PRESIDING MEMBER S PROPOSED DECISION

APPLICATION FOR CERTIFICATION

MOSS LANDING
POWER PLANT PROJECT

Docket No 99-AFC-4

AUGUST 2000

CALIFORNIA ENERGY COMMISSION

Gray Davis, *Governor*

P 800-00-006

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

The Committee hereby submits its Presiding Member's Proposed Decision (PMPD) for the Moss Landing Power Plant Project (Docket Number 99-AFC-4). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code of Regs.,// 1749-1752. 5).

Based upon the evidence presented in this PMPD, we conclude that project construction and operation will comply with all applicable laws, ordinances, regulations, and standards, and with the Conditions of Certification contained herein, all associated impacts will be mitigated to below a level of significance.

Therefore, we recommend the Application for Certification for the Moss Landing Power Plant Project be approved, and that the Commission grant the Applicant a license to construct and operate the project.

Dated: _____

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

_____
WILLIAM J. KEESE, Chairman
And Presiding Committee Member

_____
MICHAL C. MOORE, Ph.D., Commissioner
And Associate Committee Member

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	**Docket No. 99-AFC-4**
	)	
Application for Certification for the MOSS LANDING Power Plant Project	)	**NOTICE OF AVAILABILITY OF PRESIDING MEMBER S PROPOSED DECISION and NOTICE OF COMMITTEE CONFERENCE**

I. NOTICE OF AVAILABILITY

The Committee assigned to the above-captioned matter released the Presiding Member s Proposed Decision (PMPD) for the Moss Landing Power Project on August 29, 2000. Copies have been sent to all on the Proof of Service List, and are also available from the Commission s Publications Unit, 1516 9th Street, MS-13, Sacramento, CA 95814. You may also telephone the Publications Unit at (916) 654-5200. Ask for Publication No. P800-00-006. The PMPD is also available on the Commission s Web site at <**www.energy.ca.gov/sitingcases/mosslanding**>

Members of the public and interested governmental agencies may submit written comments on the PMPD. The public comment period ends on September 28, 2000. All comments must be received ***no later than 3:00 p.m. on September 28, 2000***, by the Commission s Docket Unit, 1516 9th Street, Sacramento, CA 95814. Identify all comments with Docket No. 99-AFC-4.

II. NOTICE OF CONFERENCE

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

THURSDAY, September 21, 2000
Beginning at 9:00 a.m.
Moss Landing Marine Laboratories
Seminar Room
8272 Moss Landing Road
Moss Landing, California
(Wheelchair Accessible)

Applicant, Staff, and all other formal parties wishing to participate at this Conference must file written comments prior to the conference on the PMPD. These comments shall be served and filed ***no later than 3:00 p.m., September 15, 2000***. Members of the general public wishing to participate at this Conference are encouraged, but not required, to submit their written comments by the same date.

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INTRODUCTION

A. SUMMARY

This document is the Presiding Member s Proposed Decision (PMPD).[1] It contains the Committee s determinations regarding the Application for Certification (AFC) for the Moss Landing Power Plant Project (MLPPP) and includes the findings and conclusions required by law.[2] The PMPD is based exclusively on the evidentiary record established at the hearings on the application. We have independently evaluated this evidence, presented the Committee s reasons supporting its Decision, and provided references to portions of the record which support the Committee s findings and conclusions.[3] The Conditions of Certification, which follow each topic section, will ensure that the Moss Landing Power Plant Project is designed, constructed and operated in the manner necessary to protect public health and safety, provide needed electrical generation, and preserve environmental quality.

The Applicant, Duke Energy North America, proposes to build the Moss Landing Power Plant (MLPPP or Project) on the site of the existing Moss Landing generation facility, previously owned by Pacific Gas and Electric (PG&E), which has been in operation since May 1950. The site is located 12 miles northwest of Salinas, near Moss Landing Harbor, and just south of the Elkhorn Slough National Estuarine Research Reserve. The proposed Project consists of two 530 megawatt (MW), natural gas-fired, combined cycle generator units with an overall nominal generating capacity of 1,060 MW. Each combined cycle unit will use

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

[2] While the Project may be referred to as MLPPP, the existing 239-acre site is sometimes referred to as the MLPP site or simply MLPP.

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

seawater for once through cooling. Duke Energy also proposes to modify the existing seawater intake structure to reduce environmental impacts to the marine environment. The warm water discharge from the new units will be combined with the existing Units 6 and 7 discharge outlet into Monterey Bay. These and related modernization projects are proposed for construction entirely within the 239-acre power plant site. Because of the existing generation infrastructure at the site, no facilities such as electric transmission lines or pipelines will be built offsite.

The Project will generate power to the adjacent PG&E Moss Landing switchyard which supports local loads in Monterey, Santa Cruz, Watsonville, and Gilroy. The switchyard also connects to the Metcalf Substation and supports electrical service in southern Santa Clara County. Applicant expects to begin construction immediately after certification and to reach full-scale commercial operation by mid-2002. During construction, Duke Energy will give a preference for local hiring and local purchases of materials. It expects a peak work force of approximately 732 personnel on the site during construction. The capital cost of the project is estimated to be about $475 million. Estimated construction payroll is $115 million, with an estimated additional $10 million in equipment and materials purchased locally during construction. The Project will pay an estimated $19 million in annual sales taxes.

During the siting process, Commission staff, as well as Duke Energy carried out extensive coordination with numerous local, state, and federal agencies. These included the Central Coast Regional Water Quality Control Board (RWQCB), the Coastal Commission, the California Independent System Operator (Cal ISO), Monterey Bay National Marine Sanctuary, United States Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers, Monterey Bay Unified Air Pollution Control District (MBUAPCD), Pacific Gas and Electric (PG&E), Monterey County, North County Fire Protection District, and Caltrans, as well as Intervenor California Unions for Reliable Energy

(CURE), and interested local environmental groups and individual citizens in the community.

The RWQCB is responsible for issuing a National Pollutant Discharge Elimination System (NPDES) permit for the Project and Staff from that agency coordinated closely with Commission staff in establishing a Technical Working Group (TWG) to evaluate the environmental impacts of the Project s use of ocean water for its once through cooling system. The TWG included highly qualified marine biologists with years of experience evaluating the effects of such cooling systems on the coastal environment. The Technical Working Group established study methodologies, reviewed results of year-long sampling, and applied professional judgment in determining the impacts from the Project. The determination of Project impact was based on what the expert witnesses described as a very conservative, worst-case analysis. They determined the Project will cause impacts to approximately 13 percent of larval organisms represented primarily by eight species, out of 97 species of local fish. Determining this impact to be significant, they established an appropriate mitigation program. Every expert witness from the Technical Working Group testified that the mitigation package was fair and reasonable.

Even with this level of expertise, the mitigation package, of $7 million to improve productivity of the Elkhorn Slough watershed, generated the most controversy in the case. The controversy surfaced at the last evidentiary hearing in the proceeding, notwithstanding the extensive efforts, carried out by both the Commission and Duke Energy, to publicize the proposed Project and the Commission s review process.[4] Concerns were expressed by local environmental groups and by agencies.

[4] Since May of 1999 Staff has been in contact with agencies and local government involved in review. The Commission staff arranged for numerous workshops, hearings, newspaper accounts of the Project and information on the Commission s Web Site. Applicant maintained an extensive mailing list, and Web Site as well as conducting its own numerous tours for local organizations.

Our Decision discusses the request of the Monterey Bay National Marine Sanctuary for additional research funding as well as Applicant s response. It also discusses concerns expressed by the Coastal Commission and incorporates their recommendations, to the extent feasible. It does not include recommendations which conflict with the Water Board s NPDES permit or conflict with Commission goals to fully mitigate impacts. The Decision also attempts to address concerns expressed by local environmental groups.

The Decision requires Applicant to pay $7 million to enhance biological productivity in the Elkhorn Slough watershed, and to provide support for a marine mammal rescue center at the Project site. To the extent that these measures assist species which are not effected by Project impacts, the measures provide a substantial net benefit to the local environment.

B. SITE CERTIFICATION PROCESS

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

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

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

The process begins when an Applicant submits the Application for Certification (AFC). Commission staff reviews the data submitted as part of this AFC, and recommends to the Commission whether or not the Applicant s filing contains adequate information to permit review to commence. Once the Commission determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process. The Commission also appoints a hearing officer to provide legal assistance to the Committee in each case. This process includes holding public conferences and evidentiary hearings, as well as providing a recommendation to the full Commission concerning a project s ultimate acceptability. The Committee and ultimately the Commission serve as fact-finder and decision-maker. The role of the Commission s Public Advisor is to assist members of the public and intervenors with their understanding of and participation in the Commission s siting process.

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

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such further technical information as is necessary. During this time, the Commission staff sponsors numerous public workshops at which intervenors, agency representatives,

members of the public, Staff, and Applicant meet to evaluate and resolve pertinent issues. Staff then publicizes its initial technical evaluation of the project in the document called the Preliminary Staff Assessment (PSA).

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

This analysis appears in a Committee recommendation to the full Commission in the form of a Presiding Member s Proposed Decision, which is available for a public review period of at least 30 days. Depending upon the extent of revision necessary in response to comments received during this period, the Committee may then elect to publish a revised version. If so, this latter document triggers an additional 15-day public comment period. If not, a formal errata is used to make non-substantive or minor changes to the formal text. Finally, the full Commission decides whether to accept, reject, or modify the Committee s recommendations at a public hearing. Prior to the decision, the parties and members of the public present at the hearing may again offer comments.

C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Commission regulations (Cal. Code of Regs., tit. 20, // 1701, et seq.) mandate a public process and

specify the occurrence of certain necessary events. The key procedural elements occurring during the present case are summarized below.

The Applicant submitted its Application for Certification (AFC) on May 7, 1999. Shortly thereafter, Staff sent a request for agency participation to those governmental agencies likely to have an interest in the project.[5] On August 11, 1999, the full Commission determined that the Applicant had made its AFC sufficiently informative and complete to commence the review process.

The Committee scheduled its initial event, an Informational Hearing and Site Visit , by public notice dated August 19, 1999. This notice was sent to all persons known to be interested in the proposed project, including owners of land adjacent to, or in the near vicinity of, the Moss Landing Power Plant Project; it was also published in the Monterey County Herald on Sunday, September 5, 1999.[6]

The Committee conducted the Informational Hearing in the Assembly Room at the Moss Landing Power Plant site on September 7, 1999. At this event, the Applicant hosted a visit around the existing Moss Landing Power Plant site to examine the various current facilities as well as the locations of any proposed facilities. Following the site visit, the Committee and other participants discussed the proposed Moss Landing Power Plant Project, described the Energy Commission s review process, and identified opportunities for public participation in the review process. Shortly thereafter, Commission staff held the first in a series of informal post-acceptance public workshops in the local area to

[5] A list of the reviewing agencies can be found on the Commission s Web Site at <www.energy.ca.gov/siting cases/mosslanding/agencies>

[6] Additional outreach efforts were made by the Applicant, Duke Energy. The company sent project updates to more than 800 on their mailing list and maintained a web site at Duke-Energy.com/California with information on the project. In addition, Applicant conducted its own open house tours of the Project site for local organizations.

further discuss project details.[7] The Committee issued its required Scheduling Order on October 21, 1999.

The Committee held a Status Conference on February 24, 2000, to hear from the parties concerning the availability of various environmental studies for the project and to learn how studies due from other agencies outside the Commission may affect the siting case schedule. Following the Status Conference, the Committee issued a Revised Committee Scheduling Order on March 2, 2000.

Pursuant to this Scheduling Order, and following additional case development, the Commission staff released its Preliminary Staff Assessment (PSA) on February 9, 2000, and conducted various workshops to receive comments on the PSA. Thereafter, on May 8, 2000, the Committee conducted a Prehearing Conference to assess the status of the case and determine whether substantive issues required adjudication. After considering the comments of all parties, the Committee subsequently scheduled issuance of the Final Staff Assessment (FSA), Parts 1, 2, and 3 respectively on May 15, 31, and June 20, 2000.[8] The Committee conducted formal evidentiary hearings on June 7, 8, 15, 20, 2000, and a nonevidentiary Committee Conference on July 17, 2000, to receive additional public comments related to mitigation for impacts to marine resources. The California Regional Water Quality Control Board (RWQCB) for the Central Region issued its draft National Pollutant Discharge Elimination System (NPDES)

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[7] Commission staff hosted the following public workshops in Sacramento, except where noted otherwise: July 27, 1999 (pre-acceptance), March 1, 2000 (Moss Landing), March 7-8, 2000, May 8, 2000, May 24, 2000, June 13, 2000 (Moss Landing), June 14, 2000.

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

permit for the Project on June 26, 2000. (Ex. 77.) On July 25, 2000 the California Coastal Commission (CCC) filed its (corrected) report to the Commission pursuant to section 30413(d)(4) of the Coastal Act. The Monterey Bay National Marine Sanctuary submitted its review of the Project on July 28, 2000.

The Committee, after establishing the evidentiary record, published this Presiding Member s Proposed Decision (PMPD) on August 29, 2000, which commenced the 30-day period for the public to comment on the PMPD.

The California Unions for Reliable Energy (CURE) was the only party to formally intervene in the case.

I. PROJECT PURPOSE AND DESCRIPTION

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Moss Landing Power Plant (MLPP) site has been in operation since May 1950. The site is located 12 miles northwest of Salinas, California and is situated near Moss Landing Harbor in an area which includes industrial facilities, agricultural land, sparse residences, recreational beaches, and tidal wetlands. The MLPP site is bordered by Highway 1 and the Moss Landing Harbor on the west, Dolan Road and Moro Cojo Slough on the south, and Elkhorn Slough including the Elkhorn Slough National Estuarine Research Reserve to the north.

The project which is subject to Commission jurisdiction consists of two 530 megawatt (MW), natural gas-fired, combined cycle units with an overall capacity of 1,060 MW. Each combined cycle unit includes two natural gas-fired combustion turbine generators (CTGs), two unfired heat recovery steam generators (HRSGs) and a reheat condensing steam turbine generator (STG). Each combined cycle unit will use seawater for once through cooling. Duke Energy also proposes to modify the existing seawater once-through cooling intake structure by installing new traveling screens near the shoreline of the Moss Landing Harbor. The warm water discharge from the new units will be combined with the discharge into Monterey Bay from the existing Units 6 and 7. This will require some onsite modifications to the cooling water discharge line. Because Units 1 through 5 have been retired, there will no longer be cooling water discharged into Elkhorn Slough.

The Project also includes the installation of four exhaust stacks, each 145 feet in height. In addition, Duke plans to dismantle 8 of the existing 225-foot stacks that

were previously used for Units 1-5. The Moss Landing Power Plant Project that is now under the Energy Commission s jurisdiction is 1,060 MWs in size.[9]

The existing MLPP industrial complex includes 7 electric generation units, 10 exhaust stacks, 19 fuel storage tanks, 2 seawater inlet and outfall structures, various warehouse and office buildings, and other related equipment on a 239-acre site. Units 1-5 (613 MW), originally built in the 1950s were shut down in 1995. Units 6 and 7 (1,500 MW) are currently in operation. The fuel supply from the retired units will be sufficient to power the 1060 MW of replacement generation, which is part of the project. On July 1, 1998, Duke Energy purchased the 239-acre site from Pacific Gas and Electric Company (PG&E). PG&E retained the adjacent 500/230/115-kV substation.

The MLPP will take advantage of the existing onsite infrastructure established long ago for power generation at the site. The 239-acre project site is directly adjacent to the 143-acre PG&E Moss Landing Switchyard with its existing 115-kV, 230-kV, and 500-kV systems. Each of these systems contain transmission lines, towers, switches, bus bars and transformers. The Project includes no linear facilities outside the property owned by Duke Energy and the adjacent PG&E substation. Natural gas is available onsite and a short natural gas pipeline will be constructed to the two new units. The existing natural gas pipeline connection, electrical interconnection to the PG&E substation, and ocean water intake are all contained on these two adjacent properties.

The two new electric generating units will supply an additional 1060 MW of electricity to the 230-kV transmission system and through the 230/115-kV transformer into the 115-kV system at the PG&E substation located at the site. The existing PG&E switchyard supports local loads in Monterey, Santa Cruz,

[9] Duke Energy originally proposed to upgrade each of the existing Units 6 and 7 by replacing the high-pressure rotors and increasing the steam flow rate. This would have produced 146 MW (73 MW each) of additional capacity. In a supplement to the AFC, Duke Energy dropped the upgrade to Units 6 and 7.

Watsonville, and Gilroy (115kV). In addition, the 230 kV switchyard directly connects to the Metcalf substation and supports electrical service in southern Santa Clara County. The 500 kV system also connects to the Metcalf substation and to the Los Banos substation near the San Luis Reservoir.

Three related projects are on a separate agency approval track. Duke will be removing the large fuel storage tanks on site, will be adding Selective Catalytic Reduction (SCR; an air emission control technology) to existing Units 6 and 7, and will carry out onsite maintenance activities related to outage work on Units 6 and 7. Monterey County is the lead agency for the environmental review of these projects. However, the analysis in this document includes a summary a discussion of any potential cumulative impacts from these related projects.

If the Project is approved by the Energy Commission, construction is expected to begin immediately after the decision and will take about 29 months from the start of all projects at the Moss landing site until commercial operation of the new generation units. The construction time for the generation project alone is estimated to be 20 months. Full-scale commercial operation is expected by mid 2002. Duke Energy expects a peak work force of approximately 732 craft laborers, supervisory, support and construction management personnel on the site during construction. The capital cost of the project is estimated to be about $475 million.

FINDINGS AND CONCLUSIONS

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

1. The project involves the installation of two 530 MW combined-cycle units with an overall capacity of 1,060 MW, including installation of four exhaust stacks, each 145 feet in height.

2. Each combine-cycle unit of the project consists of two natural gas fired combustion turbine generators (CTGs), two unfired heat recovery steam

generators (HRSGs) and a reheat, condensing steam turbine generator (STG).

3. The project also includes dismantling 8 of the existing 225-foot stacks previously used for Units 1-5 at the Moss Landing site.

4. The Commission has analyzed the cumulative impact of three related projects at the site: a tank farm demolition project, a selective catalytic reduction project for existing Units 6 and 7, and onsite maintenance activities related to outage work on Units 6 and 7.

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

PROJECT DESCRIPTION Figure 1

Regional Setting

Source: Exhibit

PROJECT DESCRIPTION Figure 2

Local Setting

Source: Exhibit

II. NEED CONFORMANCE

Prior to January 1, 2000, the Public Resources Code prohibited the Energy Commission from certifying a power plant unless the Commission made a finding that the facility was found to be in conformance with the Commission s integrated assessment of the need for new resource additions. (Pub. Resources Code, // 25523 (f) and 25524 (a).) The Public Resources Code directed the Commission to do an integrated assessment of need, taking into account 5 and 12-year forecasts of electricity supply and demand, as well as various competing interests, and to adopt the assessment in a biennial electricity report.

On September 28, 1999, the Governor signed Senate Bill 110, which became Chapter 581, Statutes of 1999. This legislation repealed Public Resources Code, sections 25523(f) and 25524(a), and amended other provisions relating to the assessment of need for new resources. It removed the requirement that the Commission make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need. Regarding need determination, Senate Bill 110 states:

> Before the California electricity industry was restructured the regulated cost recovery framework for power plants justified requiring the commission to determine the need for new generation, and site only power plants for which need was established. Now that power plant owners are at risk to recover their investments, it is no longer appropriate to make this determination.

(Pub. Resources Code, / 25009, added by Stats. 1999, ch. 581, / 1.) Senate Bill 110 took effect on January 1, 2000 (Cal. Const., Art. 4, / 8.). Thus, the Commission is no longer required to determine if a proposed project conforms with an integrated assessment of need. As a result, an application for certification for which the

Commission adopts a final decision after January 1, 2000, is not subject to a finding of need-conformance.

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

III. PROJECT ALTERNATIVES

In cases such as the Moss Landing Power Plant Project, where the application has been exempted from the Notice of Intention requirements pursuant to Public Resources Code section 25540.6, the Commission is required during the AFC process to examine the feasibility of available site and facility alternatives which substantially lessen the significant adverse impacts of the proposal on the environment. (Cal. Code of Regs., tit. 20, ⁄ 1765.) This inquiry must also comply with the guidelines implementing the California Environmental Quality Act (CEQA) which require an evaluation of the comparative merits of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project as well as an evaluation of the no project alternative. [Cal. Code of Regs., tit. 14,⁄15126 (d).]

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

SUMMARY OF THE EVIDENCE

1. Methodology

Applicant and Staff applied somewhat differing methodologies in their alternatives analysis. However, between the two parties, the record includes analysis in the following areas:

- Identification of the basic objectives of the Project (Ex. 74, p. 10);
- Identification of the Project s potentially significant adverse impacts (Ex. 74, p.12-13);
- Evaluation of the no project alternative (Ex. 73, Alt., p. 3; Ex. 74, p. 12);
- Identification and evaluation of feasible alternative generation technologies (Ex. 73, Alt., p. 4; Ex. 74, pp. 13-14);
- Identification of alternative onsite configurations[10] (Ex. 73, pp. 3-4);
- Identification of site screening criteria (Ex. 74, pp. 14-15);
- A screening analysis to assess the feasibility of alternative sites (Ex. 74, pp. 15-18); and
- An evaluation of whether alternative technologies and sites would reduce or avoid any significant impacts of the proposed project (Ex. Ex. 74, pp. 18-19).

2. Project Objectives

Based upon Applicant s AFC, Commission staff identified the Project s objectives to be:

- The construction and operation of a merchant power plant in the Monterey County region to supply economic, reliable, and environmentally sound electrical energy and capacity in the newly deregulated California power market;
- The generation of approximately 1060 MW of electricity;
- Utilization of an existing power generation site and existing ancillary facilities;
- Location of the Project near key infrastructure elements, such as transmission line interconnection of 230-kV or greater, supplies of process water, and connections to natural gas supplies; and

[10] In addition, Applicant s testimony also evaluated alternative cooling technologies, including mechanical and natural draft seawater cooling towers and air-cooled condensers. (Ex. 73, pp. 4-5.) Because these cooling alternatives have the potential to mitigate for biological impacts, they are evaluated in more detail in the Biological Resources section of this Decision.

- Improvement of local electric reliability while reducing electric system losses. (Ex. 74, p. 10.)

3. Generation Technology Alternatives

The evidence establishes that both the Commission staff and Applicant considered a wide range of generation alternatives to the Project. Applicant considered twenty different generation technologies in the AFC and in subsequent testimony. (Ex. 5, pp. 5-9 through 5-15; Ex. 73, Alt., p. 4.) Although some of the alternative technologies were found to be feasible, most would not result in fewer environmental effects than the proposed Project. Furthermore, each alternative was less cost-effective than the combined cycle plant proposed and would therefore not be as competitive as a merchant plant in the competitive deregulated California electricity market. (*Id*.)

Staff analysis focused on the principal generation technologies that do not burn natural gas. These are geothermal, solar, hydroelectricity, wind, biomass, waste-to-energy, coal, and nuclear generation. The Staff evaluation found that the above-noted technologies have the potential for significant land use, biological, and visual impacts and therefore did not present feasible alternatives. Coal-fired generation was rejected due to its higher level of air emissions compared to natural gas fuel. Nuclear power is not legally feasible in California at this time.[11]

Staff also considered the alternative of a smaller sized facility such as a 240 MW gas-fired combined cycle project at the MLPP site. The analysis concluded that a smaller project would require less cooling water, thus reducing the quantity of biota impinged or entrained and reducing the size of the thermal plume from the

[11] California law prohibits new nuclear facilities until the scientific and engineering feasibility of disposal of high-level radioactive waste has been demonstrated. (Ex. 74, p. 14.)

ocean discharge. However, the smaller project would also result in a higher thermal discharge temperature than the proposed Project. Furthermore, this alternative would not reduce the impact from increased traffic and would not eliminate the potentially significant impacts to biological and water resources. (Ex. 74, p. 14.)

4. The No Project Alternative

Applicant s analysis concluded that the no project alternative would result in less efficient power generation at the MLPP site, less efficient local, state, and regional transmission and distribution of electricity. In addition, Applicant states that the no project alternative would impose greater environmental impacts than the proposed Project, due to either increased demand on older power plants or the development of another existing industrial site or a greenfield to replace the 1060 MW of new generation proposed by the Project. (Ex. 5, sec. 5; Ex. 73, p. 3.)

The Staff analysis determined that the no project alternative would maintain detrimental visual impacts that exist at the MLPP site today, because the eight 225-foot smokestacks would remain in place. Furthermore, the no project alternative would fail to meet Applicant s objectives and would result in less efficient local, state and regional electrical transmission and distribution. Staff determined that the no project alternative would have fewer impacts on traffic, water, and biological resources than the proposed Project, if left unmitigated. However, because Staff believes that the Conditions of Certification will mitigate Project impacts to a level of insignificance, Staff concluded that, overall, the no project alternative is not superior to the proposed Project. (Ex. 74, p. 12-13.) In addition, the no project alternative would forego any benefits of the Project to the community.

5. Alternative Onsite Configurations.

Based on its view of the required alternatives analysis, Applicant examined several alternative onsite configurations of equipment. and concluded that none of the alternative onsite locations offered the engineering and cost advantages of the selected onsite locations. Furthermore, the alternative configurations offered no environmental advantages over the proposed onsite locations. (Ex. 5, sec. 5, Ex. 73, p. 3.)

6. Offsite Alternative Locations

Commission staff conducted an analysis of four different alternative power plant site locations within Monterey County. To conduct the analysis, Staff reviewed Applicant s AFC for key criteria to use in screening alternative sites.[12] As a result, Staff screened for a site of approximately 15-20 acres with sufficient infrastructure facilities located within a reasonable distance of the alternative site.[13] However, due the lack of heavy industry zoning within the coastal zone, Staff was not able to locate an alternative coastal site. The use of any inland alternative sites would result in the inability to use once-through ocean water cooling, as proposed for the Project. Staff, therefore acknowledges that all of its alternative sites would require significant project design changes to accommodate either air-cooled condenser or cooling tower technologies. (Ex. 74, p. 15.)

The four alternative sites analyzed included: 1) the San Lucas site alternative, 2) the San Ardo site alternative, 3) the Rancho San Juan site alternative, and 4) the Old Stage Road alternative. Staff concluded that of the four alternative sites

[12] The AFC did not contain any analysis of alternative sites. Applicant contends that no such analysis is required. The public proposed no alternative sites. (Ex. 74, p. 15.)

[13] Infrastructure requirements include: 1) natural gas pipelines (24 inch or larger); 2) major roads to support deliveries and operations; 3) water for utilities and cooling; 4) reasonably close proximity to an existing transmission line system of 230-kV or higher.

considered, three did nothing to reduce the potential of impacts to traffic, biological resources, and water resources to a lower level than that of the

proposed Project.[14] The Old Stage Road alternative site was considered potentially feasible , although Staff noted that impacts to visual and biological resources at the site would have to be mitigated. However, Staff concluded that because the adverse impacts of the proposed Project can be fully mitigated to below the level of significance, the Old Stage Road site is not superior to the proposed MLPPP and that, as mitigated, the proposed site is preferred. (Ex. 74, p. 19.)

7. Dispute Regarding Alternative Location Analysis

While Staff conducted an analysis of alternative site locations for the Project, Applicant offered an analysis of only onsite configuration alternatives. Applicant argues that the latter is sufficient to meet the requirements of the Warren-Alquist Act because: 1) Public Resources Code section 25540.6(a)(2) does not require an alternatives analysis for projects that are modifications to existing facilities; 2) Staff s requirements would, in Applicant s view, promote illogical and contrary results from the Warren-Alquist Act alternatives analysis; 3) Commission regulations do not conflict with nor prohibit reliance upon an onsite alternatives analyses; and 4) where Commission regulations appear contradictory, they must be read in context as part of the Commission s overall statutory framework. (Applicant s Post-Hearing Brief, p. 3.)

Commission staff argues two reasons why alternative site analysis is appropriate in this case: 1) Even though Applicant proposed its Project to be located at the site of an existing facility, Staff should not be precluded from examining

[14] The Staff analysis compared the alternative sites to the *unmitigated* proposed Project.

alternative sites as a way to reduce potentially unmitigable significant impacts[15] at the proposed site, and 2) Staff does not believe that the MLPPP qualifies as a modification to an existing facility as defined by several definitional terms in the Warren-Alquist Act. (Staff Post-Hearing Brief, pp. 1-2.) Applicant responds that the question of whether the Project qualifies as a modification to an existing facility was settled by the courts in *Dept. of Water & Power v. Energy Resources Conservation & Development Comm.*, 2 Cal. App. 4th 206, 3 Cal. Rptr. 2d 289 (1991). In addition, Applicant argues that a fair reading of the limitations concerning the definition of modification of an existing facility [16] contradicts the Staff position. (Applicant s Post-Hearing Reply Brief, p. 3.)

COMMISSION DISCUSSION

The Commission finds that Applicant has conducted a thorough and reasonable analysis of various alternative equipment configurations within its proposed site. In addition, we find that Staff has carried out an adequate analysis of alternative sites given the Project s key objectives and the requirements of CEQA. Neither analysis revealed an alternative which is superior to the proposed Project or which would reduce or eliminate any significant environmental impacts of the Project. This is, in part, due to the fact that, as mitigated by the Conditions of Certification, this Project imposes no significant environmental impacts. Both Applicant and Staff agree with this conclusion. Thus, there is no substantive issue concerning the alternatives analysis in this case which must be decided by the Commission at this time.

