The applicant is seeking certification for two transmission line interconnections. The final transmission line will connect the LECEF to the Los Esteros substation. However the Los Esteros substation will not be completed before the project commences operation. The LECEF is scheduled to begin operation in May of 2002 and the Los Esteros Substation is not scheduled to be complete until late 2002 or 2003. A temporary interconnection is required until the Los Esteros substation is completed.

The LECEF will need to connect temporarily to PG&E's transmission network by tapping into the Nortech-Trimble 115 kV line until the Los Esteros substation is completed. This interconnection will require two new 200-300 foot overhead transmission lines.

The final, permanent, interconnection of the LECEF will be through two 115 kV single circuit underground transmission lines connecting to the Los Esteros substation. The transmission lines will be in separate trenches approximately 5 feet wide and 6 feet deep. There will be three feet separating the two trenches. These approximately 350-foot lines will connect to planned facilities at the Los Esteros substation (LECEF 2001a, page 5-5).

Both the temporary and permanent configurations are acceptable and Condition of Certification TSE 5-a insures their compliance with CPUC GO 128 and CPUC GO 95.

ANALYSIS AND IMPACTS

NEW TRANSMISSION LINE

Besides the interconnection facilities and switchyard as proposed by the applicant (discussed above), staff is uncertain whether or not further, downstream, facilities will be required for the interconnection of the LECEF. Staff evaluated the interconnecting utilities analysis, the Facility Cost Report (FCR) for the project, and considered the Cal-ISO's Preliminary Approval to determine whether or not downstream facilities will be required for the proposed project. The FCR for the LECEF shows the need for the reconductoring of as many as four lines in the vicinity of the project. However, there is some uncertainty about the results of this study and the reconductoring requirements.

Downstream Impacts

Staff is currently uncertain about whether or not downstream facilities will be required for the interconnection. The reasons for this uncertainty are discussed in the System Reliability section of this document. This section will discuss the potential downstream facilities.

1. The Nortech – Kifer 115 kV line overloads due to the LECEF in 2005. However this line has not been constructed yet and any reconductoring[1] impacts could be avoided by building the line with at least 1113 kcm SSAC conductor.

2. The Trimble – San Jose B 115 kV could require reconductoring due to the potential for a normal overload caused by the LECEF in 2005.

3. The Los Esteros – Nortech 115 kV line overloads under normal conditions and may require reconductoring.

4. The Los Esteros - Trimble 115 kV line overloads under contingency conditions and PG&E may require reconductoring for interconnection.

5. Kifer – Scott 115 kV #1 and #2 may overload under emergency conditions and PG&E may require reconductoring for the LECEF interconnection.

The above list includes all the potential lines that may require reconductoring for the interconnection of the LECEF. PG&E currently has a policy requiring new generators to upgrade facilities in order to mitigate all emergency overloads. Staff and the Cal-ISO do not agree with this policy. Requiring a generator to pay millions of dollars to upgrade transmission facilities in order to mitigate infrequent line outages of limited duration is not reasonable. System Protection Schemes (See Remedial Action Scheme) are a much less expensive and reasonable mitigation for emergency overloads caused by new generators. The FERC will ultimately determine the required mitigation, however, that decision is not expected for months.

The short circuit study performed by PG&E evaluated the impact of the LECEF project on the fault duties within PG&E facilities (Calpine 2001d, Page 3). The study indicates that the project will not cause the overstress of any equipment. Several circuit breakers are overstressed before the project and the project increases the loading but no circuit breakers will need to be replaced due to the interconnection of the LECEF.

SYSTEM RELIABILITY

Introduction

A Facilities Cost Report and System Impact Study (SIS) are performed by the interconnecting utility for the connection of a new power plant to the existing power system grid. The SIS is part of the Facility Cost Report although for LECEF the two reports were submitted separately to the Energy Commission. The FCR and SIS determine the alternate and preferred interconnection facilities to the grid, downstream transmission system impacts and their mitigation measures which insure system conformance with performance levels required by utility reliability criteria, NERC planning standards, WSCC reliability criteria and Cal-ISO reliability criteria. The report identifies both positive and negative impacts of the project and where reliability criteria violations occur the report delineates the alternate and preferred mitigation measures.

[1] Reconductoring is the replacement of the existing conductors of a transmission line with higher capacity conductors. The Same transmission towers are used to support the new conductor.

Mitigation measures include operating procedures (system protection schemes or remedial action schemes) and adding or upgrading transmission facilities.

The reports normally include a Load Flow study, Transient Stability study, Post-transient Load Flow study and Short Circuit study 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 are conducted with and without the new generation project and its interconnection facilities for the year the project comes on line. The study must be conducted under normal system conditions (N-0) and for all credible contingency/emergency conditions. Credible contingency/emergency conditions include the loss of a single system element (N-1) such as a transmission line or a transformer or a generator and also include the simultaneous loss of two system elements (N-2), such as two transmission lines or a transmission line and a generator. In addition to above analysis, studies may be performed verifying whether sufficient active or reactive power is available in the local system or area sub-system near the proposed generator.

Any new transmission facilities such as the power plant switchyard, the outlet line, and downstream facilities where identifiable required for connecting a project to the grid are considered part of the project and are subject to the full Application for Certification review process.