[15] At the time in an AFC proceeding when Staff must conduct its alternative site analysis, it is often unclear whether, and how, potentially significant adverse environmental impacts at the proposed project site will be mitigated.

[16] Public Resources Code section 25123.

FINDINGS AND CONCLUSIONS

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

1. The Project is proposed for location within the existing Moss Landing Power Plant site, a part of the Moss Landing community dedicated to heavy industry.

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

3. No feasible technology alternatives such as geothermal, solar, hydroelectric, or wind resources are located near the Project or are capable of meeting Project objectives.

4. The use of alternative generating technologies or alternative cooling towers would not prove efficient, cost-effective or mitigate any significant environmental impacts to levels of insignificance.

5. No significant environmental impacts would be avoided under the no project alternative.

6. A smaller 240 MW power plant would not avoid or substantially lessen any direct, indirect, or cumulative significant impacts of the Project.

7. The evidentiary record contains an adequate analysis of onsite equipment configurations and offsite alternative locations.

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

Additionally, we conclude the potential adverse environmental impacts and potential cumulative impacts related to the Project will be mitigated to levels of insignificance in conformance with all applicable laws, ordinances, regulations, and standards.

We therefore conclude that the evidence of record contains sufficient analyses of alternatives to comply with the requirements of the Warren-Alquist Act and with the California Environmental Quality Act.

IV. COMPLIANCE AND CLOSURE

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

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

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

- Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

- Set forth the requirements for handling confidential records and maintaining the compliance record;

- Establish procedures for settling disputes and making post-certification changes;

- State the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed conditions; and

- Establish requirements for facility closure.

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

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

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

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

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

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

COMPLIANCE MONITORING PLAN INCLUDING GENERAL CONDITIONS AND CLOSURE PLAN

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. Technical staff from both the Energy Commission and the project owner will meet to review the status of all pre-construction or pre-operation Energy Commission conditions of certification. They will determine whether all requirements 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 may need to be publicly noticed unless they are confined to administrative issues and process.

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 be, upon request to the project owner, 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 audit of project records; and/or
4. Energy Commission staff inspection 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
Moss Landing Power Plant Project (99-AFC-4C)
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 compliance reports.

COMPLIANCE MATRIX

The project owner shall submit a compliance matrix 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.

START OF CONSTRUCTION

Construction shall not commence until this matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing the start of 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 extends beyond the day anticipated for the start of construction. It is important that the project owner understand that pre-construction activities are performed at their own risk. Failure to allow appropriate lead-time may cause delays in start of construction.

MONTHLY COMPLIANCE REPORT

The first Monthly Compliance Report is due the month following the Energy Commission business meeting date that the project was approved, unless the 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 Monthly Compliance Reports within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain at a minimum:

1. A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. Documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. An initial, and thereafter updated, compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
4. A list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. A list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. A cumulative listing of any approved changes to conditions of certification;
7. A listing of any filings with, or permits issued by, other governmental agencies during the month;
8. A projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance conditions of certification;
9. A listing of the month s additions to the on-site compliance file;
10. Any requests to dispose of items that are required to be maintained in the project owner s compliance file; and

11. A listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the 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. The telephone number shall be posted at the project site and easily visible to passersby during construction and operation.

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, which follows:

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 which will 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

This planned closure occurs at the end of a project s life, when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

UNEXPECTED TEMPORARY CLOSURE

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

UNEXPECTED PERMANENT CLOSURE

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order that a planned facility closure does not create adverse impacts, a closure process, that will provide 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 all facilities or equipment that will a) be immediately removed from the site after closure (e.g. hazardous materials); b) temporarily remain on the site after closure (e.g., until the item is sold or scrapped); and c) permanently remain on site after closure. The plan must explain both why the item cannot be removed and why it does not present a risk of harm to the environment and the public health and safety to remain *insitus* for an indefinite period.
4. Address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Also, in the event that there are significant issues associated with the proposed facility closure plan approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the 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 or the environment, but shall not commence any other closure activities, until Commission approval of the facility closure plan is obtained.

UNEXPECTED TEMPORARY CLOSURE

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

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 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.

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, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of circumstances and expected duration of the closure.

If it is determined 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 determination. The CPM and the project owner may agree to a period of time other than 90 days.

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, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan consistent with 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.

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 procedures, 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 described below:

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.

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

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, 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 <u>not</u> 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 _____ DATE ENTERED

DOCKET # _____ PROJECT MANAGER

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

V. ENGINEERING ASSESSMENT

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

A. FACILITY DESIGN

The Facility Design portion of the engineering assessment combines four technical topic areas: civil engineering; structural engineering; mechanical engineering, and electrical engineering. The purpose of analyzing facility design is to assure that the project will likely be designed and built to applicable engineering laws, ordinances, regulations, and standards. The Commission also establishes a process to verify that the project complies with these measures as it is constructed. The Commission reviews the Applicant s proposed design criteria, identifies the need for any special design features, and crafts compliance monitoring programs based on a set of Conditions of Certification.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Commission staff reviewed and evaluated the proposed Applicant s design criteria for grading, flood protection, erosion control, site drainage, and site access. (Ex. 65, p 243.) Staff also examined civil, mechanical, and electrical design features of the Project s major structures, systems, and equipment (Ex. 65, pp. 243-247).

The proposed project will be located at the existing Moss Landing Power Plant site that has been operated by PG&E for almost 50 years. This site is located at the intersection of Highway 1 and Dolan Road, east of the community of Moss

Landing near the Moss Landing Harbor. The proposed project will use seawater for once through cooling. For more information on the site and related project description, please see the **Project Description** section of this decision.

The Project site is located in the northwest quarter of Township 13 South, Range 2 East, San Bernardino Base and Meridian. The site is in seismic zone 4, the highest seismic shaking zone in the country. Additional engineering details of the proposed project are contained in the Application for Certification (Ex. 5, Appendices 8-3 through 8-8.

Existing conditions at the 239 acre project site include the Moss Landing Power Plant and the adjacent 143-acre PG&E Moss Landing Switchyard with its 115-kV, 230-kV, and 500-kV systems, each containing transmission lines, towers, switches, bus bars and transformers. No new offsite linear facilities will be required to serve the Project.

Applicant proposes to use accepted industry standards, design practices, and construction methods in preparing and developing the site. Major structures, systems, and equipment are those that are necessary for power production and which are costly to repair or replace, require a long lead time to repair or replace, or are used in the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment for the project are listed in Condition of Certification **GEN-2** below.[17]

The Project includes replacement of Units 1 through 5 (613 MW) with two combined-cycle units for a combined capacity of 1,060 MW, and demolition of eight 225-foot tall stacks previously used in the operation of Units 1 through 5. (Ex. 65, p. 245.)

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[17] However, in its July 11, 2000, brief, Applicant, while generally supporting the Staff testimony on Facility Design, recommended two minor corrections to Condition of Certification **GEN-2**. First Applicant requests that three pieces of equipment be removed from the Major Equipment List contained in **GEN-2** (Ex. 65, p. 252); these are 1) Aqueous Ammonia Storage Tank; 2) Desalinization Evaporator; and 3) Oily Water Separator. Applicant further requested that the Major Equipment List be amended to add Fuel Gas Compressors. (Applicant s Brief, 7/11/00 p. 8.) The Commission approved adding the Fuel Gas Compressors to the Major Equipment List.

Features required to incorporate the Project into the existing plant operations include a transmission tie-in from the new combined-cycle units to the adjacent Pacific Gas and Electric (PG&E) Moss Landing switchyard, two 145-foot tall stacks, and the installation of three natural gas compressors and associated gas line extensions from the adjacent PG&E gas meter and regulator yard. Cooling water will be supplied using the existing seawater intake structure for Units 1 through 5 and discharged through the existing Units 6 and 7 outfall. (*Id.*)

Applicant proposes that small, lightly loaded structures, not subject to vibratory loading be supported on shallow footings or mat foundations on properly compacted fill or undisturbed native soils. Foundation depth will extend to at least 12 inches below lowest adjacent grade. If any portion of the foundation bears on bedrock, the entire foundation should be deepened to bear on bedrock. Large, heavily loaded structures, and structures subjected to vibratory loading, will be constructed on deepened foundations that bear on bedrock. The foundations may include deepened footing or concrete reinforced pier and grade beams. The powerplant and related facilities will be designed to meet the seismic requirements of the latest edition of the California Building Code. (*Id.*)

Both Applicant and Staff presented testimony on the Project s mechanical systems. Each new unit will include two natural gas-fired combustion turbine generators (CTGs), two unfired heat recovery steam generators (HRSGs), and a reheat, condensing steam turbine generator (STG) in a 2-on-1 configuration. Each unit will utilize seawater for once-through cooling. Associated equipment will include emission control technologies necessary to meet required air quality standards. (Ex. 5, sec.8.0 and 8.3; Ex. 65, pp. 243-247.)

Each CTG will exhaust to a dedicated HRSG. The HRSG is a horizontal, natural circulating type unit with three pressure levels of steam generation and a reheat loop. The CTGs will be equipped with dry low nitrogen oxide (NO_X) combustors used to control NO_X. The HRSG will be equipped with a selective catalytic

reduction (SCR) system, utilizing aqueous ammonia, and associated support equipment. (*Id.*)

Other features of the project include: water and wastewater treatment equipment; pressure vessels, piping systems and pumps; aqueous ammonia storage, handling and piping system; air compressors; fire protection systems; and heating, ventilation, air conditioning (HVAC), potable water, plumbing and sanitary sewage systems. (*Id.*)

NOx emissions from the combustion process will be reduced to 2.5 parts per million by volume dry (ppmvd), or less, at 15 percent oxygen, by utilizing dry low NOx combustion technology and a SCR system. The SCR system will use aqueous ammonia for the reduction process. (Ex. 65, p. 247.)

Mechanical systems for the project will be designed to the specifications in applicable laws, ordinances, regulations and standards (LORS). Conditions of Certification **MECH-1** through **MECH-4** will allow the Commission to monitor compliance with these standards. (Ex. 65, p. 246.)

The major electrical equipment associated with the project will include the short transmission link from the new generators to the existing PG&E MLPP 230 kV switchyard, the generator, power control wiring, protective relays, grounding, site lighting, and a cathode protection system. Staff has proposed and the Commission has adopted Conditions of Certification **ELEC-1** and **ELEC-2** to monitor compliance with LORS which apply to the electrical systems. (Ex. 65, pp. 246-247.)

Existing linear facilities at the Moss Landing site can accommodate the additional loads of the new project with only minor modifications. Thus, new pipelines and electrical transmission lines will not be required except for short segments, which connect the new facilities to the existing fuel and electrical infrastructure at the site. Additional intake or discharge structures for cooling water are not required. (Ex. 65, p. 247.)

Commission staff also analyzed closure of the project under three scenarios; planned closure, unexpected temporary closure, and unexpected permanent closure.

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project is currently in a preliminary design stage.

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

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

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

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

We therefore conclude that with the implementation of the Conditions of Certification listed below, the Moss Landing Power Plant Project is likely to be designed and constructed in conformity with applicable laws pertinent to its geologic, and its civil, structural, mechanical, and electrical engineering aspects.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project[18] in accordance with the 1998 California Building Code

[18] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in conditions of certification **TSE-1, 2** and **3.**

(CBC)[19] and all other applicable 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.

Protocol: In the event that a successor to the 1998 CBC is in effect when the initial design plans are submitted to the CBO, the 1998 CBC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission 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 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 description of, and a list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment in **Table 1: Major Equipment List** below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

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[19] The Sections, Chapters, Appendices and Tables, unless otherwise stated, refer to the Sections, Chapters, Appendices and Tables of the 1998 CBC.

Table 1: Major Equipment List

Equipment/System	Quantity Plant	Size/ Capacity*	Remarks
Combustion Turbine Generator	4	172 MW each	DLN combustion control
Heat Recovery Steam Generator	4		Three pressure with reheat. No duct firing
Aqueous Ammonia Storage Tank	1	33,000 gal	For NO_x control
Ammonia Injection Blower	8		Two per HRSG
High Pressure/Intermediate Pressure (HP/IP) Boiler Feedwater pump	4	910/300 gpm	HP feed with interstage bleed
Desalination Evaporator	1	100 gpm	50% recovery vapor compression
Oily Water Separator	1	100 gpm	CPI separator package
Air Compressor	2	300 scfm	Service and instrument air
Steam Turbine Generator	2	196 MW	Reheat/Condensing
Steam Surface Condenser	2	1,160 MMBtu/hr	Sea water
Condensate Pump	4	3,100 gpm	Vertical turbine
Circulating Water Pump	6	42,000 gpm	
Fuel Gas Filter/Separator	1	330,000 lb./hr	For natural gas fuel
Fuel Gas Compressors			
Demineralized Water Package	1	100 gpm	Two trains
Demineralized Water Pump	3	100 gpm	HRSG Makeup water & CT water wash
Demineralized Water Tank	1	500,000 gal	For cycle makeup water & CT water wash
Continuous Emission Monitoring System	4		
Blow Down Recovery Tank	2	50,000 gal	24 hours each

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

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection, equivalent to the fees listed in the 1998 CBC, Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees. If Monterey County has adjusted the CBC fees for design review, plan check and construction inspection, the project owner shall pay the adjusted fees.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable 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[20] [Building Standards Administrative Code (Cal. Code Regs., tit. 24,/4-209, Designation of Responsibilities).]

Protocol: 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 to ensure compliance with LORS;
2. Ensure that construction of all the facilities conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;
3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;
4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;
5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and
6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

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

[20] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in Conditions of Certification TSE-1, 2 and 3.

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[21]: 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 powerplant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.]

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

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

If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and

[21] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in Conditions of Certification **TSE-1, 2** and **3**.

registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Protocol: A: The civil engineer shall:

1. Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and
2. Provide consultation to the RE during the construction phase of the project, and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

1. Review all the engineering geology reports, and prepare final soils grading report;
2. Prepare the soils engineering reports required by the 1998 CBC, Appendix Chapter 33, Section 3309.5 — Soils Engineering Report, and Section 3309.6 — Engineering Geology Report;
3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33, section 3317, Grading Inspections;
4. Recommend field changes to the civil engineer and RE;
5. Review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and
6. Prepare reports on foundation investigation to comply with the 1998 CBC, Chapter 18 section 1804, Foundation Investigations.

This engineer shall be authorized to halt earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations. [1998 CBC, section 104.2.4, Stop orders.]

Protocol: C: The design engineer shall:

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

2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications and calculations.

Protocol: D: The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission s Decision.

Protocol: E: The electrical engineer shall:

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project[22], qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section, 1701.5 Type of Work (requiring special inspection), and Section 106.3.5, Inspection and observation program.

Protocol: The special inspector shall:

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

[22] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in Conditions of Certification **TSE-1, 2** and **3**.

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; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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

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

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

GEN-7 The project owner shall keep the CBO informed regarding the status of engineering and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

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

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding

the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections.]

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans.

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

The closure plan shall include a discussion of the following:

1. The proposed closure/decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
2. All applicable LORS, all local/regional plans, and a discussion of the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
3. Activities necessary to restore the site if the MLPPP decommissioning plan requires removal of all equipment and appurtenant facilities; and
4. Closure/decommissioning alternatives, other than complete restoration of the site.

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

CIVIL-1 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils report as required by the 1998 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report and Section 3309.6, Engineering Geology Report.

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

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [1998 CBC, Section 104.2.4, Stop orders.]

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

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations shall be subject to inspection by the CBO and the CPM.

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

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

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-

built" plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy.]

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, the project owner shall submit to the CBO for 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:

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

In addition, the project owner shall, prior to the start of any increment of construction, get approval from the CBO of the lateral force procedures proposed for project structures to comply with the lateral force provisions of the CBC.

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and
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, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

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

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

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

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structure activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section 1701.5, Type of Work (requiring special inspection), Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, Section 106.3.2, Submittal documents, and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC. Chapter 16, Table 16—K of the 1998 CBC requires use of the following seismic design criteria: I˚=˚1.25, I_p = 1.5 and I_w = 1.15.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

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

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any

piping system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests.]

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

1. The proposed final design plans, specifications and calculations conform with all of the piping requirements set forth in the Energy Commission s Decision; and
2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:

   - American National Standards Institute (ANSI) B31.1 (Power Piping Code);
   - ANSI B31.2 (Fuel Gas Piping Code);
   - ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
   - ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
   - Specific City/County code.

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the above listed documents for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Energy Commission s Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [1998˚CBC, Section 108.3 — Inspection Requests.]

Protocol: The project owner shall:

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications and calculations, 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 send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the

CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, with a copy of the transmittal letter to the CPM.

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

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design plans, specifications, calculations, and QA/QC procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the local agency. Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 108.3, Inspection Requests, Section 108.4, Approval Required.]

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

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and
2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

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

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO.[23] These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.]

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

- receipt or delay of major electrical equipment;
- testing or energization of major electrical equipment; and
- the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for electrical equipment and systems 480 volts and greater, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

ELEC-2 The project owner shall submit to the CBO[24] the required number of copies of items A and B for review and approval and one copy of item C [CBC 1998, Section 106.3.2, Submittal documents.]

Protocol: A. Final plant design plans to include:

1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
2. system grounding drawings;
3. general arrangement or conduit drawings; and
4. other plans as required by the CBO.

Protocol: B. Final plant calculations to establish:

[23] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in conditions of certification TSE-1, 2 and 3.

[24] Conformance with applicable LORS related to the project switchyard, switching stations, substations and transmission lines are addressed in conditions of certification TSE-1, 2 and 3.

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

Protocol: C. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

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

B. POWER PLANT RELIABILITY

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

The scope of analysis for Staff s review of the Project s reliability included: equipment availability, plant maintainability, fuel and water availability, plant reliability subject to natural hazards, annual availability factors and impacts to system-wide reliability. (Ex. 58, p. 269.)

In California s newly restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California Independent System Operator (Cal-ISO), an independent entity that works with the California Power Exchange (PX) to purchase, dispatch and sell electric power throughout the state. The Cal-ISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including: 1) filing periodic reports on plant reliability; 2) reporting all outages and their causes; and 3) scheduling all planned maintenance outages with the Cal-ISO.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant proposes to operate the 1,060 MW combined cycle portion of the project as a baseload plant, selling energy to the grid. Applicant also proposes to provide local power system support by selling ancillary services including peaking, turndown, voltage support and reactive power support. The portion of the Moss Landing site covered by this project is expected to operate at an overall availability of 92 to 96 percent with a capacity factor of between 50 and 90 percent. (Ex. 65, p. 270.)

1. 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. (Ex. 65, p. 271.)

The QA/QC program delineated by Applicant describes a program typical of the power industry. Equipment and supplies will be purchased from qualified suppliers of proven capabilities in accordance with the QA plan. (Ex. 5, // 8.5.2.1, 8.5.2.2.3, 8.5.2.2.4) The Commission expects implementation of this program to yield reliability of design and construction typical for the industry. To ensure implementation, Staff has proposed, and the Commission has adopted, appropriate Conditions of Certification under the portion of this document entitled **Facility Design**.

2. Plant Maintainability

Equipment redundancy of pieces most likely to require service or repair will allow maintenance during baseload operations. Applicant plans to provide appropriate redundancy for the combined cycle portion of the project. (Ex. 5, / 8.5.5.5.3.)

Furthermore, the project s four parallel trains of gas turbine generators/HRSGs provide inherent reliability. Failure of a non-redundant component of one train should not cause the other trains to fail, thus allowing the plant to continue to generate, although at reduced output. Because of this opportunity for continued operation in the face of equipment failure, Commission staff testified that the project s equipment redundancy will be sufficient. (Ex. 65, p.272.) Plant maintenance will conform to industry standards. (Ex. 5, // 2.3.3.5, 8.5.2.1, 8.5.2.2.4.)

3. Fuel and Water Availability

The Project will burn natural gas supplied by the existing PG&E interstate pipeline system by means of two existing 20-inch and 24-inch diameter pipelines. (Ex. 5// 1.4.4, 2.3.3.11, 8.5.1.1.) Both Staff and Applicant have determined that the project will have adequate natural gas supplies and pipeline capacity to meet the project s needs.

Cooling water for the project s steam turbine condensers will be piped seawater, with desalinate seawater used for all power cycle makeup. Existing groundwater wells at the site will provide fire protection and domestic water for the normal and the sanitary plumbing systems. (Ex. 5. //1.1, 1.4.5, 2/1/1/7, 2.3.3.6, 8.3.1.1, 8.3.1.2, 8.5.2.2.5.) Staff has determined this to be a reliable water supply. (Ex. 65, p. 272.)

4. Natural Hazards

The Project is located in seismic zone 4 and therefore earthquakes present a credible threat to reliable operation. However, no active earthquake fault lies nearby. The Project will be designed and constructed to the latest applicable LORS, thus representing a reliability upgrade over older power plants designed to older, lower seismic standards. (Ex. 5, // 1.5.12, 2.3.3.10.) Staff has

concluded in its testimony that in light of past performance of California power plants and the electrical system during earthquakes, there is no special concern regarding the Project s functional reliability against earthquake damage. (Ex. 65, p. 273.)

5. Availability Factors

Applicant predicts the Project will have an annual availability factor of 92 to 96 percent (Ex. 5, ⁄ 2.3.3.5.) The North American Electric Reliability Council (NERC) compiles industry statistics for power plant availability factors. NERC s statistics show an average availability factor for combined cycle units of 91.1 percent. Thus, Staff concluded that Applicant s estimate of reliability is reasonable and will likely be achieved. The Staff position is buttressed by the fact that the Project will employ four parallel gas turbine generating trains, thus allowing maintenance to occurring during periods of reduced operating demand when full plant output is not required. (Ex. 65, p. 273.)

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project will ensure equipment availability by implementing quality assurance/quality control programs and by providing adequate redundancy of auxiliary equipment to prevent unplanned off-line events.
2. The Moss Landing Power Plant Project four parallel trains of gas turbine generators/HRSGs will provide inherent reliability.
3. Planned outages for each of the turbine generators can be scheduled in sequence during times of low regional electricity demand.
4. There is adequate fuel and water availability for project operations.
5. Neither earthquakes nor flooding present significant risks to the project s safety or reliability.

6. The project s estimated 92-96 percent availability factor is consistent with industry norms for power plant reliability.
7. The Moss Landing Power Plant Project will perform reliably in baseload duty and cause no significant impacts to electric system reliability.

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

C. POWER PLANT EFFICIENCY

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

Under the California Environmental Quality Act (CEQA), a project causes significant environment impacts if it uses large amounts of energy in a wasteful, inefficient, and unnecessary manner. [Cal. Code of Regs., tit. 14, ⁄ 15126.4(a)(1).] In accordance with CEQA Guidelines, Staff s analysis considered whether the project would result in: 1) adverse effects on local and regional energy supplies and energy resources; 2) a requirement for additional energy supply capacity; 3) wasteful, inefficient, and unnecessary consumption of fuel or energy; or 4) noncompliance with existing energy standards. (*Id.*,⁄15000 et seq., Appendix F; Ex. 65, p. 277-282.)

1. Potential Adverse Effects on Energy Supplies and Resources

Power plants which fall within the Energy Commission s jurisdiction are all large enough to consume large amounts of energy in the generation process.[25] The Moss Landing Power Plant Project will burn natural gas at a maximum rate exceeding 142 billion Btu per day LHV.[26] (Ex. 5,⁄8.6.1.) This substantial rate of energy consumption has the potential to impact supplies. However, the Project will draw natural gas from the PG&E interstate pipeline system. This system accesses gas supplies from the southwest, the Rocky Mountains, and Canada. In relation to these vast supplies of natural gas, the MLPPP will represent an

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

[26] Lower heating value.

insignificant increase in demand on either California or interstate supplies of natural gas. (Ex. 65, pp. 278-279.)

2. Depletion of Energy Supplies

The natural gas pipeline system in California is so large and well established that that there is no real likelihood that the MLPPP will require development of any new sources of energy.

3. Alternatives to Wasteful or Inefficient Energy Consumption

The Project could be judged to have a significant impact on energy resources if far more efficient alternatives to the Project existed that would reduce the project s fuel use. Project fuel efficiency is determined by the configuration of the power producing system and by the selection of equipment at the power plant.

The MLPPP will be configured as a double compound-train combined cycle power plant generating electricity by four gas turbines and by two additional reheat steam turbines operating on exhaust gases. By recovering exhaust heat, the efficiency of the plant is greatly increased. Commission staff characterized the configuration as well suited to the large, steady loads met by a baseload plant, intended to supply energy efficiently for long periods of time. (Ex. 65, p. 279.) The number of turbines provides operating flexibility at the plant which further increases the efficiency of the MLPPP.

The record shows that Applicant s selection of the F-class turbines for the project makes use of the most modern and efficient turbines now available. Maximum thermal efficiency for the project is estimated to be approximately 55 percent. (Ex. 58, p. 83.)

Both Applicant and Staff presented evidence analyzing alternative generating technologies.[27] However, both concluded that given the project objectives, location and air pollution control requirements, only natural gas-burning technologies are feasible for the MLPPP. (Ex. 65, p. 280.)

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project will not create a significant demand for natural gas in California.

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

3. The Moss Landing Power Plant Project will not require the development of any new sources of energy.

4. The Project will have no significant adverse impacts on energy resources.

5. Given project objectives, location, and air pollution control requirements, only natural gas fired combustion technologies are feasible for this project.

6. The project will employ modern F-class gas turbines (General Electric PG7241 (FA)) nominally rated at 56.5 percent lower heating value (LHV) efficiency, which compares favorably to other available F-class turbine generators and which are among the most fuel-efficient turbines currently available.

7. As a highly efficient, state-of-the-art natural gas-fired power plant, Moss Landing Power Plant Project is significantly more efficient than older power plants in the utility system.

The Commission therefore concludes that Moss Landing Power Plant Project will not cause any significant adverse impacts to energy supplies or energy resources. The project will conform with all applicable laws, ordinances,

[27] Alternative generation technologies include: oil-burning, coal-burning, solar, wind, hydroelectric, biomass, municipal solid waste, fuel cells, ocean energy, nuclear, and geothermal technologies. (Ex. 65, p. 280.)

regulations, and standards (LORS) relating to power plant efficiency as identified in the pertinent portions of **APPENDIX A** of this Decision.

No Conditions of Certification are proposed concerning the topic of Power Plant Efficiency.

D. TRANSMISSION SYSTEM ENGINEERING

In addition to the power plant portion of the Moss Landing modernization project, Applicant will also construct and operate a relatively short electric transmission tie line as a linear facility related to the power plant. (See Pub. Resources Code, ∕∕25120, 25110.) The Commission s jurisdiction to address this matter includes any electric power line carrying electric power from a thermal power plant to a point of junction with any interconnected transmission system. (Pub. Resources Code, ∕25107.) The MLPPP does not require transmission line construction except for the short segments necessary to convey power from the new Units 1 and 2 to the PG&E switchyards immediately adjacent to the MLPPP site. (Ex. 65, p. 288.)

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Description of Transmission Facilities.

The Project will connect to PG&E s 230 kV Moss Landing Switchyard. The new Units 1 and 2 generating modules will connect to the PG&E circuit breakers via two short segments of new 230 kV overhead transmission line, each no more than 1500 feet in length. (Ex. 67, p. 3.) Each of the generator tie lines will serve half of the new power plant. The conductor size and type identified by Applicant is 2156 Kcmil aluminum conductor steel reinforced. The connection will have a planned ampacity rating of at least 1,650 amps and the circuit will be designed to accommodate full plant output. Line construction will meet or exceed GO-95 specifications as indicated in Conditions of Certification **TSE-1a and TSE-1d.** (Ex. 65, p. 288.)

While the existing PG&E switchyards and the power grid are adequately sized to receive power from the MLPPP, the Preliminary Facility Studies (Ex. 6.) identified some switching station components which must be replaced and adjusted to accommodate the additional output from the Project. (*Ibid*.)

2. System Reliability

The interconnection of a new generator if not properly designed and operated, could adversely impact the reliable operation of the state s electric power system. The role of the California Independent System Operator (Cal-ISO) regarding the interconnection of new generation is to ensure the reliable operation of the ISO-controlled grid. To do this, the Cal-ISO coordinates the planning of system modifications to ensure they meet the Cal-ISO s Grid Planning Criteria. These criteria incorporate the Western Systems Coordinating Council (WSCC) Reliability Criteria, the North American Electric Reliability Council (NERC) Planning standards, and local area reliability criteria.

In the case of the MLPPP, Applicant submitted its request for connection to the transmission grid to the Participating Transmission Operator (PTO), in this case, PG&E. In response to the request, PG&E performed a Preliminary Facilities

Study, which was dated May 14, 1999. (Ex. 6.) The purpose of the PG&E study was to identify any system reliability concerns and any potential congestion impacts resulting from the addition of the MLPPP to the grid. Applicant and PG&E evaluated the existing transmission system and lines and found them to be sized sufficiently to accept the output from the new proposed generation units (Ex. 58, p. 28.) After reviewing the technical analysis performed by PG&E, the Cal-ISO concurred with the study s findings that interconnection of the Moss Landing Power Plant Project to the ISO-controlled grid will meet all applicable reliability criteria after implementation of specific reinforcements and implementation of mitigation measures.