Scope of Facilities Cost Report and System Impact Study

The combination of the System Impact Study and the Draft Facilities Cost Report provide analysis of the LECEF interconnection. The SIS submitted by Calpine analyzed both the temporary tap to the Nortech – Trimble 115 kV line and the permanent connection to the Los Esteros substation with summer peak conditions in 2002. The Draft FCR studied the Nortech-Trimble 115 kV tap with 2002 summer partial peak conditions and the permanent, Los Esteros substation, interconnection in 2005 with summer peak conditions. The 2002 studies analyzed the projects proposed for the first year of operation. The year 2005 was also studied because it is the first year in which all the generation projects ahead of the LECEF in PG&E's interconnection queue[2] are operating. Local projects ahead of the LECEF in the interconnection queue include the Metcalf Energy Center and a Florida Power and Light Project which has not submitted an AFC before the Energy Commission. These studies included Steady State Power Flow, Dynamic Stability Analysis and System Protection. PG&E is currently doing a update of the 2005 studies with a new load forecast for the San Jose area. The load forecast used in the FCR includes approximately 200 MW more electricity demand in 2005 in the San Jose area than the current forecast. This change should reduce some of the overloads found in the FCR but it may not completely eliminate them.

[2] In order to analyze the impacts of and to assign financial responsibility for potential system upgrades to a particular generator the utility must make assumptions about which facilities and plants are operating in the FCR. Interconnecting utilities use interconnection queues to establish which facilities and plants are considered operating in the study of the new project. Generally a project establishes its place in the queue when it pays for the Facility Cost Report.

Power Flow Study Results

Based on current study results, the SIS and FCR indicate some adverse impacts on the electrical grid due to interconnection of the LECEF as proposed. The results indicate there are overload criteria violations under both normal (N-0) and contingency (N-1 & N-2) conditions.

A. 2002 Summer Peak Study of the direct connection to the Los Esteros substation.

1. No normal overloads

2. Single line and generator (L-1/G-1) contingency overloads

a. San Jose B – FMC JCT 115 kV (varies)
Mitigation: Facilities already planned as part of a PG&E transmission project mitigate this overload so no mitigation will be required for the LECEF.

b. FMC JCT – Kifer 115 kV (2 percent overload)
Mitigation: PG&E is preparing to rerate this line as part of its 5-year plan so no mitigation will be required for the LECEF.

B. 2002 Summer Peak Study of the temporary tap into the Nortech – Trimble 115 kV line

1. No normal overloads

2. Single line and generator (L-1/G-1) contingency overloads

a. CREC JCT – Trimble 115 kV (13 percent overload)
Mitigation: No mitigation discussed in reports.

C. 2002 Summer Partial Peak Study of the temporary tap into the Nortech – Trimble 115 kV line

1. No normal overloads

2. No Single line and generator (L-1/G-1) contingency overloads

D. 2005 Summer Peak – Draft FCR High San Jose loads - study of the direct connection to Los Esteros substation.

1. Normal Overloads

a. Nortech-Kifer 115 kV (7 percent overload)
Mitigation: This line has not been built. Building the line with a larger conductor would avoid reconductoring impacts and mitigate this overload.

b. Trimble – San Jose B 115 kV (7 percent overload)
Mitigation: To prevent this overload this line will need to be reconductored.

c. Los Esteros - Nortech 115 kV (Overload Increases from 17 percent to 28 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

E. Single line and generator (L-1/G-1) contingency overloads

1. Trimble – San Jose B 115 kV (Overload Increases from 35 percent to 56 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

2. Trimble – Los Esteros 115 kV (Overload increases from 1 percent to 13 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

3. San Jose B – FMC Jct 115 kV (Overload increases from 90 percent to 94 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

4. FMC Jct – Kifer 115 kV (Overload increases from 54 percent to 58 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

5. Los Esteros – Nortech 115 kV (Overload increases from 18 percent to 26 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

6. Nortech - Kifer 115 kV (Overload increases from 13 percent to 22 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

7. Kifer – Scott #2 115 kV (Overload increases from 23 percent to 29 percent)
Mitigation: PG&E or the project that first causes the problem should mitigate this overload.

F. 2005 Summer Peak – with revised San Jose Loads (~200 MW less than previous forecast) - study of the direct connection to Los Esteros substation.

Staff has not seen the results of this study. However, staff expects that reducing the local load by 200 MW will relieve some of the pre and post project overloads shown in the previous studies. Until the results of interconnection study with the revised loads is

submitted staff will not know which overloads Calpine is required to mitigate for the LECEF.

Calpine has made a good faith effort to identify the potential impacts of the LECEF on PG&E's transmission network. It is apparent from the listed, potential, impacts of the LECEF that whether or not the project will require downstream transmission facilities is uncertain. No specific downstream facilities can be identified that are a reasonably foreseeable consequence of the project. There are no overloads caused by the project under normal system conditions in the first year of operation, 2002. In 2005, with a 600 MW Florida Power and Light (FP&L) project (that hasn't filed an AFC at the Energy Commission) connected to the Los Esteros substation, there are two normal overloads that will probably not occur with the revised San Jose load forecast and one overload that probably only occurs with the FP&L project. All of these normal overloads are several years after the project begins operation and dependent on the status of another, uncertain, project. Staff and the Cal-ISO believe that new generators should mitigate emergency overloads with System Protection Schemes that do not require significant downstream facilities. Thus it is uncertain whether or not LECEF will be responsible for significant downstream transmission facilities. The applicant should not be required to provide environmental analysis of uncertain, speculative downstream transmission facilities.

Transient Stability Study Results

Dynamic stability studies were conducted by PG&E to determine if the LECEF would create any adverse impact on the stable operation of the transmission grid following selected Cal-ISO category B (N-1) & C (N-2) outages. The results indicate there are no transient stability concerns on the transmission system following the selected disturbances for integration of the LECEF project (Calpine 2001d, Pages 10 and 11).

Short Circuit Study Results

The short circuit study performed by PG&E evaluated the impact of the LECEF project on the fault duties at PG&E facilities. The short circuit study indicates that the LECEF project will not be responsible for replacing any circuit breakers (Calpine 2001d, pages 13 and 14).