The mitigation measures include replacing breakers at the Moss Landing switchyard and, if applicable, the implementation of a Remedial Action Scheme (RAS) based on further facility studies. These mitigation measures are included in the terms of Condition of Certification **TSE-1.**

Based on its analysis, the Cal-ISO has granted the MLPPP preliminary interconnection approval. (Ex. 67.) Applicant must conduct further interconnection studies before the Cal-ISO grants final approval for interconnection. The Energy Commission staff reviewed the PG&E Preliminary Facilities Study and the analysis of the Cal-ISO. (Ex. 65, pp. 289-295.) As a result, Staff proposed the Conditions of Certification contained at the end of this section.

3. Closure

Before generating facilities are permitted to provide power to the California Power Exchange, generator standards must be met and power plant operators must comply with instruction of the Cal-ISO dispatchers. Participating generators must sign a Participating Generator Agreement. Procedures for planned, unexpected temporary closure and unexpected permanent closure must be

developed or verified prior to Project operation in order to ensure effective communication among the project owner, the PTO, and the Cal-ISO for the sake of safety and system reliability. Condition of Certification **TSE-1c** ensures this will occur.

4. Cumulative Impacts

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

In its Supplemental Testimony filed on June 8, 2000 as Part 3 of the Final Staff Assessment, Staff set forth it analysis of the MLPPP s potential cumulative impacts to the integrated transmission system in light of several proposed and licensed power plant projects. (Ex.74, p. 7.) The screening criteria for the power plant projects in the analysis included, 1) that the projects are within or adjacent to PG&E s transmission control area, and 2) the projects have all successfully completed or are in the AFC licensing process.

To prepare its testimony, Staff reviewed the April 21, 2000 draft of PG&E s Detailed Facilities Study (DFS) as well as the Cal-ISO s comments on the draft DFS. The PG&E study analyzed the MLPPP cumulative impacts along with assumed operation of the Sutter Power Project, the Los Medanos Energy Center, the Delta Energy Center, and the Metcalf Energy Center. The study showed the Sutter Power Project to be too remote to be impacted electrically by the MLPPP. The cumulative impact of the MLPPP with the remaining three power plants

indicates a reduced number of line overloads. (Ex. 74, p. 8, Table 1) Where the analysis shows a potential for overloads due to addition of the MLPPP, all such overloads can be mitigated through reducing the output of the MLPPP. (*Ibid*.)

Staff also conducted screening analysis of several other projects which met its criteria.[28] All of these projects were too remote electrically to have significant interaction with MLPPP. Staff concluded that, based on the studies available, no significant cumulative impacts will occur due to MLPPP when considered in conjunction with the projects analyzed. (*Ibid*.)

FINDINGS AND CONCLUSIONS

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

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

2. PG&E performed a Detailed Facilities Study to analyze the potential reliability and congestion impacts likely to occur when MLPPP interconnects to the grid.

3. The California Independent System Operator has preliminarily determined that interconnecting the Moss Landing Power Plant Project at the Moss Landing Switchyard will not create adverse impacts to the reliability of the electrical system.

4. The California Independent system Operator has determined that interconnecting the Moss Landing Power Plant Project is not likely to require the construction of significant additional transmission facilities downstream of the Moss Landing Switchyard.

5. Prior to the construction of transmission facilities the Moss Landing Power Plant Project will provide a detailed Facilities Study which includes a description of applicable Remedial Action Scheme sequencing and timing for the Project.

[28] Contra Costa Power Plant Project, Potrero, La Paloma, Midway-Sunset Cogen West, Elk Hills Power Project, Sunrise Cogeneration and Power Project, and the Three Mountain Project.

6. The determinations of the California Independent System Operator are based on its review of the Preliminary Facilities Study, the draft Detailed Facilities Study and other referenced analysis performed by the California Independent System Operator and by Pacific Gas and Electric Company.

7. A final Detailed Facilities Study is forthcoming and the testimony of record establishes that this document is not expected to alter conclusions reached by the California Independent System Operator and Commission staff concerning the acceptability of interconnecting the Moss Landing Power Plant Project at the Moss Landing Switchyard.

8. The outlet line from the Project s new 530-MW units will feed into the existing Pacific Gas and Electric Company 230-kV system. The 30-MW Power produced by the upgraded Units 6 and 7 will continue to be delivered to the Pacific Gas and Electric Company s 500kV system without modification.

9. The transmission outlet for the Moss Landing Power Plant Project is deemed safe and acceptable.

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

11. Technical studies of Commission staff indicate no significant cumulative impacts due to the MLPPP when considered in conjunction with power plants which are within or adjacent to the PG&E transmission control area and have completed or are currently involved in the Commission s AFC process.

12. With the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnect for the Project will not contribute to significant direct, indirect, or cumulative environmental impacts.

13. The Conditions of Certification below ensure that the transmission related aspects of the Moss Landing Power Plant Project will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the appropriate portions of **Appendix A** of this Decision.

We therefore conclude that interconnection of the Project at the Moss Landing Switchyard is acceptable, and that it will not result in the violation of any criteria pertinent to transmission engineering.

CONDITIONS OF CERTIFICATION

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

a) The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95, Title 8, CCR, section 27000 et seq., High Voltage Electric Safety Orders , National Electric Code (NEC), and Industry Standards.

b) Termination facilities shall comply with applicable Cal-ISO and PG&E interconnection standards (PG&E Interconnection Handbook and CPUC Rule 21).

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) The project conductors shall be sized to accommodate the full output from both 530 MW units.

e) The project owner shall provide a Detailed Facility Study (DFS) including a description of Remedial Action Scheme (RAS) sequencing and timing, if applicable, and an executed Facility Interconnection Agreement for the project transmission interconnection with PG&E. The DFS and Interconnection Agreement shall be coordinated with the Cal-ISO and shall comply with Cal-ISO comments detailed in its February 10, 2000 letter to the project owner, or with Cal-ISO s comments as modified by mutual agreement between Duke Energy and the Cal-ISO.

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

a) Design drawings, specifications and calculations conforming with CPUC General Order 95 and related industry standards, where applicable, for

the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

b) For each element of the transmission facilities as identified above, the submittal package to the CPM shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on worst case conditions [29] and a statement by the registered engineer in responsible charge (signed and sealed) that the transmission element(s) will conform with CPUC General Order 95, Title 8, CCR, section 27000 et seq., High Voltage Electric Safety Orders , NEC, and Industry Standard.

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-1** a) through e) above. The Detailed Facilities Study and executed interconnection agreement shall concurrently be provided. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval.

TSE-2 The project owner shall inform the CPM of any impending changes, which may not conform to the requirements **TSE-1** a) through e), and have not received CPM approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction, involving changed equipment or substation configurations, shall not begin without prior written approval of the changes by the CPM.

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

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM approved changes thereto, to ensure conformance with CPUC GO-95, Title 8, CCR, section 27000 et seq., High Voltage Electric Safety Orders , NEC, Cal ISO Standards, the PG&E Interconnection Handbook, and CPUC Rule No. 21 and these conditions. In case of non-conformance, the project owner shall inform the CPM in writing, within 10 days, of discovering such non-conformance and describe the corrective actions to be taken.

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

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

a) As built engineering description(s) and one-line drawings of the electrical portion of the facilities, signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95, Title 8, CCR, section 27000 et seq., High Voltage Electric Safety Orders , NEC, Cal ISO Standards, CPUC Rule No. 21, the PG&E Interconnection Handbook, and these conditions shall be concurrently provided.

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. 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 .

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

E. TRANSMISSION LINE SAFETY AND NUISANCE

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

Short transmission lines of approximately 1500 feet in length will connect the new 530-MW generating Units 1 and 2 to the Moss Landing Switchyard. These lines will be located within the boundaries of the Project site. Beyond that point, the Project will be able to make use of the existing PG&E transmission system without modifying lines with regard to voltage, conductor configuration or support structures. The only change to the existing system resulting from the Project would be the flow of additional energy generated from the MLPPP. Since magnetic fields are produced during current flow, this added energy would add to the level of magnetic fields in the existing system. Staff analyzed this potential impact by comparing anticipated field strengths after project completion with those from lines of the same capacity, which were designed to existing laws. (Ex. 65, p. 45.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant presented its analysis in the form of testimony by witnesses G. Allan Jones and Robert Mason. The testimony established that the Project will comply with all applicable LORS and, as mitigated will have no significant impacts. (Ex. 58, pp. 26-28; 6/7/00 RT 40-43.)

Staff offered the testimony of its witness, Obed Odoemelam, who addressed several potential risks associated with transmission line safety and nuisance.

(Ex. 65, pp.45-54; 6/7/00 RT 43.) He noted that the Project s use of the existing PG&E transmission system means the lines were constructed in accordance with California Public Utility Commission standards bearing on aviation safety, fire hazards, and hazardous shocks. Accordingly, these existing lines are considered safe. Concerning electric field related audible noise, nuisance shocks and interference with radio frequency communication, the witness pointed out that these impacts depend on electric field levels and line voltage. Since the Project will not result in a change in the voltage of the existing lines, no incremental impact is anticipated. (*Id*.)

In California, the CPUC has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line electric and magnetic fields (EMF) below present levels. However, the CPUC does require PG&E and other utilities to establish EMF-reducing design guidelines for all new or upgraded power lines and related facilities within their service areas. This means that all lines to be used in connection with the MLPPP will have to meet the design requirements specified by PG&E for its service area. The Condition of Certification **TLSN-1** which follows will ensure that Applicant measures actual EMF levels along the transmission route after the Project is constructed and the lines are energized. The Staff analysis also determined that the Project would have no cumulative impacts related to transmission line safety and nuisance. (Ex.65, p. 53.)

The Staff analysis verified Applicant s calculations of maximum magnetic and electric field strengths along the existing routes of between 14 and 70 miles of line potential impacted by the Project. The calculations compared existing and post-modification field strengths and revealed no changes at the existing voltages. The maximum value of electric field strength within the right of way is 7.06kV/m, a level typical of existing PG&E lines of similar voltage. The maximum magnetic field values are within the average range of 150mG to 250 mG

established for transmission lines by those states with regulatory limits on electro-magnetic fields. (Ex. 65, pp. 52-53.)

COMMISSION DISCUSSION

The evidentiary record establishes that the transmission line design for the MLPPP will conform with all established requirements to ensure aviation safety, prevent radio and television interference, limit audible noise, eliminate fire hazards, and prevent hazardous and nuisance shocks. Since adverse health effects for electric and magnetic fields have not been either established or ruled out at this date, the public health significance of project-related field exposure cannot be characterized with certainty. Although the additional current from the proposed MLPPP will increase magnetic fields within some of the lines in the existing transmission grid, the calculated field strengths indicate that exposure to these fields would be within the range of typical PG&E lines of the same voltage and current-carrying capacity. There is no evidence that the lines will pose a danger from EMF. Furthermore, the Conditions of Certification, which follow, will verify the accuracy of studies in the record which estimate post-modification field strength.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we find:

1. The proposed transmission line, which will connect to PG&E s transmission system at the Moss Landing Switchyard, is comprised of two short segments of new 230 kV overhead transmission line.

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

3. The MLPPP transmission line will be designed in accordance with the electric and magnetic field reducing guidelines applicable to PG&E s

transmission service area and will not create significant adverse human health impacts.

4. The Project s transmission line will not create an unacceptable interference with aviation safety, or with radio frequency communications, nor will it create a significant shock hazard to humans.

5. Project transmission is not likely to create fire hazards and audible noise from the proposed Project will be within acceptable limits.

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

7. The Conditions of Certification will ensure that the transmission line is designed, constructed, and operated in compliance with the applicable laws, ordinances, regulations and standards specified in the appropriate portion of **Appendix A** of this Decision.

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

CONDITION OF CERTIFICATION

TLSN-1 The project owner shall engage a qualified consultant to measure the strengths of line electric and magnetic fields at the points along the routes for which estimates were provided by the applicant.

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

VI. PUBLIC HEALTH AND SAFETY

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

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. In order to grant certification for a power plant, the Commission must analyze project-related impacts and determine whether the project complies with all applicable laws, ordinances, regulations, and standards related to air quality. National ambient air quality standards (NAAQS) have been established for six air contaminants identified as criteria air pollutants. Criteria air pollutants are those for which a state or federal standard has been established. They include nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3) and its precursors (NOX and VOC), particulate matter less than 10 microns in diameter (PM_{10}) and its precursors (NOx, VOC, SOx) and lead (Pb).

SUMMARY OF THE EVIDENCE

Applicant s witness Gary Rubenstein directed air quality analysis of the MLPPP and summarized the results in his testimony. (Ex. 61; 6/15/00 RT 3-26.) In reviewing the existing air quality conditions in the Moss Landing vicinity, he described each criteria pollutant and explained whether or not current standards are being met.

Ozone (O_3) is formed in the atmosphere as a result of complex reactions between reactive organic gasses and oxides of nitrogen in the presence of sunlight. Peak levels occur during the summer months. The witness noted that state ozone standards have

not been exceeded in Salinas since prior to 1988 and that the ozone levels at Salinas have gradually been declining. (Ex. 61, p. 6.)

Carbon Monoxide (CO) results from inefficient combustion, principally from motor vehicles and other mobile sources of air pollution. Wood-burning stoves and stationary industrial sources, such as power plants, also contribute. Peak CO levels are usually seen during the winter months. There have been no measured violations of state or federal CO standards at Salinas since before 1988. (*Id*.)

Nitrogen Dioxide (NO_2) is formed primarily in the air from reactions between nitric oxides and oxygen or ozone. There have been no violations of state or federal nitrogen dioxide standards measured in Salinas since before 1988. (*Id*.)

Sulfur Dioxide (SO_2) is produced when any sulfur-containing fuel is burned. Natural gas contains small amounts of sulfur. Mr. Rubenstein testified that since before 1988 sulfur dioxide levels at Davenport have been well below state and federal air quality standards. Particulate sulfates result from further oxidation of sulfur dioxide in the atmosphere. San Jose is the nearest monitoring station for sulfates and levels have also been well below standards for the last 10 years. (*Id.)*

Fine Particulate Matter (PM_{10}) in the air is caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources; organic, sulfate, and nitrate aerosols formed in the air from emissions of gaseous pollutants, and natural aerosols such as salts from sea spray. The witness noted that local PM_{10} levels have been below federal standards but above state standards. However, he stated that during the last three years for which data are available (1995-1997), there has been only one measured exceedance of the state PM_{10} standard in Salinas. (*Id*.)

Mr. Rubenstein summarized the air quality environmental impacts of the Project as resulting primarily from operation of the combined cycle gas turbines, as well as from continuing operation of the existing boilers. These impacts were fully analyzed by both

the Monterey Bay Unified Air Pollution Control District (MBUAPCD) in its Final Determination of Compliance (Final DOC) (Ex. 55), and by the Commission staff in it Final Staff Assessment. (Ex. 66, pp. 25-80; Ex. 71.) The emissions from the proposed Project were calculated based on the maximum capacity of the equipment and thus represent a worst case. The witness testified that actual emissions during plant operation are expected to be much lower than the levels shown in the Final DOC and in the Final Staff Assessment. (Ex. 61, p. 7.)

Applicant testified that the Project will meet the requirement to employ Best Available Control Technology (BACT). Emissions of all pollutants will be kept low by using natural gas as fuel for all equipment. To minimize emissions of oxides of nitrogen (NOx) and carbon monoxide (CO), the gas turbines will use special combustion systems known as advanced dry low-NOx combustors. To further reduce NOx emissions, the gas turbines will also use selective catalytic reduction (SCR) technology. (Ex. 61, p. 8.)

The Project will offset all remaining net emission increases through the use of emission reductions from other facilities. This is required by MBUAPCD and Energy Commission rules. Pursuant to MBUAPCD rules, the Project s net emission increase is evaluated by calculating the maximum future emissions from existing Units 6 and 7, as well as from the new combined cycle units. This is then compared with the current, or baseline, emissions from the existing units. The remaining emissions increases from the Project must then be mitigated by Applicant s purchase of emission reduction credits (ERCs). These are purchased from companies holding such ERCs within the general vicinity of the Project. (*Id.*) In a letter to the Commission dated June 22, 2000, MBUAPCD air quality engineer Mike Sewell certified that adequate ERCs for the Project have been identified and will be obtained by Applicant prior to the Commission licensing the Project.[30]

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[30] The letter filed in the Commission s Docket Unit on June 27, 2000, in conjunction with the Final DOC (Ex. 55.) and Staff testimony (Ex. 66.) form the basis for the Commission s finding pursuant to Public Resources Code section 25523(d)(2).

ERCs for the Project s emissions increases of NO_x, SO_2, VOC, and PM_{10} will come primarily from banked ERCs resulting from the closure of Units 1 through 5 and from the Spreckels Industrial Park located near Salinas. The amount and source of the ERCs is set forth in Table 14 of the Staff testimony, replicated below. (Ex. 66, p. 52.)

AIR QUALITY Table 14
Emissions Offsets (tons per year)

	NOx	SO2	VOC	PM10
PG&E [a]	52.622	0.846	1.973	4.228
Firestone Tire and Rubber [a]	---	---	18	---
Estate of RE McDonald [a]	1.268	0.009	0.283	0.455
Firestone Business Park [a]	20.169	2.556	187.65	11.178
Spreckels Industrial Park [a]	254.61	35.73	33.93	213.948
Total	328.669	39.141	241.836	229.809
a. ERCs currently owned by the project applicant.				

Sources: District 2000a and District 2000b

Applicant evaluated the impact of the Project on ambient air quality by applying models approved by the U.S. EPA. Worst-case ground-level conditions were assessed for various meteorological and operating situations. The worst-case ground level impacts modeled for the Project were added to existing (background) concentrations from nearby monitoring stations to determine the total ambient concentrations. The Final DOC confirmed that even when the proposed Project s emissions are combined with existing background levels and with continued operation of existing Units 6 and 7, the Project would not cause a new violation of any state or federal air quality standard. Because the Project will contribute to existing PM_{10} violations, Applicant will provide PM_{10} offsets. (Ex. 61, p. 8.)

Applicant s witness also referred to the screening health risk assessment which was performed to evaluate the potential impact of toxic compounds resulting from the combustion of natural gas. The assessment found no significant health risk from the

proposed Project.[31] (*Id*.) The subject is addressed in more detail in the Public Health section of this Decision. Mr. Rubenstein also testified that Applicant performed a cumulative air quality impacts analysis for the Project, which examined MLPPP emissions in conjunction with those from other existing and proposed projects in the area. The analysis concluded that the combination of projects would not result in a significant cumulative air quality impact. (Ex. 61, p. 9.)

Applicant s testimony concluded that the Project s emissions reductions will be greater than its emissions increases, thereby causing a net benefit to regional air quality. (*Id*.)

Energy Commission staff analysis for air quality was conducted by witness Matt Layton. (Ex. 66; Ex. 71; 6/15/00 RT 36-47.) Based on his independent analysis Mr. Layton concluded that, while the Project has the potential for significant impacts, the MLPPP will reduce operation impacts to the extent feasible, will operate the entire MLPP facility under annual and quarterly emission caps, and will provide emission offsets for NOx, VOC, SO2, and PM_{10} emissions increases. As a result, he found that the Project will reduce potential impacts to a level of insignificance. Staff also determined that, based on its review of the Final DOC, the Project will comply with the rules and regulations of the MBUAPCD. (*Id*.)

1. Soot Filters

The single dispute concerning air quality matters involves Applicant s opposition to a recommendation by Staff that heavy equipment used to construct the Project be equipped with an oxidizing soot filter. (Condition of Certification **AQ-54**.) This is a devise that replaces the muffler on the construction equipment used to build the Project. It reduces CO and hydrocarbon (VOC) emissions by approximately 80-90 percent and reduces PM_{10} emissions by approximately 90-99 percent. (Ex. 66, p. 57.) Staff

[31] Worst-case cancer risk is far below the significance level of 10 in one million and below the 1 in one million level that triggers additional control technology requirements.

proposed the soot filter requirement because the Project s construction activities will contribute to PM_{10} level violations in the area.[32] (6/15/00 RT 40.)

In Applicant s view, Staff s requirement that construction equipment use oxidizing soot filters should be rejected as untested, unreliable and unnecessary. (Applicant s Post-Hearing Brief, p. 13.) Duke Energy argues it is untested because the only known experience with soot filters on construction equipment is from a clean-up project at Avila Beach, where only four pieces of equipment were fitted with filters. Applicant s witness acknowledged, however, that on three of the four pieces of equipment, the soot filters appeared to operate satisfactorily. (6/15/00 RT 11.)

Staff responds that Condition of Certification **AQ-54** allows for discretionary application of the soot filter technology by allowing qualified engineers or specialists to determine suitable application and, if necessary, removal of soot filters from construction equipment.

Applicant also contends that Staff has not demonstrated the necessity for requiring oxidizing soot filters. Applicant argues the Project will have a relatively small impact compared to PM_{10} emissions in other siting cases and that other PM_{10} mitigation measures proposed for the MLPPP by both Staff and Applicant will address the problem.[33] (6/15/00 RT 13.) Staff responds that case law under CEQA requires the use of all feasible mitigation measures to avoid or substantially reduce all significant adverse environmental impacts caused by the project. (Staff s Responsive Brief, p. 3.)

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[32] Staff proposed additional measures to reduce PM10 emissions during construction. These include minimizing fugitive dust emissions and requirements that contractors maintain equipment to reduce exhaust, limit idling times and use engines that meet federal emission standards for construction equipment. (Ex. 66, p. 57, Ex. 71, p. 6-7.)

[33] Applicant s witness testified that the Project will emit less than 82 pounds per day of PM_{10} during construction. This amount is considered not significant by both the Monterey County Planning Department and the MBUAPCD. (6/15/00 RT 13.)

While disagreeing with the need to require oxidizing soot filters, Applicant stated that if the Commission were to find that such mitigation is necessary, Condition of Certification **AQ-54** contains appropriate language so long as an alternate requirement to use oxidizing catalysts is removed. (6/15/00 RT 14.) As proposed by Staff, **AQ-54** states that if an oxidizing soot filter was found to be infeasible, an oxidizing catalyst should be installed instead. (Ex. 71, p. 6-7.)

Applicant argues that such a catalyst will prove unsuccessful at mitigating PM_{10} impacts. (6/15/00 RT 14-15.) This is because an oxidizing catalyst is very sensitive to sulfur and both Applicant and Staff agree that low-sulfur fuels will not be readily available for use during the Project construction period. (6/15/00 RT 14-15, 19; 41-42, 47, 51.) Based on this lack of fuel availability, Staff had deleted a requirement that Project construction equipment use low-sulfur fuel. (Ex. 71, p. 6.) In addition, Applicant argues that oxidizing catalysts should not be used on diesel equipment due to problems associated with plugging and their tendency to produce PM_{10} emissions. (6/15/00 RT 47.) Staff agrees that low-sulfur fuels are not now available for Project construction and that, therefore, the requirement to use oxidation catalysts should be deleted. (6/15/00 RT 41-42, 47, 51.)

COMMISSION DISCUSSION

While the Applicant has made a good argument that the Project will do much to mitigate PM_{10} impacts during construction, it is clear that some particulate emissions will take place. These emissions will not cause, but will contribute to an existing violation of the state air quality standard for PM_{10}. (6/15/00 RT. 17.) Furthermore, we have learned from previous siting cases that construction emissions are extremely difficult to predict and though temporary, can be significant. Therefore, we must disagree with Applicant s argument that further reduction of construction-generated PM_{10} is not necessary.

As to the feasibility of requiring oxidizing soot filters to mitigate the impacts of construction-related PM_{10} emissions, this has been demonstrated at Avila Beach, where

three out of four applications performed satisfactorily.[34] In fact, the Commission has been sufficiently impressed with the performance of oxidizing soot filters to require their use in the construction of other power plants in California.[35] It is therefore a feasible mitigation measure to apply in this case as well, subject to the discretionary application based upon equipment performance as judged by onsite qualified engineers or specialists.

However, the weight of the evidence establishes that without the availability of low-sulfur diesel fuel at the Project, use of oxidizing catalysts to mitigate construction-related PM_{10} emissions is not feasible. Therefore the Commission has deleted any reference to oxidizing catalysts in Condition of Certification **AQ-54**.

FINDINGS AND CONCLUSIONS

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

1. The proposed Moss Landing Power Plant Project is located in the Monterey Bay portion of the North Central Coast Air Basin, within the jurisdiction of the Monterey Bay United Air Pollution Control District

2. The Project area is designated attainment for the state s CO, NO_2, SO_2, SO_4, and lead standards, and attainment for the federal SO_2 standard, and unclassified/attainment for the federal CO and NO_2 standards. The area is classified non-attainment for the state PM_{10} 24-hour standard, although it is in attainment for the state and federal annual, and the federal 24-hour PM_{10} standards.

3. Construction and operation of the Moss Landing Power Plant Project will result in emissions of criteria pollutants.

4. The Project will employ the best available control technology (BACT) to control project emissions of criteria pollutants.

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[34] Applicant s witness acknowledged that he was not familiar with the details of the Avila Beach experience. (6/15/00 RT 19.)

[35] High Desert Power Project (Docket No. 97-AFC-1) *Commission Decision*, Cond. AQ-3 o, p. 107; Sunrise Cogeneration and Power Project (Docket No. 98-AFC-4) *Presiding Member s Proposed Decision,* Cond. AQ-C2, pp. 139-140.)

5. The Air Pollution Control Officer for the Monterey Bay Unified Air Pollution Control District (MBUAPCD) has certified that complete emission offsets for criteria pollutants emitted by MLPPP have been identified and will be obtained by Applicant prior to the Commission s licensing of the Project.

6. Applicant has submitted letters of intent, option contracts, memorandum of understanding, and emission reduction credit certificates to the MBUAPCD for the required emission reduction credits to satisfy MBUAPCD air quality requirements.

7. The Project s offset package includes emission reduction credits from the local community and surrounding areas.

8. Implementation of the Conditions of Certification will ensure that the Moss Landing Power Plant Project will not result in any significant adverse impacts to air quality.

9. With the Conditions of Certification, the Project will be constructed and operated in Compliance with all applicable federal, state, and local laws, ordinances, regulations, and standards governing air quality and set forth in the pertinent portion of Appendix A of this Decision.

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

CONDITIONS OF CERTIFICATION

DETERMINATION OF COMPLIANCE CONDITIONS

CONDITIONS PRIOR TO COMBUSTING FUEL:

AQ-1 Duke Energy Moss Landing LLC shall submit all design criteria and specifications on the gas turbine generators, the heat recovery steam generators, the steam turbine generator, the condensers, the SCR system, the ammonia injection system, and the CEM systems, and receive District approval prior to installation.

Verification: The project owner shall provide all design criteria and specifications on the gas turbine generators, the heat recovery steam generators, the steam turbine generator, the condensers, the SCR system, the ammonia injection system, and the CEM systems for review to the Energy Commission (CEC) CPM and the District, and shall receive approval from the District prior to installation.

AQ-2 Pursuant to the requirements of District Rule 218, Duke Energy Moss Landing LLC shall apply for and receive a revised Title V permit for the Moss Landing Power Plant prior to combusting fuel in the gas turbines.

Verification: The project owner shall provide copies Title V permits to the CEC CPM no later than 30 days after the receipt of the permits from the District.

AQ-3 District-approved continuous emission monitors shall be installed, calibrated, and operational prior to first firing the gas turbines. After commissioning of the gas turbines, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the normal range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: The project owner shall provide copies of the design drawings of the continuous emission monitor design detail to the CEC CPM at least 30 days prior to commencement of construction of the HRSG and the stack.

AQ-4 Duke Energy Moss Landing LLC shall submit a plan to the District at least 30 days prior to the first firing of the gas turbines. This plan shall describe the procedures to be followed during the commissioning of the gas turbines, the HRSGs, and the Steam 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 dry-low-NO_x combustors, the installation and operation of the SCR systems, and the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the gas turbines without abatement by the SCR Systems. The plan shall include a quantification of emissions during commissioning and use of a HRSG chemical cleaning boiler.

Verification: The project owner shall provide a Commissioning Plan for approval to the CEC CPM and the District at least 60 days prior to first firing of the combustion turbines.

AQ-5 No later than seven (7) days prior to combusting fuel in the gas turbines, Duke Energy Moss Landing LLC shall notify the District and arrange for an inspection of the equipment.

Verification: The project owner shall provide copies of the notification to the CEC CPM.

AQ-6 Duke Energy Moss Landing LLC shall surrender the offsets identified in this evaluation prior to combusting fuel in the gas turbines.

Verification: The project owner shall provide copies of the Emission Reduction Credits (ERCs) to the District and the CEC CPM prior to combustion fuel in the gas turbines.

TURBINE COMMISSIONING CONDITIONS:

AQ-7 Duke Energy Moss Landing LLC shall minimize emissions from the gas turbines to the maximum extent possible during the commissioning period.

Verification: See Condition **AQ-3**.

AQ-8 At the earliest feasible opportunity in accordance with the recommendation of the equipment manufacture, the combustors of the gas turbines shall be tuned to minimize emissions.

Verification: See Condition **AQ-3**.

AQ-9 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufactures, the SCR systems shall be installed, adjusted, and operated to minimize the emissions of nitrogen oxides and ammonia from the gas turbines.

Verification: See Condition **AQ-3**.

AQ-10 The total number of firing hours of each gas turbine without abatement of nitrogen oxide emissions by the SCR system shall not exceed 300 hours during the commissioning period. Such operation of the gas turbine without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, Duke Energy Moss Landing LLC shall provide written notice to the District and the unused balance of the 300 firing hours without abatement will expire.

Verification: See Condition **AQ-3**.

AQ-11 The total mass emissions of nitrogen oxides, carbon monoxide, volatile organic compounds, PM_{10}, and sulfur dioxide that are emitted from each gas turbine during the commissioning period shall accrue towards the quarterly emission limits specified in Condition 28.

Verification: See Condition **AQ-3**.

AQ-12 At the end of the commissioning period, Duke Energy Moss Landing LLC shall conduct a District and CEC approved source test to determine compliance with Condition 15 (for shutdown limits), and Condition 17 (start-up limits), and the written test results of the performance tests shall be provided to the District and the CEC within thirty (30) days after the testing. The source test shall determine NO_x, CO, and VOC emissions during start-up and shutdown of the gas turbines. The source test for each gas turbine shall include a minimum of three start-up and three shutdown periods. A complete test protocol shall be submitted to the District no later than thirty (30) days prior to testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

Verification: A complete test protocol shall be submitted for approval to the District and the CEC CPM no later than thirty (30) days prior to testing, and notification to the District and the CEC CPM at least ten (10) days prior to the actual date of testing shall be provided so that District or Energy Commission observers may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

GAS TURBINE CONDITIONS:

AQ-13 The heat input rate to each gas turbine shall not exceed 1,870 MMBtu/hr.

Verification: See **AQ-37 and 38**.

AQ-14 The maximum daily combined emissions from the gas turbines, including start-ups and shutdowns, shall not exceed the following limits:

Pollutant	Lbs/Day
Oxides of Nitrogen (NO_x)	2,589.4
Carbon Monoxide (CO)	17,301.8
Particulate Matter <10 microns (PM_{10})	864.0
Volatile Organic Compounds (VOC)	620.0
Ammonia (NH_3)	1,224.0
Sulfur Dioxide (SO_2)	124.0

Verification: See **AQ-37 and 38**.

AQ-15 The pollutant mass emission rates in the exhaust discharged to the atmosphere from each gas turbine shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day
Oxides of Nitrogen (NOx)	17.23	413.52
Carbon Monoxide (CO)	37.76	906.24
Particulate Matter <10 microns (PM10)	9.00	216.00
Volatile Organic Compounds (VOC)	4.79	114.96
Ammonia (NH3)	12.75	306.0
Sulfur Dioxide (SO2)	1.30	31.2

Protocol: These limits shall not apply during start-up, which is not to exceed four (4) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-16 The pollutant concentrations discharged to the atmosphere from each Gas Turbine shall not exceed the following limits, calculated at 15 percent O_2 on a one-hour rolling average unless otherwise noted:

Pollutant	Concentration (ppm)
Oxides of Nitrogen (as NO2)	2.5
Carbon Monoxide (CO)	9.0 (rolling three-hour average)
Ammonia (NH3)	5.0 (3-60 minute averages.)

Protocol: These limits shall not apply during start-up, which is not to exceed four (4) hours, or shutdown, which is not to exceed two (2) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-17 The pollutant emission rates discharged to atmosphere from each gas turbine during a start-up shall not exceed the following limits. These limits apply to any start-up period, which shall not exceed four (4) hours.

Pollutant	Lbs/Start -Up
Oxides of Nitrogen (as NO2)	320
Carbon Monoxide (CO)	3,608.0
Volatile Organic Compounds (as CH4)	64.0

Verification: See **AQ-37 and 38**.

AQ-18 Compliance with the hourly NO_x emission limits specified in Conditions 15 and 16 shall not be required during short-term excursions of less than 10 hours per rolling 12-month period.

Short-term excursions are defined as 15-minute periods designated by Duke Energy Moss Landing LLC that are a direct result of a diffusion mode switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.5 ppm corrected to 15% O_2.

The maximum 1-hour average NO_x concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% O_2. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

AQ-19 CEM Systems shall be installed and operated on each of the gas turbines. These systems shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, CO_2 or O_2, and NO_x concentrations corrected to fifteen (15) percent oxygen (O_2) on a dry basis.

The equipment installed for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment installed for the continuous monitoring of CO_2 or O_2 and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

For periods of missing CO data, CO hourly values shall be substituted from valid hourly average data from the previous thirty (30) unit operating days, excluding periods of startup and shutdown. The CO data shall be substituted based on equivalent incremental load ranges.

Verification: See **AQ-37 and 38**.

AQ-20 Within sixty (60) days after the commissioning of the gas turbines, 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 performance test shall be performed, and the written test results of the performance tests shall be provided to the District within thirty (30) days after testing. A complete test protocol shall be submitted to the District no later than thirty (30) days prior to testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

a. Oxides of Nitrogen (as NO_2): ppmv dry at 15% O_2 and lbm/hr.
b. Carbon Monoxide: ppmv dry at 15% O_2 and lbm/hr.
c. Volatile Organic Compounds (as CH4): ppmv dry at 15% O_2 and lbm/hr.
d. Ammonia (NH3): ppmv dry at 15% O_2 and lbm/hr
   and the following process parameters:
e. Natural gas consumption.
f. Turbine load in megawatts.
g. Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19, and % CO_2.

Verification: See **AQ-40**.

BOILER 6-1 AND 7-1 CONDITIONS:

AQ-21 The heat input rate to each Boiler shall not exceed 7,048 MMBtu/hr.

Verification: See **AQ-37 and 38**.

AQ-22 Effective December 31, 2000, the pollutant mass emission rates in the exhaust discharged to the atmosphere from one Boiler shall not exceed the following limits:

Pollutant	**Lbs/Hour**	**Lbs/Day**
Oxides of Nitrogen (NOx)	85.6	2,054.4
Carbon Monoxide (CO)	862.7	20,704.8
Particulate Matter <10 microns (PM10)	52.5	1,260.0
Volatile Organic Compounds (VOC)	38.0	912.0
Ammonia (NH3)	31.6	758.4
Sulfur Dioxide (SO2)	4.9	117.6

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-23 Effective December 31, 2000, the pollutant concentrations discharged to the atmosphere from one Boiler shall not exceed the following limits, based upon a one (1) hour rolling average (unless otherwise noted) calculated at 3 percent O_2 on a dry basis:

Pollutant	Concentration (ppm
Oxides of Nitrogen (as NO2)	10
Carbon Monoxide (CO)	400 (steady state compliance test based on a 60 consecutive minute avg.) 1000 (one hour clock-hour avg.)
Ammonia (NH3)	10 (3-60 minute avg.)

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-24 During the period of December 31, 2000 through December 31, 2001, when both Units 6-1 and 7-1 are available, Duke Energy Moss Landing LLC shall preferentially operate the unit subject to the emission limits contained in Condition 20, such that its MW-hours equal or exceed the MW-hours of the unit not subject to the requirements of Condition 22; provided that such preferential operation shall not impair the provision of reliable electric service.

Verification: See **AQ-37 and 38**.

AQ-25 Effective December 31, 2001, the pollutant mass emission rates in the exhaust discharged to the atmosphere from each Boiler shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day
Oxides of Nitrogen (NOx)	85.6	2,054.4
Carbon Monoxide (CO)	862.7	20,704.8
Particulate Matter <10 microns (PM10)	52.5	1,260.0
Volatile Organic Compounds (VOC)	38.0	912.0
Ammonia (NH3)	31.6	758.4
Sulfur Dioxide (SO2)	4.9	117.6

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-26 Effective December 31, 2001, the pollutant concentrations discharged to the atmosphere from each Boiler shall not exceed the following limits, based upon a one (1) hour rolling average (unless otherwise noted) calculated at 3 percent O_2 on a dry basis:

Pollutant	Concentration (ppm)
Oxides of Nitrogen (as NO_2)	10
Carbon Monoxide (CO)	400 (steady state compliance test based on a 60 consecutive minute avg.) 1000 (one hour clock-hour avg.)
Ammonia (NH3)	10 (3-60 minute avg.)

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See **AQ-37 and 38**.

AQ-27 CEM Systems shall be installed and operated on each of the Boilers. These systems shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, CO_2 or O_2, and NO_x concentrations corrected to three (3) percent oxygen (O_2) on a dry basis.

The equipment installed for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment installed for the continuous monitoring of CO_2 or O_2 and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

For periods of missing CO data, CO hourly values shall be substituted from valid hourly average data from the previous thirty (30) unit operating days, excluding periods of startup and shutdown. The CO data shall be substituted based on equivalent incremental load ranges.

Verification: See **AQ-37 and 38**.

GENERAL CONDITIONS:

AQ-28 Cumulative emissions, including emissions generated during Start-ups and Shutdowns, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

Pollutant	Pounds Of Emissions Per Calendar Quarter			
	First	Second	Third	Fourth
NO_x (as NO_2)	286,778	285,301	409,492	336,584
SO_x	23,823	24,567	32,613	29,468
VOC	144,537	150,294	212,540	188,206
PM_{10}	213,533	221,488	307,505	273,879
CO	2,929,068	3,059,753	4,472,774	3,920,385

Verification: See **AQ-37 and 38.**

AQ-29 This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

Verification: See **AQ-37 and 38**.

AQ-30 Duke Energy Moss Landing LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment Start-up and Shutdown periods, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

a. Firing hours and Fuel Flow Rates.
b. Oxygen (O_2) Concentrations, Nitrogen Oxide (NO_x) Concentrations, and Carbon Monoxide (CO) Concentrations.
c. Ammonia Injection Rates.

Duke Energy Moss Landing LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Duke Energy Moss Landing, LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

Duke Energy Moss Landing LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

d. Heat Input Rate.
e. Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions.

For each source, Duke Energy Moss Landing LLC shall record the parameters specified in d. and e. of this Condition every 15 minutes (excluding normal calibration periods). As specified below, Duke Energy Moss Landing LLC shall calculate and record the following data:

f. Total Heat Input Rate for every clock hour.
g. The NO_x mass emissions (as NO_2), and corrected average NO_x emission concentrations for every clock hour.
h. The CO mass emissions, and corrected average CO emission concentrations for every rolling three-hour period.
i. On an hourly basis, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.

j. For each calendar day, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.
k. For each calendar quarter, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.
l. For each calendar year, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.

Verification: See **AQ-37 and 38.**

AQ-31 Duke Energy Moss Landing, LLC shall calculate and record on a daily basis, the Volatile Organic Compound (VOC) mass emissions, Fine Particulate Matter (PM_{10}) mass emissions, Sulfur Dioxide (SO_2) mass emissions, and Ammonia (NH3) mass emissions from each source. Duke Energy Moss Landing LLC shall use the actual heat input rates, actual Start-up times, actual Shutdown times, and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

a. For each calendar day, VOC, PM_{10}, SO_2, and NH3 mass emissions shall be summarized for each source.
b. On a daily basis, the cumulative total VOC, PM_{10}, SO_2 and NH3 mass emissions shall be summarized for each calendar quarter and for the calendar year.

Verification: See **AQ-37 and 38**.

AQ-32 Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

Verification: **AQ-37 and 38**.

AQ-33 Duke Energy Moss Landing LLC shall submit to the Air Pollution Control District a written report each month which shall include:

a. time intervals, date, and magnitude of excess emissions;
b. nature and cause of the excess emission, and corrective actions taken;
c. time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; and
d. a negative declaration when no excess emissions occurred.

Verification: See **AQ-37 and 38**.

AQ-34 Duke Energy Moss Landing LLC shall monitor and report SO2 emissions in accordance with 40 CFR Parts 72 and 75.

Verification: See **AQ-37 and 38**.

AQ-35 Starting January 1, 2000, Duke Energy Moss Landing LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

Verification: See **AQ-37 and 38**.

AQ-36 The equipment installed for the continuous monitoring of CO_2 or O_2 and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

Verification: See **AQ-37 and 38**.

AQ-37 A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to: procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

Verification: See **AQ-37 and 38**.

AQ-38 Pursuant to Title IV, Part 75, Section 75.50, and Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in Rule 431.

Verification: The records shall be maintained for a period of five years after creation and be available for inspection by representatives of the District, Air Resources Board, the CEC CPM and other appropriate agencies.

AQ-39 Pursuant to Title IV, Part 75, Section 75.64, quarterly reports shall be submitted to the District within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in Section 75.64.

Verification: Copies of the quarterly reports shall be submitted to the District and the CEC CPM within 30 days following the end of the calendar quarter. At a minimum, the quarterly report must include all items listed in Section 75.64.

AQ-40 Duke Energy Moss Landing LLC shall cause monthly (or less frequently if deemed appropriate by the Air Pollution Control Officer) testing to be performed to verify compliance with the Ammonia (NH3) slip limit. Duke Energy Moss Landing LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

Verification: See **AQ-37 and 38**.

AQ-41 Annual performance tests shall be conducted in accordance with the Monterey Bay Unified Air Pollution Control District test procedures during the third quarter of each year, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

If the testing cannot be completed during the third quarter of the year due to the equipment being nonoperational or due to the power generation requirements of the grid being such that a unit would be unable to operate at greater than 50% load, the testing can be delayed, such that the testing be completed during the fourth quarter of the following year provided that Duke Energy Moss Landing LLC notify the District that they will be unable to meet the third quarter testing requirement as soon as it becomes known, but in no event later than September 15.

Verification: The written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District or CEC observer be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

AQ-42 Duke Energy Moss Landing LLC shall report all breakdowns which results in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour of the occurrence, this one hour period may be extended up to six hours for good cause by the APCO. The APCO may elect to take no enforcement action if Duke Energy Moss Landing LLC demonstrates to the APCO s satisfaction that a breakdown condition exists.

The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO with 5 days after the occurrence has been corrected. This report shall include at a minimum:

a. a statement that the condition or failure has been corrected and the date of correction; and
b. a description of the reasons for the occurrence; and

c. a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and
d. an estimate of the emissions caused by the condition or failure.

Verification: See **AQ-37 and 38.**

AQ-43 Duke Energy Moss Landing LLC shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall be subject to District review and approval.

Verification: The project owner shall submit design drawings of the location and configuration of the stack sampling ports to District and CEC CPM review and approval at least 60 prior to the start of construction of the HRSG and stack.

AQ-44 No emissions shall constitute a public nuisance.

Verification: See **AQ-37 and 38.**

AQ-45 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1 or equivalent 20% opacity.

Verification: See **AQ-37 and 38**.

AQ-46 Duke Energy Moss Landing LLC shall fund the operation of the Stationary Source percentage of the District s Salinas air monitoring station.

Verification: See **AQ-37 and 38**.

AQ-47 Any representative of the Monterey Bay Unified Air Pollution Control District authorized by the Air Pollution Control Officer shall be permitted, pursuant to the authority contained in Section 41510 of the California Health and Safety Code:

a. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of the Authority to Construct;
b. to have access to and copy any records required to be kept under the terms and conditions of this Authority to Construct;
c. to inspect any equipment, operation, or process described or required in this Authority to Construct; and,
d. to sample emissions from the source.

Verification: Representatives of the District, CEC CPM, the Air Resources Board, or other appropriate agencies shall have the authority to enter the premises to witness source tests, review and copy records, inspect equipment and sample emissions for the sources.

There are no CONDITIONS OF CERTIFICATION numbers AQ-48 through AQ-49.

CONDITIONS OF CERTIFICATION — CONSTRUCTION

These conditions are not included in the District s Determination of Compliance.

For the purposes of these conditions, the following definitions apply:

(1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.

(2) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(3) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(4) DISTURBED SURFACE AREA means a portion of the earth s surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust.

(5) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(6) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(7) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(8) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(9) STABILIZED SURFACE means:

(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;
(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(10) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

SC-AQ-50 The project owner shall implement a CEC CPM approved fugitive Dust Control Plan.

Verification: The plan shall include the following:

1. A description of each of the active operation(s) which may result in the generation of fugitive dust;
2. An identification of all sources of fugitive dust (e.g., earth-moving, storage piles, vehicular traffic, etc.
3. A description of the control measures to be applied to each of the sources of dust emissions identified above (including those required in AQ-47 below). The description must be sufficiently detailed to demonstrate that the applicable best available control measure(s) will be utilized and/or installed during all periods of active operations;
4. In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measures for any of the sources identified, a justification statement must be provided to explain the reason(s) why the required control measures cannot be implemented.

Verification: Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the CEC CPM for review and approval. The project owner shall maintain daily records to document the specific actions taken pursuant to the plan. A summary of the monthly activities shall be submitted to the CPM via the Monthly Compliance Report.

SC-AQ-51 During the construction phase of the project, the project owner shall:

1. Prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations, or take at least one of the actions listed in Table 2 (attached) to prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations;
2. Install and use a track-out control device to prevent the track-out of bulk material from areas containing soils requiring corrective to other areas within the project construction site and laydown area;

3. Minimize fugitive particulate emissions from vehicular traffic on paved roads and paved parking lots on the construction site by vacuum mechanical sweeping or water flushing of the road surface to remove buildup of loose material. The project owner shall inspect on a daily basis the conditions of the paved roads and parking lots to determine the need for mechanical sweeping or water flushing.

Verification: The project owner shall maintain a daily log during the construction phase of the project indicating: 1) the manner in which compliance with this condition is achieved and 2) the date and time when the inspection of paved roads and parking lots occurs and the date and time(s) when the cleaning operation occurs. The logs shall be made available to the CEC CPM upon request.

SC-AQ-52 At any time when fugitive dust from MLPP project construction is visible in the atmosphere beyond the property line, the project owner will identify the source of the fugitive dust and implement one or more of the appropriate control measures specified in Table 3 (attached)

Verification: The project owner will maintain a daily log recording the dates and times that measures in Table 3 (attached) have been implemented and make them available to the California CEC CPM upon request.

SC-AQ-53 The project owner shall implement an approved Construction Equipment Plan. The Plan shall identify how the project owner will ensure that all heavy equipment, that includes, but is not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, used on-site by construction contractors and subcontractors:

a. are properly maintained;
b. limit idling times; and
c. meet federal emission standards for construction equipment.

Verification: Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the California CEC CPM for review and approval. The project owner shall maintain records to document the specific actions taken pursuant to the plan. A summary of the monthly activities shall be submitted to the California CEC CPM via the Monthly Compliance Report.

SC-AQ-54 The project owner shall ensure that all heavy earthmoving equipment including, but not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and 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 also install oxidizing soot filters on all suitable construction equipment used either on the power plant construction site or associated linear construction sites. Additionally, the project owner shall employ high

pressure fuel injection, timing retardation, and reduced idle time on all suitable construction equipment. Suitability is to be determined by an independent California Licensed Mechanical Engineer or a Qualified Environmental Professional who will stamp and submit for approval an initial and all subsequent Suitability Reports as necessary containing at a minimum the following:

Initial Suitability Report:

- The initial suitability report shall be submitted to the CPM for approval 60 days prior to the relevant equipment being used at the project site.
- A list of all fuel burning, construction related equipment used,
- a determination of the suitability of each piece of equipment to work appropriately with an oxidizing soot filter,
- if a piece of equipment is determined to be suitable, a statement by the equipment manufacturers, the independent California Licensed Mechanical Engineer, or a Qualified Environmental Professional that the oxidizing soot filter has been installed and is functioning properly,
- if a piece of equipment is determined to be unsuitable, an explanation by the equipment manufacturers, the independent California Licensed Mechanical Engineer, or a Qualified Environmental Professional as to the cause of this determination, and
- a statement by the equipment manufacturers, the California Licensed Mechanical Engineer, or a Qualified Environmental Professional as to the suitability of using high-pressure fuel injectors, timing retardation and/or reduced idle time on all construction equipment after the installation of oxidizing soot filters.

Subsequent Suitability Reports

- If a piece of construction equipment is subsequently determined to be unsuitable for an oxidizing soot filter after such installation has occurred, the filter may be removed immediately. However notification must be sent to the CPM for approval containing an explanation for the change in suitability within 10 days.
- Changes in suitability are restricted to three explanations which must be identified in any subsequent suitability report. Changes in suitability may not be based on the use of high-pressure fuel injectors, timing retardation and/or reduced idle time.

1. The oxidizing soot filter is reducing normal availability of the construction equipment due to increased downtime, and/or power output due to increased back pressure by 20% or more.

2. The oxidizing soot filter is causing or reasonably expected to cause significant damage to the construction equipment engine.
3. The oxidizing soot filter is causing or reasonably expected to cause a significant risk to nearby workers or the public.

Verification: The project owner shall submit to the CPM, via the Monthly Compliance Report, documentation, which demonstrates that the contractor s heavy earthmoving equipment is properly maintained and the engines are tuned to the manufacturer s specifications. The project owner shall maintain all records on the site for six months following the start of commercial operation. The project owner will submit to the CPM for approval, the initial suitability report stamped by an independent California Licensed Mechanical Engineer, or a Qualified Environmental Professional, 60 days prior to breaking ground on the project site. The project owner will submit to the CPM for approval, subsequent suitability reports as required, stamped by an independent California Licensed Mechanical Engineer, or a Qualified Environmental Professional, no later than 10 working day following a change in the suitability status of any construction equipment.

TABLE 1
BEST AVAILABLE FUGITIVE DUST CONTROL MEASURES

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the CEC CPM, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.
Earth-moving: Construction cut areas and mining operations:	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	Apply chemical stabilizers within five working days of grading completion; OR
	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.
Unpaved Roads	Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR
	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	Apply chemical stabilizers; OR
	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	Install temporary coverings; OR
	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
ALL CATEGORIES	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 1 may be used.

TABLE 2
TRACK-OUT CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTROL MEASURES FOR WIND CONDITIONS EXCEEDING 25 MPH

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	Cease all active operations; OR
	Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR
	Apply chemical stabilizers prior to wind event; OR
	Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR
	Take the actions specified in Table 1, Item (3c); OR
	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	Apply chemical stabilizers prior to wind event; OR
	Apply water twice [once] per hour during active operation; OR
	Stop all vehicular traffic.
Open storage piles	Apply water twice [once] per hour; OR
	Install temporary coverings.
Paved road track-out	Cover all haul vehicles; OR
	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

B. PUBLIC HEALTH

Analysis under this topic area supplements the analysis performed under the Air Quality discussion above. The public health analysis determines whether emissions from the power plant will have the potential to cause significant adverse public health impacts that violate standards for public health protection. Emissions which raise concerns from a public health perspective include potentially toxic substances to which the public could routinely be exposed during power plant construction and operation.

The Commission examines contaminants under two categories, criteria and non-criteria pollutants. This section focuses on exposure to non-criteria pollutants, those for which no air quality standards have been established. In the absence of standards, a process known as health risk assessment is used to ensure that exposure to these pollutants will not result in an unacceptable public risk. The risk assessment procedure involves a number of steps to identify which substances are hazardous, which are likely to be emitted from the proposed plant, and an estimate of these substances to determine the public s exposure level. The exposure levels are then compared to health-based standards.

SUMMARY OF THE EVIDENCE

1. Existing Conditions

Applicant introduced the testimony of its public health expert, Eric Walther, Ph.D. (Ex. 58, p. 15; 6/7/00 RT 27-29) His testimony summarized the existing conditions for the project location, which include the presence of no schools, hospitals, day care facilities or long term care facilities within 10,000 feet of the site. The nearest residence is located approximately 1,700 feet to the north of the stacks on Units 6 and 7. The nearest school is 2.3 miles to the north. (*Id.*)

Applicant s testimony cited a 1995 public health risk assessment of MLPPP emissions occurring at that time from both natural gas and fuel oil emissions emitting from ten plant boilers, a gasoline refueling facility, six diesel engine fire pumps, and four miscellaneous sources. Of these sources, only Units 6 and 7 operate currently and no fuel oil is now burned at the site. As a result, the health risks calculated in the 1995 study are higher than would be calculated for the more limited number of emission sources now at the site. (Ex. 58, p. 16.) Nevertheless, the 1995 study shows a potential carcinogenic risk to the maximally exposed individual of $7.9 \times 10^{-7,}$ or 0.79-in-one-million. This risk is less than the lowest significance criterion of 10^{-6} used by regulatory agencies. (*Id*.)

Regarding chronic and acute health risks from existing sources at MLPPP, Applicant s testimony revealed a maximum health hazard index for potential chronic health risks of less than approximately 0.001. This is one one-thousandths of the threshold significance criterion of 1.0. The maximum health hazard index for acute effects was also less than the significance threshold. (Ex. 58, p. 17.)[36]

2. Construction Impacts

The construction phase of the Project is expected to take 20 months. Cumulative impacts from other on-site projects are expected to last 29 months with an additional 6 months for the removal of stacks from Units 1-5, thus creating a total cumulative impact from construction activities lasting for 36 months. Potential impacts during construction will include emissions from heavy equipment operation and particulate emissions from site preparation. (Ex. 58, p. 17.) Staff witness Obed Odoemelam testified that with the implementation of the

[36] The Energy Commission staff considers a potential cancer risk of one in a million as representing a threshold below which carcinogenic exposures would be insignificant. Above this threshold, Staff could recommend further mitigation. (Ex. 65, p. 23.)

Conditions of Certification contained in other sections of this Decision (e.g. Air Quality, Hazardous Materials, Waste Management), the Commission staff does not expect any pollution-related impacts from the relatively short-term construction activities at the site. (Ex. 65, p. 23.)

3. Operational Impacts

Applicant s testimony reviewed design features of the Project which will reduce public health impacts. These include: the use of natural gas as a clean fuel; the use of SCR control technology to minimize NO_x emissions from remaining older boilers and from new combined-cycle units. The stacks on the Project will be sized to reduce ground-level concentrations of criteria and non-criteria pollutants. (Ex. 58. p. 17.)

Based on the design for emission controls, Applicant conducted a health risk assessment for estimated emissions from the Project, which have the potential to be significant. Staff found acceptable Applicant s methodology for conducting the assessment. (Ex. 65, p. 24.) The health risk assessment was conducted in three steps. First, emissions of non-criteria pollutants from proposed sources were estimated. Second, dispersion modeling was used to compute the ground-level concentration of each non-criteria pollutant at discrete receptors. Third, carcinogenic unit risk factors and chronic and acute Reference Exposure Levels (RELs) were used along with the estimated concentration to compute carcinogenic risk. Computed ground-level concentrations were compared to the Monterey Bay Unified Air Pollution Control District (MBUAPCD) significance thresholds. (Ex. 58, p. 18.)

For non-criteria pollutants, the worst-case maximum offsite carcinogenic risk is calculated to be 0.03-in-one-million. Thus, under worst-case assumptions, the Project poses no significant carcinogenic risk according to calculations carried out pursuant to established guidelines. The calculated worst-case maximum

chronic hazard index is 0.05. This represents 1/20th of the significance criterion of 1.0. The calculated worst-case maximum acute hazard index of 0.03 is less than 1/30th of the significance criterion of 1.0. Thus, both the chronic and acute health hazard indices are well below the significance criterion and the Project will have no significant non-carcinogenic health effects. Maximum ground-level concentrations were also found to be insignificant. *(Ibid.)*

Results from modeling for criteria pollutants emitted by the Project showed that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} will be below ambient air quality standards designed to protect public health. Therefore, emissions of criteria pollutants from the Project will also have no significant public health impacts.

4. Cumulative Impacts

The time for tank farm demolition activities overlaps the construction period of the proposed MLPPP by a few months. Nevertheless, both the analysis carried out by Applicant as well as that of Staff revealed no likely cumulative impacts to public health related to any concurrent on-site or off-site projects. (Ex. 58, p. 19-29; Ex. 65, p. 25.)

FINDINGS AND CONCLUSIONS

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

1. The primary potential adverse public health impact associated with the Moss Landing Power Plant Project is due to combustion products from burning natural gas.

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

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

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

5. Emission of non-criteria pollutants from the Moss Landing Power Plant Project will not cause acute or chronic adverse public effects.

6. Cumulative impacts from noncriteria pollutants are localized within relatively short distances from the Project source, and are not expected to be significant.

7. The maximum cancer risk associated with the Project is approximately three percent of the one-in-one million significance threshold commonly accepted for risk analysis purposes.

8. The weight of evidence indicates that emissions from the construction, operation and closure of the proposed natural gas-burning Moss Landing Power Plant Project will not have a significant negative impact on the public health of the surrounding population.

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

CONDITIONS OF CERTIFICATION

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

C. HAZARDOUS MATERIALS MANAGEMENT

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

SUMMARY OF THE EVIDENCE

Applicant s testimony noted that there are no sensitive receptors close to the Project and that the nearest residence is located approximately 2,350 feet northwest of the aqueous ammonia storage facility. Hazardous materials already being used or stored at the existing Moss Landing Power Plant site include aqueous ammonia, hydrogen, petroleum products, flammable and/or compressed gasses, scale inhibitors, oxygen scavengers, neutralizers, biocides, settling aids, water softening agents, declorinators, and small amounts of solvents and paints.[37] Of these hazardous materials, only aqueous ammonia is now and will continue to be present in large enough quantity to potentially require the preparation of a Risk Management Plan (RMP) under the California Accidental Release Prevention Program (Cal-ARP). Monterey County Department of Public Health is not requiring the preparation of an RMP for the existing aqueous ammonia storage. (Ex. 58, p. 30-31.)

1. Aqueous Ammonia

Aqueous ammonia will be used in controlling emission of oxides of nitrogen (NO_x) from the combustion of natural gas at the facility. This form of ammonia is

[37] For a complete list of all hazardous materials proposed for use at the Moss Landing Power Plant Project please see Table 6.15-3 found on page 14 of the Staff s Final Staff Assessment, Part 2 filed on June 1, 2000. Ex. 66, p. 14.

significantly reduces the risk that would be associated with use of the more economical anhydrous form of ammonia. Nevertheless, the accidental release of aqueous ammonia without proper mitigation can result in hazardous down-wind concentrations of ammonia gas. (Ex. 65, p. 58-60.)