CUMULATIVE IMPACTS

The LECEF is 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 Metcalf Energy Center, the Moss Landing Power Plant Project, the Gilroy City LM6000 Project, the Russell City Energy Center, and an unnamed project at Watsonville (Calpine 2001d, page 9). The 2005 Summer Peak study in the FCR for LECEF is a peak analysis that includes all of the listed projects that would have a significant impact on the San Jose area. The significant number of emergency overloads shown in this study indicate that the network is reaching its capability for new generation. When the details of this study are worked out between staff, PG&E, Calpine and the Cal-ISO the cumulative impacts of all these projects will be known and the Cal-ISO and PG&E will assure that impacts are mitigated.

Alternative Transmission Line Routes

The applicant considered four transmission interconnection alternatives as follows (Calpine 2001a, pages 5-6 and 5-7):

1. Direct connection to the Los Esteros via two overhead circuits

2. Looping the Nortech – Los Esteros 115 kV line into the LECEF switchyard

3. Looping the Trimble – Los Esteros 115 kV line into the LECEF switchyard

4. Looping the Montague – Los Esteros 115 kV line into the LECEF switchyard.

COMPLIANCE WITH LORS

With the adoption of the recommended conditions of certification the LECEF will comply with LORS.

FACILITY CLOSURE

The parallel operation of generating stations is controlled, in part by CPUC Rule 21, which provides for contractual provisions, which may be developed, to provide backup or other power service during extended periods of non-operation and codify procedures to be followed during parallel operation. Procedures for planned, unexpected temporary closure and unexpected permanent closure must be developed or verified to facilitate effective communication and coordination between the generating station owner, PTO and the Cal-ISO to ensure safety and system reliability.

CPUC General Order 95, Rule 31.6 requires that "lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property." Condition of certification **TSE-5A** requires compliance with this rule.

The ability of the above LORS to reasonably assure safe and reliable conditions in the event of facility closure was evaluated for three scenarios: Planned Closure, Unexpected Temporary Closure, and Unexpected Permanent Closure. 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 requirement for the owner to provide a closure plan 12 months prior to closure in conjunction with applicable LORS is considered sufficient to provide adequately for safety and reliability. For instance, a planned closure provides time for the owner to coordinate with the PTO[3] to assure (as one example) that the PTO's system will not be closed into the outlet thus energizing the power plant switchyard. Alternatively, the owner may coordinate with the PTO to maintain some power service via the outlet line to supply critical station service equipment or other loads[4].

[3] The PTO in this instance is PG&E e.g., the system owner to which the project is interconnected.

[4] These are mere examples; many more exist.

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 establishment of an on-site contingency plan (**see General Conditions Including Compliance Monitoring and Closure Plan**). Unexpected Temporary Closure occurs when the project owner closes the facility suddenly and/or unexpectedly, or abandons the facility or a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. An on-site contingency plan that is in place and approved by the CPM prior to the beginning of commercial operation of the facilities will be developed to assure safety and reliability (see **General Conditions Including Compliance Monitoring and Closure Plan**).

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff concludes that the LECEF project may cause some negative impacts on the transmission system. However, specific impacts are unclear and speculative despite a good faith effort on the part of Calpine. If impacts are determined at a later date the environmental impacts of downstream transmission facilities will be analyzed by a responsible agency, the CPUC. Condition of certification **TSE-5** will assure conformance with reliablility criteria.

A. Staff concludes the LECEF switchyard and the facilities connecting to the PG&E grid by temporarily tapping the Nortech – Trimble 115 kV line and then permanently connecting to the Los Esteros substation will be adequate. Both configurations are acceptable. This will be assured by Conditions of Certification **TSE-1** through **TSE-7**

B. The power plant switchyard, outlet lines, and terminations are in accordance with good utility practices and are acceptable. Staff concludes that these facilities will comply with LORS, assuming the Conditions of Certification **TSE-1** through **TSE-7** are met.

RECOMMENDATIONS

If the Commission approves the project Staff recommends that the following Conditions of Certification be implemented to insure compliance with LORS.

PROPOSED 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

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. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.]

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

may be the responsibility of a separate California registered electrical engineer. The 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:

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

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

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

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

TSE-3 The project owner shall keep the CBO informed regarding the status of engineering design and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM to be included in response to **TSE-3**. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner

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

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

A. receipt or delay of major electrical equipment;

B. esting or energization of major electrical equipment; and

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

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

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

A. The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), CPUC GO 128, Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", National Electric Code (NEC) and related industry standards.

B. Breakers and buses in the power plant 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 PG&E interconnection standards.

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

F. The project owner shall provide:

1. The final Detailed Interconnection Facility Study (DIFS) including a description of facility upgrades, operational mitigation measures, and/or Remedial Action Scheme (RAS) sequencing and timing if applicable,

2. Executed Generation Interconnection Facility Agreement,

3. Verification of Cal-ISO Notice of Synchronization.

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

A. Design drawings, specifications and calculations conforming with CPUC General Order 95 or NESC, CPUC GO 128, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, 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"[5] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, CPUC GO 128, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, 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-5A** through **F** above.

D. The Facilities Study and Generation Interconnection Facility Agreement shall be provided concurrently to the CPM and CBO.

TSE-6 The project owner shall inform the CPM and CBO of any impending changes, which may not conform to the requirements **TSE-5A** through **F**, and have not received CPM and CBO approval, and request approval to implement such changes. A detailed description of the proposed change and complete

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

engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

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

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

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

Verification: The applicant shall provide copies of the Cal-ISO letter to the CPM when it is sent to the Cal-ISO one (1) week prior to initial synchronization with the grid. 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 General Order 95 or NESC, CPUC GO 128, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards 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 General Order 95 or NESC, CPUC GO 128, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards and 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 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”.