To assess the potential impacts associated with an accidental release of ammonia, the Commission staff evaluated locations where a number of different exposure levels could occur off-site. A threshold level analysis use by Staff is the one-time exposure of 75 PPM of ammonia. Staff found acceptable Applicant s calculation of a worst-case accidental ammonia release scenario. The scenario is based on a catastrophic failure of the ammonia storage tank with an assumed wind speed of 1.5 meters per second, and category F stability.[38] This analysis indicated that concentrations exceeding 75 PPM of ammonia would be confined almost completely to the project site and would not affect any public receptor. (*Ibid*.)

The low risk of an accidental ammonia spill at the Project is largely a result of several design features of the proposed aqueous ammonia loading and storage facility. These include the following:

- Passive containment structures surrounding each tank and the unloading facility;
- Underground tertiary containment able to collect an accidental spill and reduce it vaporizing into the atmosphere;
- Drains under each storage tank, which drain into the underground containment vault; and
- Use of plastic balls to reduce ammonia evaporation from any exposed liquid surface. (Ex. 58, p. 33.)

[38] This low wind speed and high degree of atmospheric stability creates assumed worst-case conditions because vapor from a large ammonia release would not dissipate rapidly in the atmosphere.

2. Natural Gas

Natural gas, which will be used by the Project as a fuel, poses a fire or explosion danger due to its flammability. Although the Project will use substantial amounts of natural gas, it will be piped to the site and not stored on-site. Adherence to existing applicable codes will reduce the risk of fire and explosion to insignificant levels. In addition, start-up procedures will require air purging of the gas turbines prior to start-up, thus preventing the presence of an explosive mixture. (Ex. 65, p. 59.)

In sum, Staff and Applicant both presented analyses which addressed the public safety concerns arising from the use and storage of hazardous materials associated with construction and operation of the MLPPP. Both parties agreed that with the Commission s adoption of the proposed Condition of Certification, the proposed Project will comply with all laws, ordinances, regulations, and standards applicable to hazardous materials handling. The Conditions of Certification also ensure that the storage, use, transportation and management of the Project s hazardous materials will pose no potential for significant impact to the public. (Ex. 65, p. 60.)

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project will use hazardous materials at the facility.

2. Aqueous ammonia, hydrogen, petroleum products, flammable and/or compressed gasses, scale inhibitors, oxygen scavengers, neutralizers, biocides, settling aids, water softening agents, dechlorinators, calcium hypochlorite[39], and small amounts of solvents and paint are hazardous

[39] The MLPPP will use calcium hypochlorite to control biological growth within the plant. Calcium hypochlorite has a very low vapor pressure and would not result in any off-site impacts in the event of a spill. (Ex. 66, p. 13.)

materials which will be used by the Project and have the potential to create public health and safety hazards.

3. The principal types of potential public health and safety hazards associated with the hazardous materials noted in Finding 2 above are the accidental release of ammonia gas and fire and explosion from natural gas.

4. The Conditions of Certification set forth below require safety and mitigation measures, which will reduce Project-related risks to acceptable levels both on and off the Project site.

5. The Project owner s design and mitigation measures will reduce to acceptable levels the possibility of dangerous events associated with the hazardous materials proposed for use at the Project.

6. The Moss Landing Power Plant Project will not contribute to a cumulative risk to public health and safety.

7. With the implementation of the Conditions of Certification, the Project will conform with applicable laws, ordinances, regulations, and standards relating to hazardous materials management which are specified in Appendix A of this Decision.

We therefore conclude that the hazardous materials used at the Moss Landing Power Plant Project will not create or contribute to any significant adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities, as specified in Title 40, C. F.R. Part 355, Subpart J, section 355.50, not listed in Appendix B, below, or in greater quantities than those identified by chemical name in Appendix B, below, unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility in reportable quantities.

HAZ-2 The project owner shall provide a Risk Management Plan to the Monterey County Department of Health and the CPM for review at the time the plans are first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall reflect all recommendations of the

Monterey County Department of Health and the CPM in the final document. A copy of the final plans, reflecting all comments, shall be provided to Monterey County and the CPM once approved by EPA.

Verification: At least sixty (60) days prior to the delivery of aqueous ammonia to the MLPP project the owner shall provide the final plans, listed above and accepted by Monterey County, to the CPM for approval.

HAZ-3 The project owner shall develop and implement a safety management plan for delivery of ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist.

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

HAZ-4 The aqueous ammonia storage tanks shall be constructed to specifications at least as protective as those in American Petroleum Institute (API) 620. The secondary containment will be designed and operated to hold the volume of precipitation from a 24-hour, 25-year storm event plus 100 percent of the capacity of the largest tank within its boundary.

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

D. WORKER SAFETY

Industrial workers use process equipment and hazardous materials on a daily basis. Accidents involving relatively small amounts of material can result in serious injuries. The analysis for this topic assesses the completeness and adequacy of the measures proposed by the Applicant to comply with applicable worker health and safety requirements which apply during the plant s construction and operation phases. It also addresses fire protection and the ability of the project and county fire department personnel to respond in case of an emergency at the project site.

The fundamental inquiry under this topic is whether the Applicant will establish adequate policies, procedures, training and hazard recognition and control at the proposed facility to minimize the potential for injury to workers during construction and operation. This matter is primarily governed by existing laws, ordinances, regulations and standards which, if complied with, will assure that worker safety will be maintained. The Commission determines specifically whether the measures contained in the Applicant s Health and Safety plans will comply with all applicable safety laws, ordinances, regulations and standards designed to protect workers.

SUMMARY OF THE EVIDENCE

Applicant s witness Eric Walther submitted testimony stating that the corporate policy of Duke Energy and its management responsibilities include accident and illness prevention procedures as well as the required levels of safety performance. (Ex. 58, p. 22.) In addition, health and safety policies now in effect at the MLPPP site include provisions for the ongoing operations, including incidental construction activities. These policies also address safety programs, personal protective equipment and fire suppression. (*Id.*) The procedures will be extended to cover activities at the new operating units. The measures will

include identification of emergency response personnel, provision of personal protective equipment, and the location of emergency equipment, such as fire extinguishers. (Ex. 65, p. 25.)

Commission staff presented testimony which reviewed several subjects including the fire protection facilities located in the Moss Landing area. The authority having jurisdiction for these services is the North County Fire Protection District (NCFPD). The closest station is NCFPD Station One located in Castroville, about 3 miles southeast of the Project. Backup support would come from Station Three in Las Lomas, located about 7 miles northeast of the Project. However, due the lack of a ladder truck, the fire district currently lacks initial attack capabilities required for the MLPP site and the Project. Therefore, prior to construction of the Project, Applicant will reach an agreement with NCFPD on the fees and payment for a 75-foot minimum Quint Aerial ladder truck and staffing personnel for the truck. (Ex. 65, p. 33.) This is set forth in Condition of Certification **Worker Safety-4**.

In addition to local fire protection services, the Project will rely on the existing on-site MLPP fire protection system. This consists of two water storage tanks with a multiple system fire protection system. Tank capacities total 1 million gallons. Condition of Certification **Worker Safety-3** requires Applicant to make necessary revisions to the existing fire protection system to accommodate the new facility. The local fire district must approve these changes. (Ex. 65, p. 33.)

The Staff testimony also detailed mitigation for risks to worker safety during construction and operation of the Project. These mitigation measures are set forth in Conditions of Certification **Worker Safety-1, -2, AND -3.** To mitigate risks to workers which can occur during construction, the Conditions require Applicant to create a Construction Safety and Health Program, which includes the following elements:

- A construction Injury and Illness Prevention Program
- A construction Fire Protection and Prevention Plan
- A personal Protective Equipment Program

  (Ex. 65, pp.33-35.)

To reduce risks to workers that can occur during plant operation, the required Operation Safety and Health Program must include the following:

- Injury and Illness Prevention Program
- Emergency Action Program/Plan
- Fire Protection and Prevention Program
- Personal Protective Equipment Program

  (Ex. 65, pp. 35-40.)

Staff and Applicant both concluded that by implementing Applicant s existing procedures and policies and Staff s proposed Conditions of Certification, the Project will pose no potential for significant risks to Applicant s workers or to existing fire and emergency service resources. Furthermore, both parties agree that the Project will comply with the applicable laws, ordinances, regulations and standards governing industrial worker safety.

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project will be designed, constructed, and operated in a manner sufficient to reasonably protect workers and the public from fire dangers.

2. The existing health and safety policies in effect at MLPP include provisions for ongoing operation, including incidental construction.

3. Condition of Certification **Worker Safety-4** will ensure that local fire and emergency service resources will be adequate to meet the needs of the Project.

4. The Project will not cause adverse impacts to existing fire and emergency service resources.

5. Assuming compliance with the Conditions of Certification contained in this Decision, the Project will comply with the laws, ordinances, regulation and standards intended to protect worker health and safety and identified in **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program, containing the following:

- a construction Injury and Illness Prevention Program
- a construction Fire Protection and Prevention Plan
- a personal Protective Equipment Program

The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the North County Fire Protection District (NCFPD) for review and acceptance.

Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program and the Personal Protective Equipment Program, with a copy of the cover letter to Cal/OSHA s Consultation Service. The project owner shall provide a letter from the NCFPD stating that they have reviewed and accepted the Construction Fire Protection and Prevention Plan.

WORKER SAFETY— 2 The project owner shall submit to the CPM a copy of the Project Operation Safety and Health Program containing the following:

- an operation Injury and Illness Prevention Plan
- an emergency Action Plan
- an operation Fire Protection Plan

- a personal Protective Equipment Program

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the NCFPD for review and acceptance.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program with a copy of the cover letter to the Cal/OSHA s Consultation Services, and North County Fire Protection District comments, stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

WORKER SAFETY-3 The project owner shall submit plans of the existing underground water system, including proposed changes, to the North County Fire Protection District for review and approval.

Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a letter from the North County Fire Protection District stating that they have received, reviewed and approved the plans of the existing underground water system with proposed changes.

WORKER SAFETY—4 The project owners shall reach an agreement with the North County Fire Protection District on the fees and payment for a 75-foot minimum Quint Aerial ladder truck and staffing of personnel for the truck or other alternative equipment/measures agreeable to the North County Fire Protection District and the project owner.

Verification: Not later than 30 days prior to any ground disturbance, the project owner shall provide the CPM with a copy of an agreement with the North County Fire Protection District and the owners of the project relative to the agreed-upon fees and payment for the truck and staffing.

VII. ENVIRONMENTAL ASSESSMENT

As part of its statutory mandate, the Commission must analyze a project s potential effect upon various elements of the human and natural environments.

A. BIOLOGICAL RESOURCES

The subject area in this case which has generated by far the greatest expression of local concern involves the potential of the Moss Landing Power Plant Project to have impacts on biological resources in the marine and estuarine environments.

To address these and other potential biological impacts, the Commission s examination of biological resources focuses upon impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological interest in the project vicinity. Here we summarize the potential impacts to biological resources due to the Project and its related facilities, and address the adequacy of mitigation measures necessary to reduce any identified impacts to less than significant levels. The detailed evidence of record submitted in this proceeding was developed in consultation and cooperation with the California Regional Water Quality Control Board-Central Coast Region (RWQCB) and the California Department of Fish and Game (CDFG).

SUMMARY OF THE EVIDENCE

1. Setting

The regional landscape includes a variety of habitats including broad beaches, dunes, mildly sloping dune terraces and hilly uplands. The uplands are composed of grasslands, oak woodlands, Monterey pine groves, and coastal scrub. There are also salt marshes, mudflats, and rocky intertidal substrates

providing complex habitats for innumerable living organisms.[40] Much of the land has been converted to agriculture — row crops and livestock grazing. Specific areas of critical biological concern are the Elkhorn Slough National Estuarine Research Reserve, which adjoins the much larger (5,300 square mile) Monterey Bay National Marine Sanctuary near Moss Landing Harbor about midway between the cities of Santa Cruz and Monterey.

Species of Special Concern: The ocean shore, dunes, and undeveloped upland areas as well as wetlands in the region support many amphibians, reptiles, passerines, raptors, shore birds, waterfowl, and small to medium sized mammals. A list of plant and animal species recognized as being of special concern or protected under state and federal regulations are listed in Table 1, *infra*. Noteworthy factors concerning these species include the following: 1) on October 17, 1999, at least twenty tidewater gobies (*Eucyclogobius newberryi*) were collected in the upper reaches of Bennett Slough about one mile north of the proposed power plant.[41] Water from this slough can eventually make its way to the north arm of Moss Landing Harbor. 2) Mud flat and salt pond areas in Elkhorn Slough have recently been designated as Critical habitat for the Pacific coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) because of its nesting value. 3) Leatherback turtles frequent waters of the western coast of the United States including Monterey Bay. They are the most common sea turtle in Californian waters. Surface feeding on jellyfish by the leatherback turtle has been reported in these U.S. waters, but no systematic studies have been done to determine the relative importance of various foraging habitats. (Ex. 75, p. 5.)

[40] These habitats are described in greater detail in the AFC. (Ex. 5, pp. 6.6-1 through 6.6-18.)

[41] Other investigations collected tidewater gobies in Bennett Slough in June 1976. (Ex. 75, p. 5.)

a. Project Site and Vicinity

The existing Moss Landing Power Plant site and laydown spots are in a highly disturbed industrialized area that, over time, has established very small seasonal wetlands in the oil spill containment areas of some of the retired oil tanks. Site-specific field surveys for biological resources were conducted at the project site and laydown area by Applicant s biologists in January, March, April and May of 1999. Energy Commission staff visited the power plant site on May 20, 1999 in the company of Applicant s terrestrial biologists, a representative from the California Department of Fish and Game, and a representative from the U.S. Army Corps of Engineers.

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BIOLOGICAL RESOURCES Table 1

Sensitive Species

Sensitive Plants	Status*
Coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	CNPS List 1B/SE /FE
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	CNPS List 1B/FT
Robust spineflower (*Chorizanthe pungens* var. *robusta*)	CNPS List 1B/FE
Coast wallflower (*Erysimum ammophilum*)	CNPS List 1B/SC
Sand gilia (*Gilia tenuiflora* ssp. *arenaris*)	CNPS List 1B/ST/FE
Santa Cruz tarplant (*Holocarpha macradenia*)	CNPS List B/SE/FPT
Beach layia (*Layia carnosa*)	CNPS List 1B/SE/FE
Tidestrom s lupine (*Lupinus tidestromii*)	CNPS List 1B/SE/FE
Yadon s rein orchid (*Piperia yadonii*)	CNPS List 1B/FE
Hickman s potentilla (*Potentilla hickmanii*)	CNPS List 1B/SE/FE

Sensitive Wildlife	Status
Black legless lizard (*Anniella pulchra nigra*)	CSC/SC/FP
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	SE/FE/FP
Western burrowing owl (*Athene cunicularia*)	CSC/SC
Tricolored blackbird (*Agelaius tricolor*)	CSC/SC
Bank swallow (*Riparia riparia*)	ST
Short-eared owl (*Asio flammeus*)	CSC
Western snowy plover (*Charadrius alexandrinus nivosus*)	CSC/FT
Southwestern pond turtle (*Clemmys marmorata pallida*)	CSC/SC/FP
California tiger salamander (*Ambystoma californiense*)	CSC/C/FP
California red-legged frog (*Rana aurora draytonii*)	CSC/FT/FP
Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)	SE/FE/FP
California brackishwater snail (*Mimic tryonia*)	SC
Tidewater goby (*Eucyclogobius newberryi*)	CSC/FE
Southern sea otter (*Enhydra lutris nereis*)	FP/FT
California brown pelican (*Pelecanus occidentalis californicus*)	SE/FE/FP
California least tern (*Sterna antillarum browni*)	SE/FE/FP
Leatherback turtle (*Dermochelys coriacea*)	FE
California Clapper Rail (*Rallus longirostris obsoletus*)	SE/FE
American Peregrine Falcon (*Falco Peregrinus anatum*)	SE
Coho Salmon (*Oncorhynchus kisutch*)	SE/FT
Steelhead (*Oncorhynchus mykiss)*	FT

Status legend:
CNPS List 1B = Plants rare or endangered in California and elsewhere (California Native Plant Society 1994),
FE = Federally listed Endangered, FT = Federally listed Threatened, SC = Federal species of concern,
FPT = Federally Proposed (Threatened), C = Federal Candidate, CSC = CDFG species of special concern, FP = CDFG fully protected, ST = State listed Threatened, SCE = State Candidate (Endangered) SE = State listed Endangered.

Source: (Ex. 75, p. 6.)

During surveys, Applicant s biologists observed many common species of plants and animals within the MLPP site. Sixty-five per cent of the plant species were non-native; indicating in general that disturbance and land modification at the site over time has not favored natives.[42] (Ex. 5.)

In contrast to the many common species observed during the surveys, tricolored blackbirds (*Agelaius tricolor*) were seen foraging over a wetland within an oil spill retention area on the extreme east side of the MLPP site near oil tank 14. This is a species of special concern for the California Department of Fish and Game and is the only sensitive species listed in Table 1 observed during the terrestrial surveys of the site. (Ex. 75, p. 7.)

Marine and estuarine fauna inhabiting the waters and benthic habitats in close proximity to the proposed Project, including Elkhorn Slough intertidal and Moss Landing Harbor and offshore subtidal has been described in considerable detail based on investigations done in July 1974 to June 1976,[43] and more recently by Tenera Environmental Services for Duke Energy Moss Landing LLC. (Ex. 57.) Additional studies done to meet previous NPDES permitting requirements identify a myriad of species that have potentially been subject to impacts associated with the once-through cooling water system that has operated at various levels since the first unit was brought on line in 1950.[44]

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[42] Examples of common animals include Pacific chorus frog (Pseudacris regilla), Pacific slender salamander (Batrachoseps pacificus), American kestrel (Falco sparverius), European starling (Sturnus vulgaris), mourning dove (Zenaida macroura), Brewer s blackbird (Euphagus cyanonecephalus), house finch (Carpodacus mexicanus), California ground squirrel (Spermophilus beecheyi), and mule deer (Ococoileus hemionus).

[43] Nybakken, J.W., G.M. Cailliet and W.W. Broenkow. 1977. Ecologic and Hydrographic Studies of Elkhorn Slough, Moss Landing Harbor, and Nearshore Coastal Waters, July 1974 to July 1977. Moss Landing Marine Laboratories, Moss Landing, California. 1977.

[44] PG&E (Pacific Gas and Electric Co.). 1973. An Evaluation of the Effect of Cooling Water Discharges on the Beneficial Uses of Receiving Waters at Moss Landing Power Plant. Pacific Gas and Electric Company — San Francisco, California. July 1973. PG&E. 1978. Pacific Gas and Electric Company. Moss Landing Power Plants Units 1-5. 316(a) Demonstration Program. February 1978. PG&E 1983. Moss Landing Power Plant Cooling Water Intake Structures 316(b) Demonstration. Prepared by: Ecological Analysts, Inc. Report PGE60K1. November 1983.

Applicant s testimony notes that the most abundantly collected fishes from studies reported in 1977, 1991, and 1996-97 are generally the same as those reported in PG&E s 1978-80 studies of the fishes impinged on the existing MLPP intake screens. Based on this comparison and analysis of these studies, Applicant concludes that MLPP has been in operation since 1950 without detectable injury to the area s marine resources, including fishes, shellfish, marine mammals, and other wildlife. The testimony states that by replacing the inefficient 1940s and 1950s technology of old Units 1-5 with a modern state-of-the-art energy facility, the new proposed Project will produce electricity on a per megawatt basis using 62 percent less cooling than the technology being replaced. The reduction in the amount of cooling water will result in lower numbers of impinged and entrained organisms in the new Project s cooling water intake system (CWIS) than have occurred since 1950.[45] (Ex. 73, Mayer, pp.3, 5.)

b. Elkhorn Slough

Elkhorn Slough is one of the few relatively large coastal wetlands remaining in California. The main channel of the slough, which winds inland seven miles, is flanked by a broad salt marsh second in size only to that which occurs around San Francisco Bay. The slough s watershed is approximately 43,000 acres. Near the slough are approximately 3000 acres of marshes and mudflats, representing only 10 percent of the wetlands which existed there in the 1880s. In the early 20th century, major modifications to the Salinas River mouth and its association with Elkhorn Slough as well as the excavation of Moss Landing Harbor during the mid-20th century have significantly changed the hydrodynamics of the slough. Today the Moss Landing Harbor, at the mouth of the slough, is dredged on a regular basis. (Ex. 76, p. 8.)

[45] While the new Project represents a 62 percent reduction in cooling water intake on a *per megawatt* basis, the *total* cooling water intake of the new Project is 34 percent less than that of Units 1-5.

Further modifications in the watershed in the mid-1980s that were done to increase marsh acreage magnified the tidal currents and rates of channel scour and erosion in the slough. Lindquist[46] has found that reduced trophic diversity has resulted from the increased erosion and that a shift in the diet of fish using the slough as a nursery is evident. Nevertheless, Elkhorn Slough and its associated tidal creeks continue to function as a viable fish nursery and source of nutrients for Monterey Bay. Due to the exceptional value of the Elkhorn Slough ecosystem, much attention has been focused on the slough and associated plans for improvements. (Ex. 75, p. 7.)

Elkhorn Slough is considered a biological gem on the edge of Monterey Bay. It supports one of California s most threatened ecosystems, the coastal estuary. Although not pristine, Elkhorn Slough is a biologically rich wetland system, providing habitat for hundreds of resident and migratory bird species. A great diversity of rare plants and animals are found in its natural communities.[47] Elkhorn Slough also serves as an important nursery and source of nutrients for Monterey Bay. Over 400 species of invertebrates, 97 species of fish, and 260 species of birds have been identified from Elkhorn Slough. (Ex. 73, Mayer, p. 5; Ex. 75, p. 7.)

Researchers and students from the Moss Landing Marine Laboratories, the University of California Santa Cruz, Stanford University, California State University Monterey Bay and others have conducted studies on biology, ecology, geology, hydrology, restoration and landscape change. The State of California has designated Elkhorn Slough an ecological preserve, and the National Oceanic and Atmospheric Administration has included its tidal waters as part of the Monterey Bay National Marine Sanctuary, and established a National Estuarine

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[46] Lindquist, David C. 1998. The Effects of Erosion on the Trophic Ecology of Fishes in Elkhorn Slough, CA. Master of Science Thesis. December, 1998. 65 pp.

[47] Western snowy plovers are known to inhabit the Elkhorn Slough. The U.S. Fish and Wildlife Service has designated the Elkhorn Slough as critical habitat because of its nesting value for the western snowy plover. (Ex. 75, p. 8.)

Research Reserve on its shores (Elkhorn Slough National Estuarine Research Reserve). The California Department of Fish and Game, the Elkhorn Slough Foundation and The Nature Conservancy own land in the slough. The Elkhorn Slough Foundation has extensive plans for the conservation of additional property on the slough and throughout the watershed and for improving and enhancing the quality and productivity of the slough ecosystem.[48] The Elkhorn Slough is considered a significant biological resource.

c. Marine Environment

Monterey Bay, California s largest open-coast embayment, is formed by the extent of the shoreline between Santa Cruz and Monterey and by the offshore depths of the Monterey Submarine Canyon. Four main tributaries flow into the bay: the Pajaro River, Elkhorn Slough, the Salinas River, and the San Lorenzo River. The bay s immense supply of cold, nutrient-rich, ocean water is exchanged tidally with the Elkhorn Slough and Moss Landing Harbor, located midway in the bay at the head of the Monterey Bay Submarine Canyon. The canyon is 650 feet wide at the head and expands to approximately 7.5 miles wide at the mouth of Monterey Bay. The bay s sandy beach habitat in the area of Moss Landing is exposed from the northwest. Relatively few species are able to adjust to the sandy bottom, high wave energy habitat near Moss Landing. (Ex. 73, Mayer, p. 5.)

Monterey Bay resources support a variety of commercial fisheries.[49] In addition, marine mammals such as harbor seals, southern sea otters, and sea lions inhabit Elkhorn Slough, Moss Landing Harbor and nearby offshore waters. Counts of harbor seals at a monitoring station 1.6 km east of the Highway 1 Bridge have

[48] *Elkhorn Slough Watershed Conservation Plan*, by The Elkhorn Slough Foundation and The Nature Conservancy, August 1999.

[49] Market squid, Northern anchovy, Pacific sardine, Pacific herring, rockfish bocaccio, chilipepper rockfish, salmon, Dungeness crab and two species of rock crab. (Ex. 73, pp. 5-6.)

steadily increased from 17 to 297 animals during the period from 1982 to 1995.[50] Sea otter counts by the California Department of Fish and Game and the U. S. Fish and Wildlife Service in the Monterey Bay between the Capitola Pier and Seaside (north and south of Moss Landing respectively) indicate that observed numbers of sea otters here have shown an increasing trend from the mid-1980 s to the mid-1990 s. Southern sea otters are common inhabitants of Elkhorn Slough. (Ex. 75, p. 8.) In addition, brown pelicans generally forage in offshore waters near Moss Landing and other parts of Monterey Bay but are also seen in Elkhorn Slough. (*Id*.)

2. Applicable Laws, Ordinances, Regulations and Standards (LORS)

Applicant s testimony cites four LORS applicable to protection of marine biological resources. These measures are described below.

a. Federal Clean Water Act Sections 316(a) and 316(b)

The federal Clean Water Act prohibits all discharges of waste unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit (33 U.S.C.,／1311.) In California, there is a state-certified NPDES program which the State Water Resources Control Board and the nine Regional Boards are empowered to implement.

State Thermal Plan: The Project s thermal discharge temperature limits are set in the State s Thermal Plan. Section 316(a) provides that U.S. EPA, or the state which issues NPDES permits, may give a variance from water quality objectives of the Thermal Plan to a thermal discharge. To do so, the standards of the variance must be more stringent than necessary to assure protection of a balanced indigenous community of fish and shellfish in and on the receiving

[50] Fluharty, *Marilyn* J. 1999. Summary of Pacific harbor seal, *Phoca vitulina richardsi*, surveys in California, 1982 to 1995. Marine Region. Administrative Report 99-1. California Department of Fish and Game, 4949 Viewridge Avenue, San Diego, California, 92123.

water body. [33 U.S.C.,⁄1326(a), 40 C.F.R.,⁄⁄125.70-125.73.] The Regional Board regulates thermal discharges via the NPDES permit and section 316(a).

Cooling Water Intake Structures: When regulating cooling water intake structures), the Regional Board must implement Clean Water Act 316(b). (33 U.S.C.,⁄1326(b).) This provision requires regulation of a cooling water intake system (CWIS) to reflect the best technology available (BTA) for minimizing adverse environmental impacts. To assess environmental impacts caused by an intake system, the Regional Board first considers studies and analyses of impingement and entrainment of marine life caused by the intake system. Next, alternative modifications to the intake system that would minimize adverse impacts are considered. The Regional Board then considers whether the cost of these alternatives is wholly disproportionate to the environmental benefit that the alternatives will achieve. If the Board determines that the alternatives are too costly, the Board will consider less costly structural modifications that will achieve partial reduction in adverse effects along with other mitigation projects that will minimize the adverse environmental effects.

b. Endangered Species Acts

Several state and federal acts protect species found in the greater Monterey Bay area and are listed in Table 1 above. The several studies which Applicant carried out for terrestrial resources, demonstrated that the Project will have no significant impacts on any sensitive terrestrial plant or animal species. (6/20/00 RT 119.) Nevertheless, the Conditions of Certification in this Decision include measures to prevent any potential harm to sensitive terrestrial species during construction and operation phases of the Project.[51] To evaluate potential impacts to marine species, Applicant introduced evidence of yearlong studies, supervised by a panel of experts. The work concluded that the Project will have

[51] For example, Condition of Certification **BIO-5** requires the project owner to construct a fence which will exclude protected Santa Cruz long-toed salamanders (SCLTS) from the Power Plant site. A designated biologist will supervise all work in biologically sensitive areas of the MLPP site.

no impacts upon sensitive species.[52] (6/20/00 RT 82.) Consistent with this conclusion is the determination by the United States Fish and Wildlife Service, acting to enforce section 7 of the Endangered Species Act of 1973. After reviewing the Project, USFWS determined that the Project would have no effect on the southern sea otter. (Letter from Diane K. Noda to Wayne Hoffman, 2/1/00, Ex. 42.)

c. Magnuson-Stevens Fishery Conservation and Management Act

The National Marine Fisheries Service (NMFS) requires that proposed activities will not adversely affect Essential Fish Habitat (EFH) of managed fish species. After reviewing Applicant s proposed improvements to the Units 1 through 5 intake cooling water intake structure, the NMFS has determined that the proposed work will not adversely affect EFH, since the intake flows are going to be decreased and the screening system improved. (Ex. 19.)

3. Project Impacts

Biologist David Mayer testified for the Applicant regarding historical experience of the MLPP s impacts on marine resources over the last 50 years of operation. The impacts have been documented over the years through numerous studies conducted by PG&E in order to demonstrate compliance with section 316(b) of the Clean Water Act.[53] Dr. Mayer stated that these historical studies do not reveal that former PG&E Units 1 through 7 had a significant adverse impact on

[52] Testimony revealed that Applicant employed DNA testing to ensure that none of the goby species impacted by Project entrainment were, in fact, protected tidewater gobies. No tidewater gobies were found. (6/20/00 RT 81.)