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

REFERENCES

Cal-ISO (California Independent System Operator). 1998a. Cal-ISO Tariff Scheduling Protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated.

Cal-ISO (California Independent System Operator). 1998b. Cal-ISO Dispatch Protocol posted April 1998.

Calpine c*Power (Calpine). 2001a. Application for Certification, Los Esteros Critical Energy Center (01-AFC-12). 2 Volumes. Submitted to the California Energy Commission on August 7, 2001.

Calpine c*Power (Calpine). 2001d. Letter from CH2MHILL to Bob Worl, Pacfic Gas and Electric’s Draft Facilities Cost Report. Submitted to the California Energy Commission on November 9, 2001.

NERC (North American Electric Reliability Council) 1998. NERC Planning Standards, September 1997.

WSCC (Western Systems Coordinating Council) 1997. Reliability Criteria, August 1998.

DEFINITION OF TERMS

ACSR	Aluminum cable steel reinforced.
AASS	Aluminum cable steel supported.
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.
Kiloamp (kA)	1,000 Amperes
Bundled	Two wires, 18 inches apart.
Bus	Conductors that serve as a common connection for two or more circuits.
Conductor	The part of the transmission line (the wire) that carries the current.
Congestion Management	Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports) will not violate criteria.
Emergency Overload	See Single Contingency. This is also called an L-1.
Kcmil or kcm	Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.
Kilovolt (kV)	A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground. 1,000 Volts.
Loop	An electrical cul de sac. A transmission configuration that interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.
Megavar	One megavolt ampere reactive.

Megavars	Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.
Megavolt ampere (MVA)	A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.
Megawatt (MW)	A unit of power equivalent to 1,341 horsepower.
Normal Operation/ Normal Overload	When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.
N-1 Condition	See Single Contingency.
Outlet	Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.
Power Flow Analysis	A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.
Reactive Power	Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.
Remedial Action Scheme (RAS)	A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.
SF6	Sulfur hexafluoride is an insulating medium.
Single Contingency	Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.
Solid Dielectric Cable	Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

Switchyard	A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.
Thermal rating	See ampacity.
TSE	Transmission System Engineering.
TRV	Transient Recovery Voltage
Tap	A transmission configuration creating an interconnection through a sort single circuit to a small or medium sized load or a generator. The new single circuit line is inserted into an existing circuit by utilizing breakers at existing terminals of the circuit, rather than installing breakers at the interconnection in a new switchyard.
Undercrossing	A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.
Underbuild	A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

ALTERNATIVES

Testimony of Richard Ratliff and Robert Worl

INTRODUCTION

The purpose of staff's alternatives analysis is to identify the potential significant impacts of the Los Esteros Critical Energy Facility (LECEF) project (as defined in the other sections of this staff assessment) and then evaluate whether there are alternatives capable of reducing or avoiding those impacts. This information is provided to inform the decision makers in this case. If an alternative is identified that meets these criteria, the energy commission may only disapprove the proposed project. The energy commission does not have the authority to approve the alternative or require the applicant to move the proposed project to another location

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Calpine c*Power proposes to interconnect the proposed LECEF to the Los Esteros Substation. The substation was recently approved by the California Public Utilities Commission. Pending construction of the substation, LECEF would connect to the grid through a temporary 2,000-foot long interconnection to the 115kV Nortech-Trimble line adjacent to the site. The Energy Commission is the Lead Agency under CEQA.

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulation Section 15126.6(a), provides direction by requiring an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the "no project" alternative (Cal. Code Regs., tit. 14, Section 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. CEQA states that an environmental document does not have to consider an alternative of which the effect cannot be reasonably ascertained and of which the implementation is remote and speculative (Cal. Code Regs., tit. 14, Section 15125(d)(5)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (City of Santee v. County of San Diego (4th Dist. 1989) 214 Cal. App. 3d 1438).

PROJECT DESCRIPTION AND SETTING

The proposed LECEF is a nominal 180-net-MW, simple cycle plant that would be located on 15 acres of a 55-acre parcel owned by the applicant, northeast of the junction of Zanker Road and State Route 237. The larger parcel, as well as adjacent parcel totaling 174 acres is the planned and approved site for the PG&E Los Esteros substation and the City of San Jose-approved U.S. Dataport facility. The site is located in north San Jose, Santa Clara County, California.

The LECEF would consist of the power plant, an onsite 115 kilovolt (kV) switchyard and approximately 2,000 feet of new temporary 115-kV transmission line. Upon completion of the PG&E Los Esteros Substation, LECEF would connect through an underground interconnection of approximately 400 feet in length. Natural gas would be delivered through 550 feet of new 10-inch pipeline that would connect to the existing PG&E 101 and 109 pipelines, that parallel SR237 at the south edge of the project property. The San Jose-Santa Clara Water Pollution Control Plant would supply recycled water to the LECEF from an existing pipeline adjacent to the proposed LECEF through a new 1,000-foot pipeline (Calpine c*Power, 2001). A more detailed description of the proposed project and its setting is provided in the **Project Description** section.

SCOPE AND METHODOLOGY OF THE ALTERNATIVES ANALYSIS

The purpose of staff's alternatives analysis is to provide a reasonable range of feasible alternatives that could substantially reduce or avoid any potentially significant adverse impacts of the proposed project. To accomplish this, staff must determine the appropriate scope of analysis. Consequently, it is necessary to identify and determine the potentially significant impacts of the proposed project and then focus on alternatives that are capable of reducing or avoiding significant impacts.

To prepare the alternatives analysis, staff used the methodology summarized below:

- describe the basic objectives of the project.
- Identify the potential significant environmental impacts of the project.
- Identify and evaluate technology alternatives to the project that could mitigate project impacts.
- Identify and evaluate alternative sites for the project to determine whether these sites could reduce or eliminate project impacts.
- Evaluate the "No Project" Alternative to determine whether this alternative would be superior to the project as proposed.

Alternatives to the proposed project include two general types: (1) other sites where the proposed project (a natural gas burning turbine) could be utilized, and (2) different power generation technologies (not requiring natural gas as fuel). These alternatives are discussed and evaluated below.

PROJECT OBJECTIVES

After studying the Application for Certification (AFC), the Energy Commission staff has determined the Los Esteros Critical Energy Facility (LECEF) project objectives to be:

- To provide electrical energy in the newly deregulated power market;
- To be located near key infrastructure including transmission line interconnections, supplies of natural gas, and recycled water;

- 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;
- Add support and reliability to the North San Jose Transmission Reinforcement Project recently approved by the CPUC; and
- LECEF to be on line for the summer of 2002.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

Staff's assessment of environmental impacts is presented in detail in the individual sections of this Staff Assessment. With the proposed conditions of certification, all potential impacts to public health and safety, the environment, and the electric transmission system have been reduced below a level of significance. The proposed project would not conform to the City of San Jose zoning ordinances. However, if the City approves Calpine's application for a change in the zoning of the site, the project will comply with local, state, and federal laws and ordinances.

Several areas of concern are discussed below but with the proposed mitigation, staff believes the impacts are fully mitigated.

Air Quality

The LECEF, with the implementation of the measures contained in the conditions of certification, will not cause or contribute to any violations of applicable ambient air quality standards. Air quality impacts from the project, including directly emitted PM_{10}, NO_x, the ozone precursor emissions of NO_x and VOC, and PM_{10} precursors of NO_x and SO_2 could be significant if left unmitigated. The applicant will reduce emissions to the extent feasible by using Best Available Control Technology, providing emission offsets obtained from stationary sources within the airshed, and through the implementation of an approved PM_{10} mitigation plan to be managed by the Bay Area Air Quality Management District.

Biological Resources

Staff has determined that the project will pose less than significant impacts to biological resources with the implementation of measures contained in the conditions of certification. The applicant has proposed a mitigation plan for potential nitrogen deposition on habitat critical to bay checkerspot butterfly. Other conditions of certification address the mitigation for potential Ordinance tree loss, burrowing owl habitat, impact of the outfall to Coyote Creek, and proper landscaping around the facility.

Soils and Water Resources

Staff has determined that the proposed project would result in less than significant impacts to soil and water resources if the conditions of certification are implemented insuring proper management of the return water to the Water Pollution Control Plant, storm water, and the construction of an outfall line extending to Coyote Creek.

Land Use

As proposed, the LECEF would be located on a parcel owned by the applicant. The parcel is not zoned for an electrical generation facility such as LECEF. Calpine has applied for a change in the zoning that would allow the LECEF. The City of San Jose plans to act on Calpine's application in January (Mayor Ron Gonzales letter dated December 11, 2001). If the zoning change requested in the application is granted by the City, the project would then be in conformance with the zoning ordinances.

SITE ALTERNATIVES

The purpose of this section is to evaluate the site alternatives provided by the Applicant and to consider other site possibilities. The evaluation criteria for each site are the following: 1) Will the alternative fulfill the project objectives? 2) Will it reduce the potential significant impacts identified for the proposed project? 3) Will it cause other significant environmental impacts?

Potential alternative sites were therefore considered if they met the following requirements:

- Appropriate zoning or the likelihood that the zoning would be changed in the near future to allow an electric generation facility;
- Sufficient land available to construct and operate a generating facility of this size. The proposed power plant requires at least 15 acres of land using the proposed technology (Calpine c*Power, 2001);
- Connections to infrastructure (gas, recycled water, transmission system) available within a reasonable distance.
- Ease of interconnecting with the PG&E Los Esteros Substation and the U.S. Dataport projects, both of which are approved projects for the current site.

Staff examined two site alternatives in this report as illustrated on **Alternatives Figure 1**:

- One site was is located in South San Jose within the Avendale Redevelopment Area,
- The second site is the Cilker property and a portion of the Water Pollution Control Project buffer lands to the north and east of the current site.

ALTERNATIVES Figure 1

Map of Proposed Project and Alternative Sites

EDENVALE REDEVELOPMENT AREA

This property was examined by the applicant in the AFC. The vacant land in the area is designated on the General Plan and zoned for industrial park and office uses. The site is east of Highway 101 between Silver Creek Valley Road and Silicon Valley Boulevard. It was initially reviewed as an alternative site for the US DataPort project. Parcels would have to be acquired from several owners to create a site large enough for the LECEF and the U.S. Dataport projects. There is existing access to recycled water, the transmission lines able to accept an interconnection, and natural gas is available. Rezoning to accommodate an electrical generating facility the size of LECEF may be required.

Advantages

- **Transportation**: The site location may have less impact on heavily traveled area road systems, since it is south of many recent San Jose area developments. In addition, since it is open land, impacts to existing or planned infrastructure may be reduced.
- **Visual**: The site may pose fewer visual resource conflicts than the proposed site, though compatibility with other planned projects in the area is unknown at this time.
- **Land Use**: This site is the only other open land location in the San Jose area capable of accommodating projects the size of the LECEF, and the U.S. Dataport projects. Planned uses in the Edenvale Revelopment Area would be compatible with the proposed LECEF.
- **Air Quality**: Impacts from power plant emissions would remain substantially the same as the current proposed LECEF location.