[53] Former MLPP owner PG&E submitted reports to the RWQCB regarding impacts to marine species from plant intake and discharge systems in 1973, 1978, November 1983, with supplements in November 1986 and January 1988.

any population of species during the last 50 years of plant operation.[54] (6/20/00 RT 61.) He added that compared to the old units taken out of service, the new Project will take in 34 percent less cooling water. (6/20/00 RT 59.)

In order to most accurately evaluate the potential impacts of the new Project, and to form an accurate basis for new section 316(b) studies, the Commission and the RWQCB formed a Technical Working Group (TWG) made up of representatives from various regulatory agencies, the scientific community, and Duke Energy.[55] The TWG met regularly on a monthly basis beginning in March 1999, holding approximately 13 meetings. (6/20/00 RT66.) The TWG worked to design biological resource studies and then validate the results of these studies. (6/20/00 RT 69, 141.) The Technical Working Group concluded that it was not necessary to repeat earlier impingment studies performed by PG&E over the years (6/20/00 RT 72.) However, the group did design studies on the new Project s potential to create impacts from entrainment of species in the plant s cooling water and from the discharge of heated cooling water into Monterey Bay.[56] At the conclusion of the thermal and entrainment studies (Exhibits 56 and 57, respectively), they were submitted to the Commission and made publicly available. (6/20/00 RT 69.)

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[54] Units 1-5 operated from 1950 to 1995. Units 6 and 7 have operated since 1960, and remain in service.

[55] The Technical Working Group included: Michael Thomas of the Central Valley Region Water Quality Control Board (RWQCB) and special consultants to the RWQCB, Dr. Peter Raimondi, Professor of Marine Biology at U.C. Santa Cruz, and Dr. Greg Cailliet, Professor of Ichthyology at Moss Landing Marine Lab; Commission staff biologists Marc Sazaki and Dick Anderson, Staff water specialist Joe O Hagan, and CEC consultant Dr. Michael Foster, Professor at the Moss Landing Marine Lab; Michael Bowen and John Dixon of the California Coastal Commission; Deborah Johnson of the California Department of Fish and Game; Jeff Paduan from the Naval Post Graduate School; Dr. David Mayer as consultant to Duke Energy; Carol Raifsnider and Wayne Hoffman of Duke Energy; and Brian Waters from Duke-Engineering and Services.

[56] The development of the studies is detailed in the 316(b) Resources Assessment which Applicant submitted to the RWQCB and to the CEC. (Ex. 57, section 1.1.)

a. Impingment

Dr. Mayer defined impingement as the effect on organisms, fish and crabs that are too large to fit through the traveling screens on the cooling water intake structure for the Project. (6/20/00 RT 73.) While previous studies indicated impingement impacts only occurred to a low number of fish, the Technical Working Group decided not to conduct further impingement studies. The primary reason for this is that Applicant plans to alter the existing intake structure so significantly that projection based on performance of the old structure would not be accurate. To reduce impingement and entrainment impacts Applicant will install new angled traveling screen technology. These screens will reduce approach velocities of intake water and better maintain the screens free of debris that can otherwise entangle species and increase velocities due to blockage. The screens will operate with a continuous, slow rotation and will be installed at an angle in order to increase surface area. The witness referred to studies which show that both increased intake velocity and debris build-up can increase impingement impacts. (6/20/00 RT 75.) Dr. Mayer noted that the design velocity of water through the new intake structure will be 0.48 feet per second. (6/20/00 RT 77.)[57]

Applicant will also eliminate the present 350-foot tunnel in front of the traveling screens, thereby reducing entrapment of marine species. This is done by installing the new travelling screens within a few feet of the intake from Moss Landing Harbor. (Ex. 73. Mayer, p. 11.) These changes are illustrated in the section 316(b) report (Ex. 57.) Copies of the figures are included *infra*. Additionally, the new power plant s higher efficiency generation technology will enable a 34 percent reduction of intake water compared to the intake volume of Units 1-5. (6/20/00 RT 59.) Furthermore, Applicant has committed to minimize

[57] Intake water velocities are usually .5 feet per second based on recommendations by regulatory agencies. (6/20/00 RT 77.)

the volume of cooling water by shutting down circulation pumps whenever possible during periods of low power demand. (Ex. 77, p. 11.)

Dr. Mayer testified that these measures will result in a significant reduction in impacts from impingement. (6/20/00 RT 75.) He added that there are no feasible alternatives which could further reduce impacts and that this design represents Best Technology Available (BTA), as required by the Clean Water Act. (6/20/00 RT 87.) Dr. Peter Raimondi, of the Technical Working Group, later noted that based on his own studies, there is not a better technology available.[58] (6/20/00 RT 160.)

[58] Dr. Raimondi described his studies of impingement impacts at Diablo Canyon Nuclear Power Plant where there is very little impingement. He said the scientific evidence shows that the impingement rate at Moss Landing will be even less. (6/20/00 159.)

Figure 2-3. Proposed Inlet Cooling Water Structure

Source: Ex. 57, p. 2-6

Figure 2-4. Sectional View of the MLPP New Combined-Cycle Units Intake Structure s Traveling Screens.

Source: Ex. 57, p. 2-7.

b. Entrainment

Entrainment is the passage of organisms through the traveling screens of the intake structure and into the cooling water intake system. These organisms are fish larvae and eggs small enough to pass through the 5/16 to 3/8-inch openings in the traveling screens. For the purposes of the studies carried out, the Technical Working Group assumed that 100 percent of all entrained species would be lost. However, Applicant s consultant, Dr. Mayer pointed out that this is a conservative assumption.[59] (6/20/00 RT 74.)

The effects of cooling water intake were examined by conducting entrainment studies similar to those that previously performed over the years for Units 1 through 7. Scientists in the Technical Working Group examined the previous studies and contributed further analysis and recommendations for the new entrainment studies. (6/20/00 RT 62.) Additional studies were performed in the source waters of Elkhorn Slough, Moss Landing Harbor, the entrance to the harbor and in the Monterey Bay waters. Entrainment samples were taken from locations close to the intake for proposed Units 1 and 2 (and old Units 1 through 5), as well as to the south, in front of intakes for Units 6 and 7. Both source water and entrainment sampling was necessary because the methodology selected by the Technical Working Group required a comparison of the number of organisms that would be entrained in the power plant with the supply of those organisms in the source water. (6/20/00 RT 63.) The locations of power plant intakes and discharge facilities are shown in figure 2-6. Figure 3-1 shows the locations where study samples were taken. (Ex. 57, pp. 2-10, 3-3.)

The study was conducted over the period of one year, with source water studies done on a monthly basis while entrainment studies were carried out weekly.

[59] Dr. Mayer noted that at power plants in San Francisco Bay, similar species survived passage through power plant cooling systems at anywhere between 30 to 70 percent, depending on the species. (6/20/00 RT 74.)

(6/20/00 RT 64.) Studies were done over a 24-hour period to account for the differing larval densities during day and night. (6/20/00 RT 65.) The intake studies examined larval forms of organisms that were entrained. A conversion was applied to the study results to arrive at a projected number of entrained larvae when the Project is operating at maximum level.[60] The determined impact was not based on any change between old Units 1-5 and the new Project. Rather, the impact was assumed to be the difference between the present case (Units 1-5 not operating) and full operation of new Units 1 and 2.[61] (6/20/00 RT 66.)

The studies found that based on the maximum volume of water the Project would take in for cooling, the Technical Working Group methodology calculated the Project would impact 13 percent of the larvae for 8 species of fish. (7/17/00 RT 25.) As noted above, the Elkhorn Slough contains 87-97 species of fish and numerous other species of wildlife. The calculated 13 percent loss does not represent a potential loss of 13 percent of wildlife in the area, or even that percentage of marine species. Rather, as Staff biologist Dick Anderson testified, the fish larvae are essentially a proxy for all free-floating marine life that cannot swim. (6/20/00 RT 146.)

While Applicant s changes to the intake system noted above will significantly reduce impingement and entrainment, the changes will not eliminate the losses caused by the intake system. The Technical Working Group determined that the loss due to entrainment would be significant. (6/20/00 146.) Since the majority of entrained marine life was identified as coming from the Elkhorn Slough system, Staff and the TWG concluded that the entrainment impacts of the Project would be to the slough. (6/20/00 RT 147.) For this reason, the Technical Working

[60] While the studies assumed operation of Units 1 and 2 at 100 percent capacity, they will not, in fact, operate at that level all the time.

[61] Because old Units 1-5 had been shut down since 1995, Staff also conducted its analysis by not considering Units 1-5 as part of the environmental baseline. However, Units 6 and 7 are part of the existing baseline. (6/20/00 RT 143.)

Group agreed that the most proximate and proportional mitigation would be to improve the productivity of the Elkhorn Slough system.[62] (*Id*.) The process they applied to determine the appropriate mitigation is discussed below under Mitigation.

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[62] Staff biologist Anderson gave examples of measures which could enhance and improve the quality of the saltwater habitat of the Elkhorn slough as including the creation of wetlands restoration, enhancement of existing wetlands, stopping erosion and other things which degrade the slough. (6/20/00 147.) Saltwater habitat is specified because the Project cooling water is drawn from the salt water environment.

Figure 2-6. Location of the MLPP Intake and Discharge Structures.

Source: Ex. 57, p. 2-10.

Figure 3-1. Moss Landing Power Plant sampling locations.

Source: Ex. 57, p. 3-3.

i. Alternatives

Clean Water Act (CWA) under Section 316(b) requires that the location, design, construction and capacity of the cooling water intake structures reflect the Best Technology Available (BTA) for minimizing adverse environmental impacts. Variables which can be taken into account include site location, local environment, aquatic species and organisms, plant configuration (i.e. new or refurbished facility), and cost-effectiveness. To determine the appropriate BTA for the Moss Landing Power Plant Project, Applicant studied and evaluated several alternative technologies and presented the results and analysis in the Moss Landing Power Plant Modernization Project 316(b) Resource Assessment." (Ex. 57, pp. 7-1 through 7-39.) Furthermore, since entrainment impacts of the Project are identified as significant, the Commission too must examine alternatives which have the potential of reducing the impacts to a level of insignificance. The Staff evaluation of alternatives to the proposed CWIS was included in the FSA section on Soil and Water Resources-*Errata.* (Ex.76, pp. 23-30.)

The alternative technologies evaluated in the 316(b) report included:

1. Offshore and onshore intake locations/configurations.
2. A once-through cooling water system
3. Various behavioral barriers, which include light, sound, bubble screens, and velocity caps.
4. Diversion systems
5. Physical barriers.
6. Fish collection, removal, and conveyance systems.
7. Operational and flow-reduction alternatives.

A hierarchical evaluation system of four criteria using a site-specific approach was applied to assess which alternative intake technologies are both feasible and would reduce biological losses:

1. The alternative technology is available and proven.
2. Implementation of the alternative technology will result in a reduction in the loss of aquatic organisms compared to present conditions.
3. Implementation of the alternative technology is feasible at the Moss Landing Power Plant Project site.
4. The total economic cost of the alternative technology is proportional to the environmental benefits.

The four criteria were applied progressively; e.g., if an alternative did not meet the first criterion it was eliminated from evaluation under the next and remaining criteria.

Of the alternatives included above, only those involving operational and flow-reduction alternatives, and those involving behavioral barriers met the first criterion, were considered proven technology by Applicant, and were further evaluated under the remaining criteria. (Ex. 57, pp.7-1 through 7-39.)

Several alternatives were not considered likely to result in a reduction in the loss of aquatic organisms compared to present conditions. The 316(b) study considered both onshore and offshore alternative intake locations and behavioral barriers as not acceptable. Entrainment and impingement losses were not expected to be substantially reduced through the use of physical barriers, which include travelling screens, barrier nets, a Gunderboom, and a fish pump system. Cooling system changes and discharge temperature regulation were not expected to substantially reduce entrained organism mortality, and were also rejected from further consideration.

The remaining alternatives were evaluated against the feasibility and cost analysis criterion. Curtailment of power generation, mechanical draft and natural draft cooling options, air-cooled condenser (dry cooling), reduced cooling water flow at reduced loads, and alternatives to chemical biocides were eliminated based on either cost or feasibility. Applicant s 316(b) study concluded that the currently proposed design is the best technology available to reduce entrainment and impingement of aquatic organisms. (Ex. 57, p. 7-39.)

In utilizing the existing intake structure from Units 1-5 and making modifications to comply with BTA requirements, Applicant has attempted to create an environment that will reduce flow velocities, eliminate the 350 foot long tunnel as an area subject to entrapment, and control debris accumulation within the constraints of the existing intake structure.

It should be noted that while a number of alternate technologies have been tested and developed, the technologies may not be universally applicable in all situations. Some of these technologies have been used for hydroelectric or irrigation applications involving lakes and rivers, but not for seawater once through cooling facilities. The following is a brief description of the technologies evaluated by the Applicant.

Closed-Cycle Cooling Water System

There are alternate cooling technologies composed of mechanical or natural draft recalculating cooling towers using either fresh water or seawater as the cooling medium. The application of these systems would totally eliminate the need for the massive water intake structures described in the application but would involve other impacts. Water use would be reduced to that required for system makeup from blowdown, evaporative losses, and drift losses. The fresh water towers were ruled out due to the local limitations on freshwater supply. The seawater towers were eliminated due to environmental harm from discharge of concentrated effluent, visibility impacts of the towers themselves, noise,

saltwater drip impacts to agriculture, visible vapor plume emissions, additional energy requirements, and capital costs. (Ex. 76, pp. 24-26.)

Air Cooled Condensers

The use of air-cooled condensers would totally eliminate the use of water for cooling altogether. However, for the Moss Landing Power Plant Project these condensers would cover an area of 1.5 acres, extend to a height of 80-90 feet, consume 60 MW of power, and cost an additional $30 million in capital costs. Therefore, air cooled condensers have been eliminated as an alternative technology.

Offshore Intake Location

The proposed configuration is to make use of the existing onshore intake structure of Units 1 through 5 by modifying it in a manner that would reduce impacts from the old operation. An alternative to this would be to construct a new intake located offshore in either the Moss Landing Harbor or in the Monterey Bay. In either case, due to mixing and tidal actions between the Elkhorn Slough, the harbor and the bay, Applicant concluded that an offshore intake appears to offer little or no potential for reducing the losses of fish and invertebrates entrained or impinged at the new combined cycle units intake. (Ex. 76, p. 26.) This view was supported by Dr. Raimondi who said that offshore intake would impact offshore species such as rockfish, instead of gobies.[63] (7/17/00 RT 111.)

Alternate Onshore Location

The purpose of using an alternate onshore location would be to take advantage of a shore zone in which the habitat of species would be reduced from the current location. Considering the pattern of tidal currents and sampling studies

[63] While rockfish constitute a commercial species, 80-85 percent of the entrainment larvae found in the 316(b) studies constituted gobies, which most fish do not eat. (7/17/00 RT 137.)

performed for the 316(b) study, it was concluded that the potential for entrainment and impingement would not be substantially different at any other available shoreline locations.

Behavioral Barriers

Behavioral guidance technologies are designed to produce stimuli that potentially can alter the behavior of fish to produce avoidance responses and thus prevent entrainment into the water intakes. These technologies include the use of strobe lights, air bubble curtains, underwater sounds, mercury lights, electric barriers, and velocity caps. Certain of these technologies have had varying degrees of success with some fish species and it is agreed that in some cases that further study is warranted. For application at the Moss Landing site there is no compelling evidence that behavioral barriers would be an effective deterrent to entrainment or impingement on a consistent basis for the aquatic life in the area.

Physical Barriers

Physical barriers principally are designed to block the passage of fish from entering the intake, usually in combination with low water velocity.

Traveling Screens

Traveling screens have historically been used to block the intrusion of debris and fish from entering the cooling water systems of power generating facilities. More recent designs have included various fish handling and operational features to reduce the impingement of fish.

In addition to vertical traveling screens, alternate types of screens include drum type and wedge wire screens. Drum type screens that have been used primarily at irrigation and hydroelectric facilities have experienced problems with impingement and blockage due to poor design application, lack of bypasses and physical seals. Wedge-wire screens utilize a V or wedge shaped cross-section that forms a slotted screening element. To work properly, this design requires a small screen slot, low through-slot velocity, and an ambient cross-flow current.

Another problem due to a lack of accessibility is the lack of ability to prevent or control biofouling of the interior surfaces by mussels, barnacles and other organisms. Due to these problems drum and wedge wire screens are not currently considered to be applicable technologies for the Moss Landing Power Plant Project.

Barrier Nets

Barrier nets have the ability to exclude fish from water intakes by blocking the entrance to the intake structure. The mesh size and surface area of the net must be properly selected to block fish passage but not cause the fish to become gilled in the net. This can be controlled by the use of relatively low velocities (generally less than 1 ft/sec). Some concerns of barrier nets include blockage due to debris, clogging, and biofouling. While labor intensive, regularly scheduled cleaning programs can address these factors. Barrier nets have been used successfully at a number of power plant installations although it is not practical within the Moss Landing Harbor.

Gunderboom

The Gunderboom is a newer technology for protecting fish at circulating water intakes that consists of polyester fiber strands which are pressed into a water-permeable fabric mat. It is then made into a curtain that is floated and anchored to block the impingement of fish but also has the potential for preventing entrainment of the earlier life stages. While a promising technology the Gunderboom is still acknowledged to be experimental in nature requiring additional development and therefore not currently applicable at the Moss Landing Power Plant Project.

Porous Dikes

Porous dikes allow water to pass through them while preventing fish passage. They have been shown to be effective blocking juvenile and adult fish on an experimental basis; however, they do not reduce entrainment of the passive life stages which will get trapped in the porous medium or entrained in the pump

flow. Since this technology is still considered to be experimental and has yet to be demonstrated in cooling water intake applications, it is not considered to be a viable alternative for the Moss Landing Power Plant Project.

Fish Collection, Removal, And Conveyance System

Fish collection technologies have been developed that either actively or passively collect fish for transport back to the source of the cooling water through a return system.

Modified Traveling Screens. Modifications have been incorporated into vertical traveling screens to reduce the mortality of fish and organisms. These modifications incorporate the addition of water-filled buckets that collect the fish and with the aide of low-pressure washes and transport them into a sluice trough. The fish are then transported back to a safe release location. This system used in conjunction with continuous rotation of the screens is a viable alternative for protecting fish.

Fine-Mesh Screens. Fine-mesh screens with openings as small as 0.5 mm have been used in conjunction with the traveling screens described above. The concept of using the fine-mesh screens is that they will collect not only fish but also fish eggs and larvae. However, for some species impingement on the fine-mesh screens can actually result in higher mortality than if the organism were allowed to pass completely through the circulating water system. Therefore, it cannot be concluded that the use of fine mesh screens would enhance the prevention of impingement of the early sea life forms.

Fish Return Conveyance Systems

The 316(b) study notes that using a trash pump to transport material away from the intake often results in mechanical abrasion and high mortality of organisms. The study therefore concludes that no further consideration should be given to a fish pump return system for diverting fishes from the new combined cycle units intake because of the uncertainties associated with the effectiveness of such a

system in successfully diverting the fish species found at the site and returning them alive to Moss Landing Harbor.

Recent results using new designs indicate that pumps are available that induce little injury and mortality. These designs include the use of a screw-impeller pump that potentially offers an effective means of transporting larvae, juvenile, and adult fishes with low resultant mortality. Fish return conveyance systems are considered to be a viable application to reduce impacts to fish and other aquatic organisms. However, since Project-related impingement impacts are not significant, these measures would be unlikely to significantly reduce impingement losses.

Intake Maintenance and Operational Modifications

To reduce flow velocities through the intake structure Applicant will dredge to control sediment build up that would block the intake. Reduction of circulating water pump operation during periods of reduced electrical generation is also considered a viable proposal with potential energy savings by reducing auxiliary load requirements.

Diversion Systems

Fish diversion systems redirect the fish away from the impingement area to a return system or safe area for return to the ambient water source. The alternate designs include angled screens, modular inclined screens, and louvers.

<u>Angled Screens</u>. Traveling screens are set at an angle to the flow of the water (about 25…) in either a V or slant configuration. At the apex of the angle are fish bypass slots that collect the fish that are then pumped or sluiced back to the cooling water source. Fish that do not enter the bypass and become impinged on the traveling screens are then removed by a low-pressure backwash system. Even though there are limited applications using seawater-cooling systems,

results of fresh water and testing have shown this technology to be viable and worthy of consideration.

Modular Inclined Screens. The modular inclined screen consists of an inclined screen installed after the trash racks at a shallow vertical angle of 10-20 degrees to the flow. Fish are directed to a transport pipe for return to the sea water source. Early laboratory testing has shown modular inclined screens to have potential but this technology has yet to be demonstrated on a full scale circulating water system and is therefore not considered to be a viable application for the Moss Landing Power Plant Project.

Louvers. A louver system consists of an array of evenly spaced, vertical slats aligned across a channel at a specified angle which leads to a bypass. These systems have limited applications at cooling water intake systems but have been applied successfully at hydroelectric and irrigation facilities. Laboratory studies have showed reasonably high diversion efficiencies; however, these are dependent on swimming capabilities, behavioral tendencies, life-stage, and site specific characteristic of the local species impacted. Although louvers may be considered an alternative for the Moss Landing Power Plant Project, further evaluation with the local species would be required to define the full potential of this technology.

Alternate potentially acceptable technologies, which were dismissed by Duke, include barrier nets, fish collection by modifying traveling screens, diversion technologies of angled screens or louvers, and fish return conveyance systems. Most of these technologies address the reduction of impingement of aquatic species. Commission staff concluded that Duke s proposed modifications to the existing Units 1-5 cooling water intake structure will substantially reduce impingement which is already below a level of significance. Impacts resulting from entrainment by operation of the new units are being addressed by the off-site mitigation agreement.

A discussion of alternatives to the proposed cooling water discharge facility can be found in the Soil and Water Resources section of this Decision.

b. Thermal Discharge

Thermal impacts are the effects of temperature change in ambient waters resulting from the discharge of heated cooling water from the facility. The warm water discharge can have an effect on biological resources, which is discussed here. Other aspects of the Project s thermal discharge and a discussion of alternatives are addressed in the Soil and Water Resources of this Decision.

While retired Units 1-5 discharged cooling water directly into Elkhorn Slough, the new Project proposes to re-plumb its cooling water discharge to combine it with the discharge from Units 6 and 7. The Project will discharge from the existing release point approximately 600 feet offshore in Monterey Bay. Here the discharge water is released from two outlets, which are located approximately 20 feet above the bottom and 20 feet below the water surface. The bottom at this point is mostly sand and strongly influenced by wave action. (Ex. 5, secs. 6.5 and 6.6; Ex. 73., Mayer, p. 12; 7/17/00 RT 20.)

Because the Project is a new facility, its discharge is reviewed pursuant to the California Thermal Plan.[64] While the discharge from the Project complies with requirements of the Thermal Plan, the combined discharges of existing Units 6 and 7 with those of the new units will, under some circumstances, exceed Thermal Plan requirements. As a result, Applicant has applied to the RWQCB for an exemption to the limitations of the Thermal Plan (exemption). To gain an exception, Applicant must demonstrate to the RWQCB that an alternative effluent limitation for heat is more stringent than necessary to assure the protection and

[64] Discharges from Units 6 and 7 are subject to thermal limits under RWQCB Order 95-22 and are considered adequate to protect beneficial uses of the receiving waters. (Ex. 77, p. 8, para. 34.)

propagation of a balanced, indigenous population of shellfish, fish and wildlife in the body of water. (Ex. 77, p. 9, para. 38.)

To form a basis for the RWQCB evaluation and to meet information requirements of the Energy Commission under the Warren-Alquist Act, the technical working group developed a study plan, which was implemented beginning in March 1999. (Ex. 56, p. vi.) The studies were designed to obtain current information on the temperature, size, and depth of the dispersed thermal discharge into Monterey Bay under varying tidal and power plant operating conditions. The studies also estimated the magnitude and extent of thermal differences of the proposed Project s heat load and flow volume changes. Sampling data were designed to assess the thermal effects that occur in Moss Landing Harbor, Elkhorn Slough, and Monterey Bay, under existing and proposed, future conditions. (Ex. 56; p. vi; 6/20/00 RT 61-62.)

The conclusions of the Thermal Compliance Plan and previous larval fish studies established that the thermal effects of the Project will not be significant. (6/20/00 RT 61; 144; Ex. 56.) In addition, experts from the Technical Working Group, Commission staff, and Applicant s biologist were unanimous in determining that effects from the Project s thermal discharge will not be significant, including any effects on spawning activities.[65] (6/20/00 RT 61, 144, 156; 7/17/00 RT 22; Ex. 56.)

Furthermore, all expert witnesses agreed that local conditions make it virtually impossible to effectively detail the impacts of the Project s thermal discharge on local marine biology. (Ex. 56, 102-104; 6/20/00 RT 145; 7/17/00 RT 21.) The problem was explained by Staff biologist Dick Anderson, who summarized numerous confounding factors, including the naturally heated temperature of

[65] Alternatives to the proposed Project s thermal discharge and once-through cooling are examined in the Soil and Water Resources section of this Decision.

waters from Elkhorn Slough which travel in and out with the tide,[66] the extensive wave action near the thermal discharge point, and the fact that material from dredging Moss Landing Harbor is dumped within the area where thermal impacts would be studied. (6/20/00 RT 144.) The evidence shows that these variables essentially preclude accurate sampling which could separate the warm tidal plume of the Moss Landing Harbor and Elkhorn Slough from that of the Project. However, Applicant will carry out post-operational thermal plume studies to verify the results of modeling. (Ex. 73, Mayer, p. 12; Ex. 77, p. 12, para. 56; 7/17/00 RT 123.) The studies are required by Condition of Certification **SOIL&WATER-4**, and by the terms of the NPDES permit.

4. Indirect Impacts

The witnesses were unanimous that the Project will have no significant direct impacts associated with impingement or cooling water discharges. It follows that the record contains no evidence of significant indirect impacts associated with impingment or thermal discharge. However, since the weight of evidence is that entrainment impacts will, if not mitigated, be significant it is logical to consider any indirect impacts from entrainment. Dr. Greg Cailleit stated that there is no way to determine the number of entrained species which would otherwise be food for birds, and other higher species. (7/20/00 RT 137.) However, Dr. Raimondi pointed out that if the proposed offsite mitigation program results in creating increased productivity in the Elkhorn Slough ecosystem as anticipated, the increase in primary species such as gobies will also benefit the secondary species which feed upon them. (7/20/00 RT 140.) Thus, the mitigation for primary impacts will also mitigate for any secondary impacts.

[66] Dr. Mayer testified that temperatures of water coming out of Elkhorn Slough on an outgoing tide were measured at between 10¡F and 12¡F higher than those of Monterey Bay. Temperatures from the power plant discharge where the discharge water contacts the shoreline will be about 4¡F above ambient waters. (6/20/00 RT 115.)

5. Cumulative Impacts

Applicant and Staff both introduced testimony that the unavoidable losses due to the entrainment of fish larvae and other organisms in the Project s cooling water intake system will be mitigated through the measures designated in Condition of Certification **BIO-7**. The mitigation program will restore, and conserve Elkhorn Slough habitat for spawning, rearing, and foraging of species impacted directly, indirectly, or cumulatively by the Project. (Ex. 73, Mayer, p. 13; Ex. 75, p.15.)

6. Mitigation

Since the Technical Working Group identified as significant the loss of small, floating organisms lost to entrainment in the Project s cooling system, they went on to identify appropriate mitigation for the impact. Each species which was studied and measured was factored into a calculation, which represents a composite of the percentage of species lost to entrainment. Dr. Cailleit stated that 80 to 85 percent of the larvae sampled were gobies.[67] (7/17/00 RT 138.) Furthermore, Staff biologist Dick Anderson pointed out that the 13 percent loss of productivity to entrainment refers to an average of 13 percent among eight fish species. (7/20/00 RT 25.) Dr. Mayer pointed out that the 13 percent figure was very conservative since it was derived from assumptions using the 3000 wetted acres of Elkhorn Slough as the source waters. Had the assumed acreage of source waters been larger (such as adding the surface of the Moss Landing Harbor) the larger denominator for source water would have produced a percentage of impact lower than 13 percent. (6/20/00 RT 86.) Dr. Raimondi agreed, stating that [w]e chose to use the most conservative approach which

[67] Dr. Mayer testified that while the vast majority of species entrained are native to in Elkhorn Slough, some of the species are more typical of Monterey Bay. These include white croaker, staghorn sulpin, and Pacific herring. (6/20/00 RT 83.) However, the 316(b) study notes that Project effects on the latter species are relatively small, appear to be localized, and thus could not affect the overall adult populations. (Ex. 57, p. 6-43.)

would give the highest estimate of loss, and that was in the range of 13 percent. (6/20/00 RT 167:4-6.)

Mr. Anderson testified that since the majority of impacted fish larvae and other aquatic life were from the Elkhorn Slough, the Project impacts were essentially occurring to the slough. He said that based on this determination, the technical working group decided that the most appropriate mitigation for the Project s impacts would be to enhance and improve the quality of the Elkhorn Slough to offset the loss of productivity due to power plant entrainment. (6/20/00 RT 147.) Dr. Raimondi supported this by stressing the nexus between the entrainment impacts of the new generating units and mitigation measures which would increase slough productivity sufficiently to completely compensate for the losses due to entrainment. (6/20/00 RT 166.)