Disadvantages

- **Land Use**: It would take time to negotiate site acquisition. This would prevent a summer on-line schedule. In addition, there may be zoning changes required for a power plant the size of the LECEF.
- **Noise**: The potential for noise impacts on some planned nearby receptors may be greater than that of the proposed site. In addition, there maybe the potential for impacts to certain business developments envisioned for the area by the City of San Jose.
- **Transmission System**: This site is several miles south of the proposed North San Jose Transmission System Reinforcement Project. This would eliminate the potential for an interconnection with the Los Esteros substation and the increased system reliability for the North San Jose development area. In addition, the time delay associated with moving the project to this site would prevent availability of the generating capacity from LECEF for summer 2002 reliability.

CILKER AND WPCP PROPERTIES SITE

This site encompasses the northern section of the proposed project site as well as a portion of the Water Pollution Control Plant's buffer lands. The Cilker property is currently optioned for the US Dataport project. The Southern portion this property would overlap land planned for construction of the PG&E Los Esteros substation.

Advantages

- **Land Use**: Currently the site is occupied by drying ponds on the buffer lands, and by agricultural uses on the Cilker portion of the property. The City would be able to rezone this property to accommodate the LECEF, as well as a reconfigured U.S. Dataport project and location for the proposed substation. Neither of these associated projects have undergone final site selection or begun construction.
- **Air Quality**: This site would provide the same advantages as the project site in terms of emissions modeling, potential impacts, and mitigation options for NO_x and PM_{10}.
- **Noise**: Impacts from Noise would be somewhat reduced through the additional space created between the LECEF and receptors near SR 237.

Disadvantages

- **Linear Facilities**: The transmission system interconnection would be lengthened by at least 500 feet. Though a gas interconnection is possible close to this site, the reliability of a dual interconnection would require a second pipeline interconnection to the original proposed site near SR 237.
- Impact on Other Projects: This location would have greater visual and noise impacts on the proposed extension of the Bay Trail proposed for the northern project boundary. In addition, the proposed and approved U.S. Dataport project, and the Los Esteros Substation would need to be reconfigured in relation to their currently approved locations, with a possible need for revision of zoning ordinances already existing or planned by the City of San Jose.

THE "NO PROJECT" ALTERNATIVE

CEQA Guidelines and Energy Commission regulations require consideration of the "No Project" Alternative. This alternative assumes that the project is not constructed, and the impacts of that scenario are compared to those of the proposed project.

The LECEF is proposed under the Energy Commission's expedited power plant review process, which is intended to provide power within a short timeframe to serve California's growing demand.

In the AFC, the Applicant states 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 proposed project would bring to San Jose and the Northeastern Transmission System Reinforcement

Project service area, including increased property taxes, employment, sales taxes, and sales of services, (**Socioeconomics** chapter of this Staff Assessment).

The LECEF is itself a project alternative required by the City of San Jose when it annexed and rezoned the area for the U.S. Dataport project. When the San Jose City Council acted as lead agency to rezone the property for the U.S. Dataport project, it included a condition of approval requiring the project to develop an alternative backup generation source for the facility that would reduce air quality impacts. The diesel generators originally proposed for the project have emissions that are orders of magnitude higher than a modern gas-fired facility, which prompted San Jose to require an alternative generation solution. The result is the LECEF project, a modern, low-emission, gas-fired generation project.

In light of the above, the critical LECEF project objective is to provide the electrical backup reliability for the U.S. Dataport project. The U.S. Dataport project has already been proposed for a specific site, and the project has been the subject of an extensive EIR. Based on that EIR, the lead agency (San Jose) annexed and rezoned the U.S. Dataport project site. Given this background, there are no appropriate site alternatives for the LECEF project. In addition, there are no generation alternatives (such as biomass, hydroelectric power, geothermal, or wind) which could meet the fundamental project objective of serving the U.S. Dataport project.

The “no project alternative” would presumably be the situation that would result were the LECEF project not licensed. In such an event, the U.S. Dataport project would be required to develop a different backup generation source to provide the level of reliability that is required for internet server farms. The most obvious alternative backup source is the original U.S. Dataport proposal, which was comprised of an approximately 40 MW gas-fired power plant (not subject to Energy Commission jurisdiction) supplemented by approximately 160 MW of backup diesel-fired generation. (U.S. Dataport DEIR, Vol 1, p.8.) This, of course, is the very project proposal for which LECEF was developed as a mitigation alternative. The other conceivable “no project” scenario would be to build U.S. Dataport without a backup energy source. However, as the project has been described in the DEIR, extraordinary levels of electric reliability are fundamental to the project, and absence of such reliability would make the project infeasible.

Compared to LECEF, “no project” would appear to be an environmentally inferior alternative. Concern over the impacts of diesel backup emissions, which are a toxic air contaminant and would be emitted near ground level, gave rise to the LECEF project as a mitigation measure.

ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

This section describes alternatives that did not satisfy the screening criteria for inclusion in the analysis.

TECHNOLOGY ALTERNATIVES

Conservation And Demand-Side Management

Conservation and demand-side management (DSM) include a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Since 1975, the displaced peak demand from all of these efforts has been roughly the equivalent of eighteen 500-megawatt power plants. The annual impact of building and appliance standards has increased steadily, from 600 MW in 1980 to 5,400 MW in 2000, as more new buildings and homes are built under increasingly efficient standards. Savings from energy efficiency programs implemented by utilities and state agencies have also increased (from 750 to 3,300 MW). Recent demand reducing proposals from the Governor and Legislature are expected to have an impact of over 2,000 MW during the summer of 2001 and an impact of over 3,400 MW when they are fully implemented. In addition, voluntary conservation measures adopted by residential and commercial/industrial users in response to the current energy situation led to a 7.5 percent drop in electricity use throughout the state as of August 2001, but that dropped to 1.5 percent in October 2001 (Energy Commission, 2001b).