Biologist members of the Technical Working Group were unanimous in stating that there is no precise way to quantify the Project s entrainment impacts. Therefore, no precise measurement of mitigation is possible. Instead the technical working group applied its professional judgement and developed a protocol. They decided that a reasonable way to determine the adequate mitigation for Project impacts was to multiply the 13 percent loss rate[68] times the 3000 acres of wetted surface in Elkhorn Slough, the source of most entrained species. The resulting figure of 390 acres (13% X 3000 acres) was never intended to represent the number of acres of wetlands to be replaced since no wetlands had been removed by the Project. Rather, the figure represents a way to measure the amount of wetland productivity, which must be replaced. 390 acres is merely the numerical value of the intermediate step in the protocol used to translate estimated entrainment impacts into a dollar value for the mitigation package.(6/20/00 RT 148.) The Technical Working Group then determined on a realistic price per acre, multiplied the price per acre by 390 and arrived at the agreed upon figure of $7 million. Applicant will pay this amount to fund the

[68] The 13 percent figure is an average which serves as a proxy for the organisms lost.

mitigation package described in Condition of Certification **BIO-7**. The mitigation package involves measures to increase the productivity of Elkhorn Slough.[69] (6/20/00 RT 149.) These efforts may include a variety of steps such as wetland restoration, erosion control, improvement and enhancement, as well as steps to clean up sources contaminating the slough or degrading its quality. (*Id*.)

The experts who testified unanimously agree that the $7 million amount was considered fair and reasonable as mitigation for the impacts of the Project.[70] 6/20/00 RT 86, 150, 161, 163, 172.) No sworn testimony was introduced opposing this view.

7. Agency Comments

Shortly after the Commission determined that Applicant s AFC for this Project contained adequate data to begin the Commission s review process copies of relevant portions of the AFC were sent to 37 different government agency contacts for review and comment.[71] Most of these contacts provided comments on the Applicant s proposal and the comments were used by the Commission staff in its analyses. Some agencies took a more active role than did others. The following agencies voiced particular concerns regarding the Moss Landing Power Plant Project.

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[69] The technical working group relied, in part on Dr. Raimondi s expertise and experience with the cost of wetland restoration. (6/20/00 RT 149.)

[70] Dr. Mayer actually testified that $100,000 would be adequate to mitigate for impacts to the long-jawed mudsucker and that Applicant had originally proposed $1.8 million for mitigation efforts to account for impacts, allowing for species and study uncertainties. He stated the $7 million is more than adequate to mitigate Project impacts. (6/20/00 RT 85.)

[71] A list of the agency contacts can be found on the Commission s website at: www.energy.ca.gov/siting cases/mosslanding/agencies.html

i. Coastal Commission

In a letter dated July 24, 2000, the California Coastal Commission sent comments to this Commission indicating support with modifications to, and comments on biological resources conditions of certification contained in the FSA, Part III *Errata* (Ex. 75.) The Coastal Commission s letter was submitted pursuant to section 30413(d)(4) of the Coastal Act, which authorizes the Coastal Commission to submit to the Energy Commission a report on, among other things, the proposed Project s consistency with the Coastal Act s marine resources and water quality policies.[72]

The letter voices several concerns with the mitigation package identified in the FSA *Errata.*

- The package lacks clear objectives and performance standards;
- It lacks a clear nexus and proportionality between impacts and mitigation;
- It fails to substantiate key mitigation costs, thereby failing to ensure adequate implementation of mitigation measures; and
- It assigns no remedial measures to address shortcomings in mitigation measures.

The Coastal Commission proposed modifications to conditions of certification to address these concerns, requiring adoption of the modifications in order for the Coastal Commission to find the proposed project consistent with the Coastal Act s section on marine resources and water quality, pursuant to Public Resources Code section 30413. Controversy arose regarding the Coastal

[72] Public Resources code section 25523(b) requires the Energy Commission to include in its Decision on an AFC the specific provisions in the Coastal Commission report unless the Energy Commission specifically finds that the adoption of the provisions specified by the Coastal Commission would result in a greater adverse effect on the environment or that the provisions proposed in the report would not be feasible. The Coastal Commission had previously advised the Commission, by letter of June 13, 2000, concerning coastal access and recreation matters contained in land use conditions of certification. (Ex. 72.) The July 24, 2000, served as the second part of the Coastal Commission s ⁄30413(d) report and addressed impacts to marine resources.

Commission s modifications to Condition of Certification **BIO-7**, which sets forth the requirement for Applicant to fund a $7 million mitigation plan to offset entrainment impacts of the Project. The Regional Water Quality Control Board staff has notified this Commission that some of the Coastal Commission s recommendations are not compatible with the NPDES permit for the Project.

ii. Monterey Bay National Marine Sanctuary

The Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary) submitted a letter dated July 26, 2000, which states its concerns that thermal discharge from the Project could enter the Sanctuary and harm resources.[73] The letter acknowledges that the record shows thermal discharges will cause no significant adverse impacts on the marine environment. Nevertheless, it states concerns about the uncertainty of modeling carried out to reach those conclusions. In order for the MBNMS to find that the thermal discharge will not violate prohibitions against discharge, the Sanctuary proposes that Applicant fund a biological monitoring research program to verify the effects of thermal discharge on the marine environment. MBNMS recommends Applicant provide funding for $75,000 to $100,000 per year for six years of research. The Sanctuary letter states that this amount should be in addition to the $7 million mitigation package for entrainment effects. Baseline studies would commence immediately, allowing two years of research prior to operation of the new generator units, with four years of study after that time. The Sanctuary notes that a lump sum payment of $450,000 paid to the Monterey Bay Sanctuary Foundation or the Elkhorn Slough Foundation would be adequate.

In addition, the letter incorrectly assumes that the mitigation package for entrainment impacts would require acquisition of 390 new wetland acres. It also asks that the MBNMS be included among the agencies that design and manage

[73] The discharge facility is not within boundaries of the Sanctuary. However, thermal discharge from the facility would likely flow into waters within Sanctuary jurisdiction.

the $7 million package. The Sanctuary also supports adding a conservation group to the committee. Like the Coastal Commission, the MBNMS advocates that some of the $7 million be used for research and that if full mitigation costs exceed $7 million, Applicant should be responsible for additional funding.

iii. Regional Water Resources Control Board

Applicant applied to the Central Coast Region of the California Regional Water Quality Control Board for a permit to discharge industrial process wastewater, uncontaminated cooling water, and storm water from the Project. In March 1999, the RWQCB, in conjunction with the Commission, established the Technical Working Group to determine the appropriate study methodologies by which to evaluate the Project, both for its NPDES permit and for its certification by the Commission. The RWQCB received numerous studies from the Applicant and based on these studies and the advice of the Technical Working Group, the RWQCB staff prepared a draft NPDES permit, issued on June 26, 2000. The draft permit recommends approval of the NPDES permit for the Project, with conditions which include discharge water temperature limitations, the obligation to upgrade the existing intake structure, and the requirement to pay $7 million for improvement of marine life productivity in the Elkhorn Slough ecosystem. (Ex. 77.) The RWQCB will consider adoption of the permit at its September 26, 2000 meeting. (Ex. 77.)

When issuing an NPDES permit to a facility such as the Project, the RWQCB is implementing the federal Clean Water Act. That law prohibits all discharges of waste unless authorized by an NPDES permit (33 U.S.C.,／1311.) Normally, the U.S. Environmental Protection Agency issues NPDES permits unless a state has established a program for issuing the permits that has been certified by U.S. EPA. The state operates the program with U.S. EPA oversight as long as the state complies with the terms of the certification. In California, there is a state certified NPDES program. The terms of certification provide that only the State

Water Resources Control Board and the nine Regional Boards are empowered to implement the NPDES program.

On August 10, 2000, Roger Briggs, the Executive Officer of the RWQCB sent a letter to Chairman Keese as Energy Commission Chairman and Presiding Committee Member in this case. The letter details serious concerns of the RWQCB regarding recommendations made to the Commission by the California Coastal Commission it s letter dated July 24, 2000.

The RWQCB letter notes that the Coastal Commission bases its recommendations regarding mitigation for Project impacts to the marine environment upon the same information used by the RWQCB and the Energy Commission staff to determine compliance with section 316(b) of the Clean Water Act. It states that, nevertheless, the Coastal Commission proposed a different approach to mitigation for effects on Elkhorn Slough, caused by the Project s cooling water intake system. The basic concerns of the letter are that: 1) The RWQCB is the only state agency authorized to issue NPDES permits pursuant to the federal Clean Water Act; 2) The CEC therefore lacks legal authority to incorporate in its license for the Project any conditions which are inconsistent with those in the NPDES permit issued by the RWQCB; 3) the Coastal Commission recommendations are inconsistent with the draft NPDES permit; 4) Coastal Commission recommendations include a cumbersome and time consuming process involving five government agencies that must reach agreement before any mitigation projects can be identified, approved for funding, and implemented, thus creating the risk that mitigation required in the NPDES permit will be delayed or become infeasible; 5) The recommendation by the Coastal Commission for a committee of agencies is unnecessary because the NPDES permit recognizes that the Technical Working Group has already gone through the process of identifying and quantifying needed mitigation; 6) The NPDES permit recognizes the proven expertise of the Elkhorn Slough Foundation and the value of the Elkhorn Slough Conservation Plan as

appropriate mitigation; 7) To the extent that the Coastal Commission recommendations include using some of the $7 million for research or for projects outside the Elkhorn Slough watershed, the recommendations conflict with the NPDES permit objective of directly increasing productivity of the Elkhorn Slough; and 8) the Coastal Commission recommendations remove decision-making authority for the $7 million mitigation program from the RWQCB and the CEC and vest it with a committee made up of the Coastal Commission, Department of Fish and Game, the Monterey Bay National Marine Sanctuary, the CEC and the RWQCB.

The letter concludes that if the Coastal Commission recommendations are adopted by the Energy Commission, the Applicant, Duke Energy will be deprived of a means of complying with section 316(b) of the Clean Water Act, that the elaborate steps recommended by the Coastal Commission are unnecessary for effectively mitigating Project impacts, and that resulting delays in mitigation work will harm the environment. The letter also notes that if research on thermal discharge impacts, requested by the Monterey Bay National Marine Sanctuary is funded by any of the $7 million mitigation fund identified in the NPDES permit such a step would be inconsistent with the NPDES permit.

iv. Monterey County Board of Supervisors

The Monterey County Board of Supervisors (Board) submitted a letter dated July 25, 2000, requesting additional conditions of certification regarding traffic, public access and biological issues.[74] In this section of the PMPD it is necessary that we address only the last of these three requests. The Board requests that all responsible agencies and departments in Monterey County be included as active participants in the planning and implementation of the habitat and wetland

[74] In addition to commenting on the Project which is before the Commission, Monterey County the permitting agency for other projects related to modernization at the MLPP site. They are: 1) the removal of 19 fuel storage tanks on site, 2) adding Selective Catalytic Reduction (SCR air

mitigation program. It seeks annual reports demonstrating that the latest technology is used to reduce impacts to pelagic organisms and asks for ongoing studies of impacts to these organisms by the Project. The Board wants the monitoring process to be overseen by all appropriate federal, state, and local agencies, boards, and trusts and provide for public participation. (Letter to William J. Keese from Louis R. Calcaqua, July 25, 2000.)

8. Public Comments

Numerous members of the public, representatives of a few governmental agencies and several environmental groups voiced frustration and confusion at the June 20, 2000, evidentiary hearing. Many believed that evidence of Project impacts on the marine environment and the proposed mitigation package designed to address significant impacts had not been made public for an adequate amount of time. To assist these people in better understanding the record, the Staff analysis, and the proposed mitigation package, the Committee temporarily adjourned the formal hearing while members of the Technical Working Group remained to explain the scientific basis for their approach to mitigation and answered questions from the audience. This informal workshop proceeded for several hours and was summarized on the record after the Commissioners returned to the hearing room and reconvened the evidentiary hearing. (6/20/00 RT 43-48.)

In order to give the public still more time to digest the various analyses, the Committee scheduled a non-evidentiary Committee Conference approximately one month later on July 17, 2000, in Moss Landing. The Conference was well attended and those present heard summary explanations from Applicant, Staff, and scientists from the Technical Working Group concerning impacts of the Project on the marine environment. In addition, a detailed discussion took place

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emission control technology) to existing Units 6 and 7, and, 3) an Energy Management Center and oil/water separator.

explaining the logic and scientific basis behind the proposed $7 million mitigation package. Those attending were then provided time to ask questions of the presenters. Before closing the Committee received comments from the public. While the Committee perceived that most questions were answered, two letters were submitted at the Conference which voiced many of the concerns expressed by those present.

Kaitilin Gaffney, of the Center for Marine Conservation submitted a letter, which was co-signed by seven other environmental organizations from the Monterey Bay area.[75] The letter alleges that the Final Staff Assessment on Biological Resources-Errata (Ex. 75) is inadequate, does not adequately consider alternatives capable of avoiding adverse impacts, and presents a compensation proposal which is inadequate. Another letter was submitted by David Dilworth of HOPE-Helping Our Peninsula s Environment. His letter criticized the Commission siting process, disagreed with the expert testimony of the technical working group scientists, and stated various legal challenges. These concerns will be addressed in the discussion of the evidence, which follows.

COMMISSION DISCUSSION

The evidentiary record before us establishes that since 1950, Units 1-5 of the Moss Landing Power Plant have been operating adjacent to Elkhorn Slough. After 1960, Units 6 and 7 were placed into operation as well. The evidence is undisputed that, based on numerous studies performed since the early 1970s, Units 1-7 apparently produced no detectable injury to marine resources. In fact, official counts of harbor seals and sea otters have significantly increased in the area during the period between the mid 1980s and the mid 1990s. Thus, 50

[75] In addition to the Center for Marine Conservation, the letter was endorsed by Save Our Shores, Friends of the Sea Otter, Monterey Bay Chapter of the American Cetacean Society, The Otter Project, the Ventana Chapter of the Sierra Club, Surfer s Environmental Alliance, and Ecology Action.

years of experience with a major power plant in this sensitive area has apparently resulted in no detectable, significant harm to the marine environment.

The evidence demonstrates that the proposed Project will do less harm to the marine environment than did the old units it replaces. The Project will intake 34 percent less cooling water. It will send its thermal discharge 600 feet offshore into the well-mixed waters of Monterey Bay instead of discharging into Elkhorn Slough as did Units 1-5. Steps to reduce impingement effects will include improved traveling screen technology, elimination of the 350-foot entry tunnel, and reduced volumes of intake water due to modern efficiencies. All witnesses judged impingement impacts to be insignificant. Expert review and analysis of past thermal studies of the Unit 6 and 7 discharge facility were included in efforts to model the combined effect of the old and new units. Both expert witness testimony and the Thermal Compliance Plan establish that the Project s thermal discharge, even when combined with that of Units 6 and 7, will not have a significant adverse effect on either the area s subtidal habitats or on its shoreline environment.

Studies designed and reviewed by the Technical Working Group provided data sampled over the course of a year which establishes that under worst-case assumptions, the Project will cause the loss of approximately 13 percent of fish larvae among 8 species out of the approximately 97 species of fish represented in the Elkhorn Slough. Conservative assumptions used in the study include: 1) that the Project operates at 100 percent capacity all the time; 2) that no entrained organisms survive; and 3) that all intake waters come from Elkhorn Slough, with none coming from Monterey Bay. The evidence is undisputed that this entrainment loss constitutes a significant adverse impact to the Elkhorn Slough watershed.

To mitigate this impact, the Technical Working Group established a protocol through which appropriate steps can be taken to increase the biological

productivity of the Elkhorn Slough and thereby compensate for the larval and other small organisms lost to the project. Each expert witness testified that the resulting mitigation package to be funded by Applicant is fair and reasonable.

Since March 1999 critical decisions regarding the evaluation of the Moss Landing Power Plant Project have been informed and influenced by the Technical Working Group. Collectively, the members of this group hold a remarkable wealth of knowledge concerning the impact of power plant cooling water intake and discharge on the marine environment in California. In particular Drs. Cailliet, Foster, Mayer, and Raimondi provide many years of experience in studying the precise impacts to the environment that we have encountered in this case. Their experience includes not only that of the Moss Landing facility but of power plants at Morro Bay, Diablo Canyon, and San Onofre and in the San Francisco Bay area. Not only is the evidence concerning biological impacts undisputed, but it was developed and presented by a group of witnesses upon whose expert opinions we can rely.

In a letter to the Commission dated August 10, 2000, the Central Coast Region of the Regional Water Quality Control Board correctly points out their role as a delegate state agency implementing the federal Clean Water Act. They are also correct in noting that the Commission may take no action in conflict with federal law. (Pub. Resources Code, // 25500, 25525.) Accordingly, to the extent that the report to this Commission from the Coastal Commission pursuant to Public Resources Code section 30413(d)(4), conflicts with the terms of the NPDES permit issued by the RWQCB, this Commission lacks the legal authority to implement those recommendations. Therefore, the Commission has included all the recommendations of the Coastal Commission allowable under federal and state laws. However, we must respectfully decline to accept two of the Coastal Commission s recommendations. Specifically, we have not added the Coastal Commission and other agencies to the decision-making role exercised by the RWQCB and this Commission as permitting agencies implementing the $7

million mitigation package. We find that to do so would be infeasible. First, it would conflict with the federally delegated authority of the RWQCB to implement the NPDES permit. Secondly, it would make it impossible for Applicant to comply with the terms of the NPDES permit which conflict with the Coastal Commission suggestions. Finally, delegating decision-making for implementation of mitigation to a committee of at least five governmental agencies has the potential to cause delay.[76] We have, however, required Commission staff to consult with the Coastal Commission, Monterey County, MBNMS and other stakeholders in the Elkhorn Slough watershed before establishing an enhancement/compensation plan. This is described in Condition of Certification **BIO-7**.

The second Coastal Commission recommendation we respectfully are unable to implement is related to mitigation expenditures. We have eliminated reference research from the list of measures for which mitigation expenditures can be used. Based on the uncontested evidence in the record, developed through the scientific expertise of Technical Working Group members, it was established that research projects to quantify productivity in the complex Elkhorn Slough environment can be costly and at best inconclusive, if not impossible. This is due to various stresses to marine life in Elkhorn Slough such as scour, erosion, and pesticides. To the extent that such research money might be diverted from the $7 million fund, it would reduce the ability to secure actual steps to increase biological productivity in the Elkhorn Slough, thereby reducing mitigation for Project impacts. We find that funding research instead of funding improvements to the Elkhorn Slough would result in a greater adverse effect on the environment.

[76] The ability to make expeditious decisions is essential because the mitigation program emphasizes land acquisition. Demand for coastal land and prices for that land are constantly increasing. Delay may result in losing an opportunity to acquire a certain parcel or in an increased price for that parcel. Additionally, every year a source of erosion or toxic run-off to the slough continues to discharge the more difficult ecosystem enhancement will be. Therefore, time has a direct connection to environmental benefit.

In addition, on page 7 of 11 in the Coastal Commission report it notes several concerns with the mitigation package described in the FSA-Errata. We note the concern and respond:

- *The package lacks clear objectives and performance standards for mitigation*;

The objective of the mitigation plan is to increase the biological productivity of the Elkhorn Slough watershed. To meet that objective, funds will be used for acquisition, permanent preservation, and restoration of habitat, including upland areas in the Elkhorn Slough watershed. It should be noted that the scientists in the Technical Working Group stressed the difficulty of quantifying both the impacts of the Project and the productivity of the source waters in Elkhorn Slough. Thus, precise determinations such as number of larvae replaced are not feasible. Rather, standards for mitigation should address steps toward the objective, such as number of wetland acres enhanced, or impacts harmful to Elkhorn Slough which are reduced or eliminated.

- *The package lacks a clear nexus and proportionality between project impacts and proposed mitigation measures.*

Testimony by scientist members of the Technical Working Group and expert testimony given under oath established a clear nexus between project impacts, the protocol for establishing adequate mitigation funding, and the way that funding should be spent. (6/20/00 RT 165-166.)

- *The package fails to substantiate key mitigation costs and thus fails to ensure adequate and appropriate implementation and completion of the mitigation measures.*

The hearing record reveals that the Technical Working Group relied upon the expertise and the experience of some of its members in making reasonable cost estimates for land, restoration and administration. (7/17/00 RT 26.)

- *The package assigns no remedial measures or recourse to address shortcomings.*

Full implementation details of the mitigation package will be prepared after certification of the Project and with advice from the Coastal Commission and other stakeholders of Elkhorn Slough. These details will include ways to monitor the success of individual measures taken toward the objective. Should monitoring reveal the need for remediation, it can be addressed at that time by those closest to the Elkhorn Slough environment, and with the funds available. In addition, within five years of receiving its NPDES permit, Applicant must return to the RWQCB for a renewal of the permit. If at that time additional remedial measures not funded by the mitigation package, must be taken, or if improved technology exists to reduce Project impacts, the RWQCB can address such matters in a public forum. Finally, CEC jurisdiction over Applicant s compliance with the Commission s Conditions of Certification continues for the life of the Project.

The recommendation of the Monterey Bay National Marine Sanctuary for additional research money is at odds with evidence in the record that the Project s thermal discharge will not harm resources in the Sanctuary. The expert testimony is that no significant impact will occur. Nevertheless, in an August 14, 2000, letter to William Douros, Superintendent of the MBNMS, Duke Energy proposed making a contribution to the Monterey Bay Ecosystem Monitoring Program of four annual payments of $50,000 each. This is a program administered by the MBNMS to carry out basic surveys or characterizations of habitats within the MBNMS. Applicant states that the money is to assist in completion of the programs goal. Persons reviewing the PMPD are encouraged to comment on this matter.

The comment letter of July 17, 2000, from the Center for Marine Conservation and other groups criticized the Staff biological resources testimony as submitted in its FSA-Errata. (Ex. 75.) However, the letter appears to place too much

reliance on the FSA, perhaps expecting it to fulfill the role of an Environmental Impact Report. In 1981, the Secretary of Resources certified the Energy Commission *entire siting process* as the functional equivalent of the EIR. That process includes the many hearings and workshops open to the public through the yearlong process. It also includes the documents and testimony received into evidence at public hearings. Thus, in addition to the FSA, the Commission may rely on important documents in the case such as the 316(a) and 316(b) studies, the AFC itself, and testimony of expert witnesses, given under oath.

While it is true that Staff did not attempt to quantify secondary or indirect impacts of entrainment losses, the evidentiary record is clear that doing so is impossible. Rather, Staff and the Technical Working Group scientists determined that improvements to Elkhorn Slough at the ecosystem level would fully mitigate all significant direct, indirect and cumulative impacts of the Project. This mitigation occurs in two ways. First, the evidence establishes that improving the productivity of Elkhorn Slough is the most direct way possible of compensating for small, larval organisms lost to entrainment at the Project. Thus, increased productivity of larval organisms in Elkhorn Slough will have positive indirect impacts up the food chain for animals that feed on the larvae. Secondly, the evidence is clear that only 13 percent of the larval forms of only 8 species of organisms are directly impacted by the Project. Finally, improvements to Elkhorn Slough habitat will directly benefit all other species in the slough.

In addition, we note that Applicant, Duke Energy, supports the efforts of the Marine Mammal Center to rehabilitate sick, injured, or orphaned marine mammals along the California Coast. The Center s triage/emergency facility at the MLPP site initially receives animals and stabilizes them for transport to a care facility in Sausalito. Duke plans to relocate the Center s triage/emergency center to a new location at the MLPP site and continue hosting its operations. As additional insurance that any potential cumulative Project impacts to marine mammals will be fully mitigated, the Commission will require Applicant to

continue its support for the Marine Mammal Center, or a comparable rescue organization, for the operating life of the Project. This requirement is contained in Condition of Certification **BIO-8**.

The letter from the conservation groups also refers to losses with all units operating as being several times greater than entrainment impacts for Units 1 and 2. The briefs of Staff and Applicant appear to disagree on whether existing Units 6 and 7 are part of the existing baseline environment or must be considered as part of a cumulative impacts analysis. Nevertheless, even assuming, for argument sake, that the Staff is correct, we find that the mitigation package and other Conditions of Certification will fully mitigate all significant direct, indirect, and cumulative impacts of the Project. The letter s expressed concerns about changes to Staff testimony between the first version, dated June 8, 2000 (Ex. 74), and the Errata dated June 19, 2000 (Ex. 75), were fully addressed by the Staff witness at the July 17, 2000, Committee Conference. At that time, Staff witness Anderson stated that he revised his initial statement of combined significance to more accurately describe that significant impacts would be from entrainment, and not from either impingement or thermal effects. (7/17/00 RT 99-100.)

David Dillworth s letter on behalf of HOPE-Helping Our Peninsula s Environment states,

> *More than a quarter of the slough could be sucked up into the pipes every day and all of the biota sucked in will be killed? — and there won t be any potentially significant environmental impacts? That s a facially outrageous assertion.*

The evidence is clear that a large proportion of the intake water is not from Elkhorn Slough, but rather from the harbor and Monterey Bay, depending on the tide. Furthermore, expert testimony noted that experience with other power plants indicates all biota are not killed during entrainment and that between 30-70 percent survive, depending on the species. Finally, the expert witnesses

established that there will, in fact, be a significant entrainment impact. The result is the $7 million mitigation package. Mr. Dillworth also refers to tidewater gobies; a federally listed endangered species. It is true that some were found in Bennet Slough, about one mile north of the Project site. (Ex. 75, p. 5.) However, the yearlong sampling for the 316(b) study included DNA analysis to screen for tidewater gobies. Expert testimony established that there is no possibility that tidewater gobies were among the goby samples take in the study. (6/20/00 RT 61.) In fact, the evidence established that the Project will have no adverse impact on any protected species. (6/20/00 RT 62; 7/17/00 RT 158-159.)

In conclusion, we note that a thorough and professional analysis has been carried out to examine the impacts of the Project on biological resources. Particular emphasis has been placed on examining impacts to marine resources and a qualified determination of significant impacts is justified. However, the record is clear that the significant impact will be fully mitigated.

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FINDINGS AND CONCLUSIONS

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

1. The environmental baseline for Commission analysis of the Project s biological impacts includes the existing Moss Landing Power Plant site with operating generation Units 6 and 7. It does not assume existing operation of Units 1 through 5 which have been retired since 1995.

2. The Project is proposed to be located on the existing MLPP site, adjacent to the Elkhorn Sough.

3. The Elkhorn Slough is designated as a State of California Ecological Preserve and its tidal waters are part of the Monterey Bay National Marine Sanctuary, which has established the Elkhorn Slough National Estuarine Research Reserve on its shores.

4. The Elkhorn Slough Foundation has recognized conservation experience and expertise as well as a published *Elkhorn Slough Watershed*

Conservation Plan which includes measures to enhance biological productivity in the Elkhorn Slough Watershed.

5. If not mitigated, the Project would impose a worst-case effect of entrainment losses to approximately 13 percent of larvae among eight species found in the Elkhorn Slough watershed.

6. Expert testimony has established that the entrainment effect noted in the finding above would have a significant adverse impact on the Elkhorn Slough system if not mitigated.

7. The evidence establishes that it is not technically feasible to precisely quantify entrainment impacts of the Project upon marine biology nor to precisely quantify the source population of impacted larval species.

8. Expert testimony has established as fair and reasonable the $7 million mitigation package to fund increased biological productivity in the Elkhorn Slough watershed as mitigation for significant Project impacts to the Elkhorn Slough.

9. The recommendations of the California Coastal Commission made to this Commission pursuant to Public Resources Code, section 30413(d) have been incorporated into this Decision with the following exceptions:

    a. To the extent the provisions recommend granting to the Coastal Commission decision-making authority, in addition to the statutory permitting agencies, regarding disposition of funds for mitigation of Project impacts, we find the recommendation infeasible;

    b. To the extent that the Coastal Commission recommends diverting a portion of the funds required for mitigation of Project impacts towards research, thereby reducing the amount available for mitigation efforts, we find the recommendation would result in greater adverse effect on the environment.

10. Applicant must report annually to the Commission and other stakeholders of the Elkhorn Slough (Advisory Team) on the steps taken to implement the mitigation package.

11. Project impacts from impingement of marine organisms at the cooling water intake structure will not be significant.

12. Project impacts from thermal discharge into the waters of Monterey Bay will not have a significant adverse effect on marine biological resources.

13. The Project will not impose significant adverse effects on any protected species.

14. Pursuant to Condition of Certification SOIL&WATER-4 and the NPDES permit, the Project must carry out post-operational studies to characterize the extent and influence of the thermal discharge from Units 1 and 2 in combination with the discharge from Units 6 and 7.

15. Applicant has analyzed a reasonable range of alternatives in an effort to further reduce impacts from impingement, entrainment, and thermal discharge.

16. The measures specified in the Conditions of Certification will adequately mitigate the potential direct, indirect, and cumulative adverse effects of the Moss Landing Power Plant Project upon biological resources to below a level of significance.

17. With the implementation of the mitigation measures, the Project will conform with all applicable laws, ordinances, regulations, and standards governing biological resources.