GENERATION TECHNOLOGY ALTERNATIVES

Staff considered alternative generation technologies that do not burn fossil fuels, such as solar, wind, biomass, geothermal, and hydropower.

Solar and Wind Generation

Solar and wind generation eliminate air pollutant emissions. Water consumption for both wind and solar generation is substantially less than for a natural gas fired plant because there is no thermal cooling requirement.

However, solar and wind resources would require large land areas in order to generate 91.4 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure (such as desert areas of San Bernardino County), central receiver solar thermal projects require approximately five acres per MW, so 180MW solar thermal project would require approximately 900 acres, or over 60 times the amount of land area taken by the proposed plant site. Parabolic trough solar thermal technology requires similar acreage per megawatt. Depending on the size of the wind turbines, wind generation “farms” generally can require between 5 and 17 acres to generate one megawatt (resulting in the need for between approximately 900 and 3,060 acres to generate 180 MW) (Energy Commission, 2001c). Additionally, solar and wind energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight and wind resources. Based on the above analysis, practicality diminishes further considering the expansion to 260 MW of capacity as a combined-cycle facility as required of the LECEF within three years of permitting.

Although air emissions are significantly reduced or eliminated for both wind and solar facilities, both can have significant visual effects. Wind turbines can also cause bird mortality resulting from collision with rotating blades.

Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 180 MW LECEF project.

Geothermal

Geothermal technologies use steam or high-temperature water (HTW) obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. There are vapor dominated resources (dry, super-heated steam) and liquid-dominated resources where various techniques are utilized to extract energy from the HTW. Geothermal is a commercially available technology, but it is limited to areas geologic conditions resulting in high subsurface temperatures. There are no viable geothermal resources in the San Jose or Santa Clara County area (Energy Commission, 2001d).

Hydropower

Hydropower facilities require large quantities of water (either stored or flowing water), and sufficient topography to allow power generation as water drops in elevation and flows through a turbine. These facilities are generally dependent on water flow to generate power, so they cannot serve immediate demand like a peaker plant does. Water flow required for power generation is not available in the project area.

Conclusion Regarding Alternative Technologies

Because of the typically lower efficiencies, specific resource needs, and intermittent availability of alternative generation technologies, they do not fulfill a basic objective of this plant: which is to provide reliable peak power upon demand. No alternative technology could practically supply the power needed to support either the U.S. Dataport or the North San Jose Transmission Reinforcement Project. Consequently, staff does not believe that geothermal, hydropower, solar, wind and biomass technologies present feasible alternatives to the proposed project.

CONCLUSIONS AND RECOMMENDATION

Staff does not believe that alternative technologies (geothermal, solar, wind, biomass, and hydroelectric) currently present feasible alternatives to the proposed project, since the major objectives of the LECEF project are to provide power to the grid on demand, to be a source of reliable electrical power for the U.S. Dataport server farm project, to support the grid enhancements planned for the north San Jose area, or to be available by the summer of 2002.

The No Project Alternative would eliminate the specific environmental impacts of this plant at the proposed site. However, it would not meet the State's policy goals of increasing in-state generation within the next year nor would it be useful in increasing output and reliability in the northern San Jose area. Compared to LECEF, "no project" would appear to be an environmentally inferior alternative. Concern over the impacts of

diesel backup emissions, which are a toxic air contaminant and would be emitted near ground level, gave rise to the LECEF project as a mitigation measure.

The project site alternatives considered in this section offer some advantages and disadvantages in comparison to the proposed project. However, no unmitigated significant impacts have been identified for the proposed project. The Edenvale project site would have significant timing impacts due to site acquisition, and possible zoning needs, as well as unknown potential for air quality impacts on other planned projects. The Cilker and WPCP lands site has the potential of increasing impacts for visual and noise, as well as impacting the plans for both the U.S. Dataport and Los Esteros substation projects. A move to either site would have negative impacts on the availability of the LECEF for needed power generation in the summer of 2002.

The alternatives considered in this section offer some advantages, and disadvantages in comparison to the proposed project. However, there are no unmitigated significant impacts identified for the proposed project. Therefore, no alternative is recommended over the proposed Los Esteros Critical Energy Facility.

REFERENCES

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GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

Testimony of Stephanie Quick

INTRODUCTION

The project General Conditions Including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of the following elements:

1. General conditions that:

    a. set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

    b. set forth the requirements for handling confidential records and maintaining the compliance record;

    c. state procedures for settling disputes and making post-certification changes;

    d. state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy

    e. Commission approved conditions; and

    f. establish requirements for facility closure plans.

2. Specific conditions of certification:

    a. Specific conditions of certification that follow each technical area contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of verifying that the condition has been satisfied.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

To ensure consistency, continuity and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification:

SITE MOBILIZATION:

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

GROUND DISTURBANCE:

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

GRADING:

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

CONSTRUCTION:

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

a. The installation of environmental monitoring equipment.

b. A soil or geological investigation.

c. A topographical survey.

d. Any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility.

e. Any work to provide access to the site for any of the purposes specified in a., b., c., or d.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

1. ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission Decision;

2. resolving complaints;

3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;

4. documenting and tracking compliance filings; and,

5. ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the 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, it should be understood that the approval would involve all appropriate staff and management.

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

2. all monthly and annual compliance reports filed by the project owner;

3. all complaints of noncompliance filed with the Energy Commission; and,

4. all petitions for project or condition changes and the resulting staff or Energy Commission action taken.

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.

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 records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record

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

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

Compliance Verifications

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

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

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

2. appropriate letters from delegate agencies verifying compliance;

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

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

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

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

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

All submittals shall be addressed as follows:

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

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

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

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, and

7. the compliance status for each condition (e.g., “not started”, “in progress” or “completed date”).

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

Pre-Construction Matrix

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. It will be in the same format as the compliance matrix referenced above.

Tasks Prior to Start of Construction

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. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that pre-construction activities that are initiated prior to certification are performed at the owner’s own risk. Failure to allow specified lead-time may cause delays in start of construction.

Various lead times for verification submittals 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.

Monthly Compliance Report

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

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;

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

4. a list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;

5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;

6. a cumulative listing of any approved changes to conditions of certification;

7. a listing of any filings with, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;

9. a listing of the month's additions to the on-site compliance file; and

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

11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The 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, and

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

10. a listing of complaints, notices of violation, official warnings, and citations received during the year; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Confidential Information

Any information, which 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, which is determined to be confidential, shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars ($850). The payment instrument shall be provided to the Commission's Project Manager at the time of project certification and shall be made payable to the California Department of Fish and Game. The Commission's Project Manager will submit the payment to the Office of

Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

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 construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at www.energy.ca.gov/sitingcases. Any changes to the telephone number shall be submitted immediately to the CPM who will update the web page.

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

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME:
AFC Number:

COMPLAINT LOG NUMBER _____
Complainant's name and address:

Phone number:

Date and time complaint received:

Indicate if by telephone or in writing (attach copy if written):
Date of first occurrence:

Description of complaint (including dates, frequency, and duration):

Findings of investigation by plant personnel:

Indicate if complaint relates to violation of a CEC requirement:
Date complainant contacted to discuss findings:

Description of corrective measures taken or other complaint resolution:

Indicate if complainant agrees with proposed resolution:
If not, explain:

Other relevant information:

If corrective action necessary, date completed:
Date first letter sent to complainant: _____(copy attached)
Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct.
Plant Manager's Signature: _____ Date:

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

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 which provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. LORS pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

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

PLANNED CLOSURE

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.

UNEXPECTED TEMPORARY CLOSURE

An unplanned unexpected 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.

UNEXPECTED PERMANENT CLOSURE

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order 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:

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

2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

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

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

Also, 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 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 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 Commission approval of the facility closure plan is obtained.

UNEXPECTED TEMPORARY CLOSURE

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

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and

recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

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

In addition, consistent with requirements under unexpected 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 unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., 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 a temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with that 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).

UNEXPECTED PERMANENT CLOSURE

The on-site contingency plan required for unexpected temporary closure shall also cover unexpected permanent facility closure. All of the requirements specified for unexpected temporary closure shall also apply to unexpected 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 unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., 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 that for a planned closure shall be developed and submitted to the CPM within 90 days of the permanent closure (or other period of time agreed to by the CPM).

DELEGATE AGENCIES

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

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

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

ENFORCEMENT

The 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 Commission Decision. The specific action and amount of any fines the 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, inadvertence, unforeseeable events, and other factors the Commission may consider.

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

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the 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 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 the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) 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 forty-eight (48) hours, followed by a written report filed within seven (7) 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 fourteen (14) days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2. secure the attendance of appropriate Energy Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;

3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and,

4. after the conclusion of such a meeting, promptly prepare 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 Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

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

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

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.
The criteria that determine which type of change process applies are explained below.

AMENDMENT

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

INSIGNIFICANT PROJECT CHANGE

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

VERIFICATION CHANGE

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

KEY EVENT LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Rough Grading	
Start Construction	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
SYNCHRONIZATION WITH GRID	
COMPLETE T/L CONSTRUCTION	
FUEL SUPPLY LINE ACTIVITIES	
Start Fuel Supply Line Construction	
COMPLETE FUEL SUPPLY LINE CONSTRUCTION	
WATER SUPPLY LINE ACTIVITIES	
START WATER SUPPLY LINE CONSTRUCTION	
COMPLETE WATER SUPPLY LINE CONSTRUCTION	

LOS ESTEROS CRITICAL ENERGY FACILIGY PREPARATION TEAM

Executive Summary	**Robert Worl**
Introduction	**Robert Worl**
Project Description	**Robert Worl**
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Public Health	**Alvin Greenberg, Ph.D.**
Worker Safety and Fire Protection	**Alvin Greenberg, Ph.D.**
Transmission Line Safety and Nuisance	**Obed Odoemelam**
Hazardous Materials	**Alvin Greenberg, Ph.D. and Rick Tyler**
Waste Management	**Alvin Greenberg, Ph.D.**
Land Use	**Negar Vahidi**
Traffic and Transportation	**Matthew Darrow**
Noise and Vibration	**Brewster Birdsall**
Visual Resources	**Brewster Birdsall and Michael Clayton**
Cultural Resources	**Robin Palmer and Gary Reinoehl**
Socioeconomic Resources	**Dan Gorfain**
Biological Resources	**Julie Colyer and Natasha Nelson**
Soil and Water Resources	**Joe Crea, John Kessler and John Scoggs**
Paleontological Resources	**Patrick Pilling**
Facility Design	**Steve Baker, Al McCuen, and Shahab Khoshmashrab**
Power Plant Reliability	**Steve Baker**
Power Plant Efficiency	**Steve Baker**
Transmission System Engineering	**Mark Hesters and Al McCuen**
Alternatives	**Robert Worl and Richard Ratliff**
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