The Commission therefore concludes that implementation of the Conditions of Certification below will ensure that construction and operation of the Moss Landing Power Plant Project will not create any significant direct, indirect, or cumulative adverse impacts to biological resources, and that the Project will conform with all applicable laws, ordinances, regulations, and standards relating to biological resources as identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

BIO-1 Any ground disturbing activity (at the site and/or ancillary facilities) other than allowed geotechnical work shall not begin until an Energy Commission Compliance Project Manager (CPM) approved designated biologist is available to be on site.

The designated biologist must meet the following minimum qualifications:

1. a bachelor s degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. three years of experience in field biology and current certification of a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society;
3. one year of field experience with biological resources found in or near the project area; and
4. ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resource 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.

Verification: No disturbance will be allowed in any designated sensitive area(s) until the CPM approves a designated biologist and that designated biologist is on-site. At least 30 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, 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.

The project owner must submit the information on a replacement designated biologist to the CPM for approval 10 days prior to the actual replacement.

BIO-2 The CPM approved designated biologist shall perform the following duties:

1) advise the project owner s supervising construction or operations engineer on the implementation of the biological resource conditions of certification,
2) supervise or conduct mitigation, monitoring, and other biological resource 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 condition.

Verification: 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 and the Executive Director of the Coastal Commission.

BIO-3 The project owner s supervising construction and operating engineer shall act on the advice of the designated biologist to ensure conformance with the biological resource conditions of certification.

The project owner s supervising construction and operating engineer shall halt, if needed, all construction activities in areas specifically identified by the designated biologist as sensitive to ensure that potential significant biological resource impacts are avoided.

The designated biologist shall:

1) advise the project owner and the supervising construction and operating engineer when to resume construction, and
2) advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two working days of a designated biologist notification of non-compliance with a Biological Resources condition or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition.

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

BIO-4 The project owner shall develop and implement a Worker Environmental Awareness Program. An environmental awareness program shall be developed for construction employees and employees of contractors and subcontractors that may work in close proximity to areas specifically identified as sensitive by the designated biologist. This shall include work associated with the new power plant, linear facilities, access roads, and laydown areas. All site supervision shall also receive this training.

Protocol: The Worker Environmental Awareness Program:

a) shall be developed by the designated biologist and consist of an on-site or classroom presentation in which supporting written material is made available to all participants. This training can be

part of the regular site orientation or a special training program based on employees task assignment;

b) must discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

c) must present the reasons for protecting these resources;

d) must present the meaning of various temporary and permanent habitat protection measures;

e) must identify who to contact if there are further comments and questions about the material discussed in the program; and,

f) shall inform workers of the potential biological resource impact risk associated with all construction and operational activities as is appropriate and emphasize protection of sensitive resources such as the Santa Cruz long-toed salamander.

g) shall be led by an individual(s) evaluated and approved in writing by the designated biologist.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that they have received the training, and that they understand, and will abide by the guidelines provided. These statements will be maintained on site until one year after commercial operation.

Verification: At least 30 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the designated biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

BIO-5 The project owner shall submit to the CPM for review and approval, and to the Executive Director of the Coastal Commission for review and comment, a copy of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) for this project.

Protocol: The BRMIMP shall:

- identify all sensitive biological resources to be impacted and avoided by project construction and operation;
- identify all mitigation, monitoring and compliance conditions included in the Commission s Final Decision;

- identify all conditions agreed to in any CDFG Streambed Alteration Agreement;
- design or apply insulation or use other measures on new above-ground facilities such as substations to reduce the risk of electrocution for large birds;
- clearly delineate construction area boundaries with stakes, flagging, and/or rope to avoid degradation or loss of sensitive areas or wetland habitat during any construction activities;
- show all locations requiring temporary protection/signs during construction on a map of suitable scale;
- indicate duration for each type of monitoring established for mitigation actions and include a description of the monitoring methodologies and frequency;
- describe performance standards to be used to help decide if/when proposed mitigation is or is not successful;
- identify all remedial measures to be implemented if performance standards are not met;
- reduce potential bird collisions with boiler stacks, cooling towers, turbine stacks and other structures by reducing exterior lighting on all structures to the minimum except for those required for power plant safety and aviation warning, while all other required exterior lighting on structures will be shielded to direct light downward;
- reduce soil erosion during construction and operation by applying measures identified in the proposed Soil Resources and Water Resources Conditions of Certification of the Energy Commission Decision for the project;
- include, with concurrence of the California Department of Fish and Game and the U. S. Fish and Wildlife Service mitigation for potential impacts to Santa Cruz long-toed salamanders (SCLTS), comprised of the following action:

1. a salamander exclusion fence or perimeter fence addition shall be constructed at the new power plant project in order to inhibit any salamander (SCLTS) movement onto the site. Fence location and design will be developed in consultation with CEFG and/or CEC biologists and be consistent with the Monterey County Tank Farm Demolition Permit conditions. The exclusion fence should be installed before the rainy season (October 15) of the year construction begins and be maintained for the life of the project to reduce the likelihood of a loss of a SCLTS. If the project construction begins during the rainy season, the fence should be in place prior to construction.

- reduce the potential for animal injury or death from falling into trenches or other excavated sites by: (1) checking trenches or other excavated areas daily; and, (2) removing animals immediately and appropriately as determined by the designated biologist.

Verification: At least 60 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall provide the CPM and the Executive Director of the Coastal Commission with the final version of the Biological Resources Mitigation Implementation and Monitoring Plan for this project, and the CPM in consultation with the Executive Director of the Coastal Commission will determine the plans acceptability within 15 days of receipt of the final plan. After the plan is approved, the project owner shall notify the CPM five working days before implementing any agreed to modifications to the BRMIMP.

Within 90 days after completion of construction, the project owner shall provide to the CPM for review and approval, and to the Executive Director of the Coastal Commission 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 condition items are still outstanding.

BIO-6 The project owner shall incorporate into a facility closure plan a Biological Resources Element that includes measures to address current local biological resource issues.

Protocol: For permanent closure, biological resource-related measures shall include:

1) The possible removal of all power plant site facilities;
2) Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
3) Updating the plan to address current biological resources issues.

Protocol: For temporary, but prolonged closure, biological resource-related measures shall include:

1) Notifying the CPM within two weeks of the project owner s decision to initiate a temporary, but prolonged closure;
2) Turning off the once-through cooling water system pumps; and
3) Updating the plan to address current biological resources issues.

Verification: At least twelve months (or a mutually agreed upon time) prior to the commencement of permanent closure activities a Biological Resources Element will be incorporated into the Facility Closure Plan and the BRMIMP and submitted to the CPM for review and approval -- and to the Executive Director of the Coastal Commission for review and comment. The CPM will be notified within two weeks of the project owner s decision for a temporary, but prolonged closure and provide an updated plan of action.

BIO-7 Following the certification of the Moss Landing Power Plant project, the project owner will provide seven million dollars ($7,000,000) for mitigation/compensation to a dedicated account (established jointly

with the Commission and the Central Coast Regional Water Quality Control Board [hereafter the permitting agencies]) or to the Elkhorn Slough Foundation (if the Foundation can establish a suitable account) according to the following schedule: The total mitigation will be $7 million paid as follows. The first payment of $1.5 million will occur within 120 days after the start of construction for the new power generation units. The second and third payments of $750,000 each will occur at the date of Commercial Operation of Units 1 and 2 respectively. Four remaining payments of $1 million each will follow; the first two payments of $1 million each will be due one year from the Commercial Operation dates of Units 1 and 2 ($1 million each); the second two payments of $1 million each will be due two years from the Commercial Operation dates of Units1 and 2 ($1 million each).

These funds will be used for the objective of increasing the biological productivity of the Elkhorn Slough watershed through acquisition, permanent preservation, and restoration of habitat including wetland and upland areas in the Elkhorn Slough watershed and can include other improvements and enhancements to increase the productivity of the slough ecosystem. From the compensation funds, an endowment will be established to accomplish short-term and long-term administration, management, maintenance, monitoring, and annual operation expenses in perpetuity. Annual operation expenses would include monitoring for effectiveness of past enhancements and taking remedial actions as needed to accomplish and maintain property goals and objectives. The compensation/enhancement program will contain the following elements:

- The objective of the program is to increase the long-term biological productivity of the Elkhorn Slough watershed.

- The funds will be used for acquisition, permanent preservation, and restoration of habitat, including wetland and upland areas in the Elkhorn Slough watershed.

- Emphasis will be to implement Category 3 of the *Elkhorn Slough Conservation Plan*, 1999. Category 3 provides for land acquisition. This plan was developed by the Elkhorn Slough Foundation, The Nature Conservancy, The National Estuarine Research Reserve, the Natural Resources Conservation Service, the Monterey County Resource Conservation District, and in consultation with numerous Elkhorn Slough stakeholders.

- A portion of the $7 million dollars (approximately $2 million) will be invested (endowment) to provide permanent funding for direct management of land or conservation easements acquired by the Elkhorn

Slough Foundation under the compensation/enhancement program agreement. The endowment will be established to accomplish short-term and long-term administration, management, maintenance, monitoring, and annual operation expenses in perpetuity. Annual operation expenses would include monitoring for effectiveness of past enhancements and taking remedial actions as needed to accomplish and maintain property goals and objectives.

- Land acquisition and restoration projects will be selected based on the goal of increasing long-term biological productivity through the permanent preservation and enhancement of habitat and water quality in the Elkhorn Slough watershed, including projects to reduce non-point source pollution and other stressors to the Elkhorn Slough system.

- The Elkhorn Slough Foundation may implement these projects in cooperation and coordination with other conservation organizations and may use funds in the dedicated account to secure matching grants for the benefit of the Elkhorn Slough watershed. This provision is included to clarify that leveraging of the dedicated account is permitted to obtain additional benefits for the Elkhorn Slough watershed without additional expenditures from the dedicated account.

- The enforceable requirements for use of the funds will include a process for the Elkhorn Slough Foundation to propose specific projects (such as in an approved written plan) and to obtain funding approval from the Regional Board and Executive Director of the California Energy Commission.

- The Project Owner (working with the Elkhorn Slough Foundation) will provide an annual report including a description of projects implemented, a schedule and description of future projects, an analysis of how implemented projects have provided permanent protection and enhancement of habitat in the Elkhorn Slough watershed, and a summary of financial account activity.

- To maximize the benefits of the environmental enhancement program, the permitting agencies may approve projects for funding and implemented as soon as desired after funds are deposited in the dedicated account.

- The permitting agencies will prescribe final project requirements to assure funds are spent appropriately. As a part of this process a series of *Advisory Team* meetings will be held to obtain advice from representatives of the California Coastal Commission, California Department of Fish and Game, Monterey Bay National Marine Sanctuary, Elkhorn Slough National Estuarine Research Reserve, Monterey County, Elkhorn Slough

Foundation, and Environmental organizations (the *Advisory Team*). Within 60 days of Project certification, one or more *Advisory Team* meetings will be held to identify projects that could be funded with compensation funds, and for each project, identify specific goals, objectives, performance standards, fund management protocols, and remedial actions that may be needed to maintain goals and objectives over time. The permitting agencies will produce and circulate written enhancement/compensation plan for review and comment by the *Advisory Team* and other interested stakeholders. The *Advisory Team* shall hold meeting(s) and complete the written plan in a timely manner to ensure prompt mitigation efforts.

- The approved enhancement/compensation plan will be included in the BRMIMP when available.

Verification: The project owner will provide written verification to the CEC CPM, the Central Coast Regional Water Quality Control Board, and members of the Advisory Team, that the individual mitigation/compensation payments (seven payments in total) have been paid. Notice shall be made within 15 days of each payment . A copy of the check provided to the dedicated account or the Elkhorn Slough Foundation dedicated account, shall be included with the written verification. The CPM will review the draft enhancement/compensation project plan in order to ensure the wording is clear, meets the terms of the Commission decision, and is enforceable.

The CPM will ensure the enhancement/compensation plan is completed and approved within 180 days of certification. The CPM will ensure the Elkhorn Slough Foundation accomplishes the goals and objectives of the approved final plan. The project owner will submit an annual report to the CEC CPM, the Regional Board, and any Advisory Team members as desired, within 60 days of the end of the calendar year reported. This report will include: a description of enhancement/compensation projects implemented, a schedule and description of future projects, an analysis of how implemented projects have met the objective by providing permanent protection and enhancement of habitat in the Elkhorn Slough watershed, and a summary of financial account activity.

If the project owner has not complied with any aspect of this condition, the CPM will notify the project owner of making this determination. For any necessary corrective action taken by the project owner, a determination of success or failure of such action will be made by the CPM after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIO-8: The project owner will:

- provide a direct monetary contribution to enable the movement of the Marine Mammal Center (MMC) to the eastern part of the plant site, provide more space for the MMC facility, and assure a long term lease for the operation of this important triage unit for the care of marine mammals in need of medical assistance;

- contribute in kind services necessary to manage the project s permit acquisition and development; and

- develop a long term lease that is free of charge to the Marine Mammal Center (or a comparable organization) that features a renewable option for the operating life of the Moss Landing Power Plant Project.

Verification: The project owner shall provide confirmation of the Marine Mammal Center s relation to the MLPPP in an annual report to the CPM.

B. CULTURAL RESOURCES

This section discusses cultural resources, defined as including the structural and cultural evidence of the history of human development and life on earth. These resources assist in the understanding of our culture, our history, and our heritage. The spatial relationships between an undisturbed resource site and the surface environmental resources and features, as well as the analysis of the locational context of the resource materials within the site and beneath the surface, provide information that can be used to determine the sequence of past human occupation and use of an area.

The term cultural resources refers generally to those resources which are typically placed in one of three categories: prehistoric archaeological resources; historic archaeological resources; and ethnographic resources. The first category refers to those resources relating to the prehistoric human occupation and use of an area; they typically include sites, deposits, structures, artifacts, rock art, trails, and other traces of human behavior. The second group, which includes historic archaeological resources, is those materials usually associated with Euro-American exploration and settlement of an area, as well as the beginning of a written historical record. Such resources include deposits, sites, structures, traveled ways, artifacts, documents, or other indicia of human activity. Finally, ethnographic resources, such as traditional collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures, are those materials important to the heritage of a particular ethnic or cultural group such as Native Americans, or African, European, or Asian immigrants.

Recent revisions to the CEQA guidelines now explicitly require the lead agency (here the Energy Commission), to make a determination of whether a proposed project will affect historical resources. As defined in the guidelines, the term historical resources includes any resource, regardless of age, as long as it

meets the criteria listed in the guidelines. If the criteria are met, the Commission must evaluate whether the proposed project will cause a substantial adverse change in the significance of the historic resource. Such a change is defined as a significant effect on the environment. Title 14, California Code of Regulations, sections 15126.4 and 15064.5.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant presented the testimony of Robert Mason on the topic of Cultural Resources. (Ex. 58, p. 59-63; 6/7/00 RT 100.) The testimony reviewed the 50 years of operation at the MLPP site and the fact that most of the site has previously been disturbed. Nevertheless, previous studies done for the AFC have identified seven cultural resource sites which are located within one kilometer of the MLPPP. One cultural site (CA-MNT-229), located within the plant boundary, is eligible for listing in the National Register of Historic Places (NRHP). This site is near the western edge of the seawater intake pipelines, pumps and screens for Units 1 through 5 which will be modified to support the new Project. The area was previously disturbed during the original construction. Modifications needed for the new Project will not further affect site CA-MNT-229 since the construction necessary for modifications will take place within previously disturbed areas. Construction equipment use will be limited to areas which are presently covered with asphalt. (Ex. 58, p. 61.)

The Project does not have the potential to affect off-site cultural resources since all construction on the Project will take place within the boundaries of MLPP site. (*Id*.)

Applicant s testimony reviewed proposed mitigation to prevent impacts to cultural resources. These include having an archaeologist present to monitor the work during construction or preconstruction activities which involve soil disturbance. In addition steps will be taken to inform the construction crews of the general

location of cultural resources in order to avoid disturbance during construction activities. (Ex. 58, p. 62.)

Commission staff testimony noted the fact that earth disturbance during Project construction could impact previously undiscovered resources, as well as recorded site CA-MNT-229. The presence of this site within the Area of Potential Effects (APE), the number of prehistoric sites in the vicinity, and the evidence of human habitation in the area over thousands of years, indicate to Staff that Project construction has the potential to encounter previously known and unknown cultural resources. Applying the criteria in the CEQA guidelines, Staff determined that site, CA-MNT-229 qualifies as an historic resource. (Ex. 65, p. 196.)

Staff s analysis of the potential for adverse change, or significant impacts to sensitive cultural resources, naturally focused on the potential for Project construction to disturb the recorded site noted above. Construction involves the relocation of traveling screens for the cooling water intake structure. The screens will be moved to the western edge of CA-MNT-229, but should not affect this designated site since the water intake structure is already in place. Staff expects that only a small crane, confined to asphalt surfaces, will be used in the area of the screen relocation. Nevertheless, Staff remains concerned about the potential for disturbance in this area and has recommended Conditions of Certification to ensure protection of the resource. (Ex. 65, p. 198.)

Staff recommended Conditions of Certification **CULT-1** through **CULT-16** as a means of anticipating potential impacts associated with the Project. Staff expects the Conditions will reduce any potential impacts to cultural resources to less than significant levels. Staff concluded that by implementing the Conditions of Certification, the MLPPP could be constructed and operated in a manner that can avoid potential adverse changes to known resources. The Conditions also

anticipate proper protection of any unknown cultural resources which may be encountered during construction of the Project. (Ex. 65, p. 205.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record,:

1. Cultural Resources exist in the general Project area.

2. Construction activities associated with the Moss Landing Power Plant Project and related facilities present the greatest potential for adverse impacts to cultural resources.

3. The Project site contains site CA-MNT-229, described in the AFC and eligible for designation as a cultural resource under criteria of the National Registry of Historic Places.

4. The site noted in the above paragraph meets one or more of the criteria needed to identify it as an historic resource as defined by CEQA guidelines.

5. The Conditions of Certification which follow contain measures which will assure adequate mitigation of impacts to any cultural resources encountered during construction and modernization of the Project site.

We therefore conclude that implementation of the Conditions of Certification will assure that significant adverse impacts do not occur to cultural resources as a result of Project construction or operation, and that implementation of the Conditions of Certification below will assure that the Moss Landing Power Plant Project will comply with all applicable laws, ordinances, regulations, and standards pertaining to cultural resources set forth in the appropriate portion of **Appendix A** of this Decision.

CONDITI0NS OF CERTIFICATION

CUL-1 Prior to the start of project related earth disturbing activities, vegetation clearance, ground disturbance and preparation, site

excavation activities, the project owner shall provide the Energy Commission Compliance Project Manager (CPM) with the name and statement of qualifications for its designated cultural resources specialist who will be responsible for implementation of all cultural resources conditions of certification.

The statement of qualification for the designated cultural resources specialist shall include all information needed to demonstrate that the specialist meets the minimum qualifications listed as follows:

1. a graduate degree in anthropology, archaeology, California history, cultural resources management, or a comparable field;
2. at least three years of archaeological resource mitigation and field experience in California; and
3. at least one year experience in each of the following areas:
   a. leading archaeological resource field surveys;
   b. leading site and artifact mapping, recording, and recovery operations;
   c. marshaling and use of equipment necessary for cultural resources recovery and testing;
   d. preparing recovered materials for analysis and identification;
   e. determining the need for appropriate sampling and/or testing in the field and in the lab;
   f. directing the analyses of mapped materials; and recovered artifacts;
   g. completing the identification and inventory of recovered cultural resources material; and
   h. preparing appropriate reports to be filed with the receiving curation repository, the SHPO, and the appropriate regional archaeological information center.

The statement of qualifications for the designated cultural resources specialist shall include:

4. a list of specific projects on which the specialist has previously worked;
5. the role and responsibilities of the specialist for each project listed; and
6. the names and phone numbers of contacts familiar with the specialist s work on these referenced projects.

Verification: At least ninety (90) days prior to the start of earth disturbing activities, the project owner shall submit the name and statement of

qualifications of its designated cultural resources specialist to the CPM for review and written approval.

At least ten (10) days but no more than thirty (30) days prior to the start of earth disturbing activities, the project owner shall confirm in writing to the CPM that the approved designated cultural resources specialist 1) will be available at the start of earth disturbing activities; and, 2) is prepared to implement the cultural resources conditions of certification.

At least ten (10) days prior to the termination or release of a designated cultural resources specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and r sum of the proposed new designated cultural resources specialist.

CuI-2 Prior to the start of earth disturbing activities, the project owner shall provide the designated cultural resources specialist and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS *Moss Landing* 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1 = 200) for plotting individual artifacts. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the project owner shall provide them. In addition, the project owner shall provide a set of these maps to the CPM at the same time that they are provided to the specialist. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the cultural resources specialist and the CPM within five days. Maps shall show the location of all areas where surface disturbance may be associated with project related access roads, and any other project components.

Verification: At least seventy-five (75) days prior to the start of earth disturbing activities on the project, the project owner shall provide the designated cultural resources specialist and the CPM with the maps and drawings. Copies of maps or drawings reflecting changes to the footprint of the power plant and/or linear facilities shall be submitted to the cultural resources specialist and the CPM within five days of the changes.

CUL- 3 Prior to the start of any earth disturbing activities, the designated cultural resources specialist shall prepare, and the project owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

Protocol: The CRMMP 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: mapping, data and artifact recovery conducted during monitoring and mitigation activities, and post-construction analysis of recovered data and materials.
2. A discussion of the implementation sequence and the estimated time frames needed to accomplish all project related tasks during the preconstruction, 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 need for Native American observers or monitors, the procedures to be used to select them, the areas or post mile sections where they will be needed, and their role and responsibilities.
5. A discussion of measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project related effects.
6. A discussion of where monitoring of project construction activities is deemed necessary by the designated cultural resources specialist. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present.
7. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the standards and requirements for the curation of cultural resources set forth in Title 36 of CFR Part 79.
8. A discussion of the availability and the designated specialist s access to equipment and supplies necessary for site mapping, photographing, and recovery of any cultural resources materials encountered during construction.
9. Identification of the public institution that has agreed to receive any data and artifacts recovered during project related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for the materials to be

delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least sixty (60) days prior to the start of earth disturbing activities, the project owner shall provide the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resources specialist, to the CPM for review and written approval.

CUL-4 Prior to the start of any earth disturbing activities, the designated cultural resources specialist shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and written approval.

Protocol: The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program shall be presented by the designated cultural resources specialist or qualified individual(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least sixty (60) days prior to the start of earth disturbing activities on the project, the project owner shall submit to the CPM for review and written approval, the proposed employee training program, the set of reporting procedures, and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction. The project owner shall provide the name and resum of the individual(s) performing the training.

CUL-5 Prior to the start of earth disturbing activities and throughout project construction, as needed for all new employees, the project owner shall ensure that the designated cultural resources trainer(s) provide(s) the CPM approved cultural resources training to all project managers, construction supervisors and workers. The project owner shall ensure that the designated trainer provides the workers with 1) the CPM approved set of procedures for reporting any cultural resources that may be discovered during project related ground disturbance, and 2) the work curtailment procedures that the workers are to follow, in the event previously unknown cultural resources are encountered during construction.

Verification: Within seven (7) days after the start of earth disturbing activities, the project owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided the CPM approved cultural resources training, and the set of reporting and work curtailment procedures, to all project managers, construction supervisors, and workers hired before the start of earth disturbing activities.

In each Monthly Compliance Report after the start of construction, the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers, construction supervisors and construction workers hired in the month to which the report applies, the CPM approved cultural resources training and the set of resource reporting and work curtailment procedures.

CUL-6 The designated cultural resources specialist or the specialist s delegated monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resources sites or materials are encountered during project related grading, augering, excavation and/or trenching.

If such resources are found and the specialist determines that they are not significant, the specialist may allow construction to resume. The project owner shall notify the CPM of the find as set forth in the Verification. If such resources are found and the specialist determines that they are or may be significant, the halting or redirection of construction shall remain in effect until:

1. The designated cultural resources 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 necessary data recovery and mitigation has been completed.

The designated cultural resources specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the designated cultural resources specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: Thirty (30) days prior to the start of earth disturbing activities, the project owner shall provide the CPM with a letter confirming that the designated cultural resources specialist and delegated monitor(s) has/have the authority to halt construction activities in the vicinity of a cultural resources find.

For any cultural resources encountered that the specialist determines is or may be significant, the project owner shall notify the CPM as soon as possible.

For any cultural resources encountered that the specialist determines is not significant, the project owner shall include information regarding this determination in the next Monthly Compliance Report.

CUL-7 Prior to the start of earth disturbing activities and each week throughout the period involving any ground disturbing activities, including landscaping, the project owner shall provide the designated cultural resources specialist with a current schedule of anticipated project activity in the following month and a map indicating the area(s) where the construction activities will occur. The designated cultural resources specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Verification: Ten (10) days prior to the start of earth disturbing activities and in each MCR thereafter, the project owner shall provide the CPM with a copy of the weekly schedule of the construction activities, as well as maps, showing where construction activity was to take place. The project owner shall notify the CPM when all ground disturbing activities, including landscaping, are completed.

CUL-8 Throughout earth disturbance, reconnaissance surveys and the construction monitoring and mitigation phases of the project, the designated cultural resources specialist and delegated monitor(s) shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found. Locations shall be keyed into both the USGS *Moss Landing* 7.5 minute topographic quadrangle map and the larger scale (1:2000 or 1 =200) map.

The designated specialist shall prepare a weekly summary of the daily logs on the progress or status of cultural resources related activities. The designated resource specialist and delegated monitor(s) may informally discuss the cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Verification: Throughout the project construction period, the project owner shall ensure that the daily log(s) and the weekly summary reports prepared by the designated cultural resources specialist and delegated monitor(s) are included in the Monthly Compliance Report to the CPM.

CUL-9 The designated cultural resources specialist or delegated monitor(s) shall be present at times the specialist deems appropriate to monitor construction related grading, excavation, trenching, and/or augering in the vicinity of previously recorded archaeological sites and in areas where ground disturbance is taking place.

In addition to areas identified by the cultural resources specialist, monitoring shall take place in the following locations:

1. The area of the intake structure, located on the east side of Moss Landing Harbor, is now separated from adjacent areas to the north and south by a chain link fence. If there is any reason to extend project activities (whether or not earth is disturbed) to the other side of the fence, monitoring shall be required.
2. Installation of both 54 inch and 84 inch new pipes, that are connections to existing seawater intake pipes, is planned. Monitoring shall be required where the depth of the trench exceeds the depth of previous earth disturbance.
3. Monitoring shall be required during earth disturbance related to the installation of the new natural gas line.

Protocol: Except in the areas where monitoring is required by these conditions, if the designated cultural resources specialist determines that full time monitoring is not necessary in certain portions of the project area, the designated specialist shall notify the project owner of the changes. Evidence of monitoring activities shall be recorded in the daily log and provided in the monthly compliance report. The designated cultural resources specialist shall also record in the daily log the areas where monitoring is being reduced or is no longer deemed necessary.

Verification: Throughout project construction, the project owner shall include in the Monthly Compliance Reports to the CPM, copies of the weekly summary reports prepared by the designated cultural resources specialist, regarding project related cultural resources monitoring.

Cul-10 The project owner, through the designated cultural resource specialist, shall employ a qualified Native American monitor or monitors to observe project related ground disturbing activities where cultural resources monitoring is occurring.

Protocol: Prior to project-related earth disturbing activities, the project owner and the designated cultural resource specialist shall identify Native American monitor(s) with direct and specific knowledge and traditional Native American ties to the Moss Landing Area. The project owner and cultural resource specialist shall develop an agreement(s) for a qualified Native American monitor or monitors [as suggested in guidelines provided by the Native American Heritage Commission (NAHC)]. The Native American monitor(s) shall report to the designated cultural resources specialist and shall be regarded as a member of the cultural resource monitoring team. The Native American monitor(s) shall be present during any project-related earth disturbing activities where cultural resources monitoring is occurring.

Verification: At least thirty (30) days prior to earth disturbing activities, the project owner shall provide the CPM with a copy of all finalized agreements for Native American monitors. If efforts to obtain the services of a qualified Native American monitor(s) prove unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

CUL-11 The project owner shall ensure that the designated cultural resources specialist performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resources materials encountered and collected during preconstruction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university (ies), or other appropriate research facility that will ensure the necessary recovery, preparation for analysis, and analysis of cultural resources materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resources sites shall be kept confidential and accessible only to qualified cultural resources specialists.

CUL-12 Following completion of data recovery and site mitigation work, the project owner shall ensure that the designated cultural resources specialist prepares a proposed scope of work for the Cultural Resources Report. The project owner shall submit the proposed scope of work to the CPM for review and written approval.

Protocol: The proposed scope of work shall include (but not be limited to):

1. A discussion of any analysis to be conducted on recovered cultural resources materials;
2. A discussion of possible results and findings;

3. Proposed research questions that may be answered or raised by analysis of the data recovered from the project; and
4. An estimate of the time needed to complete the analysis of recovered cultural resources materials and prepare the Cultural Resources Report.

The project owner shall ensure that the Cultural Resources Report, to be prepared by the designated cultural resources specialist at the conclusion of the project as specified below, follows the format provided by the California Office of Historic Preservation.

Verification: The proposed scope of work shall be completed within one hundred and twenty (120) days following completion of the data recovery and site mitigation work. Within fourteen (14) days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

CUL-13 If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately.

Verification: In the event human remains (or any bone material that cannot be positively identified as non-human by the monitor) are found, the monitor and the cultural resources specialist shall immediately notify the project owner and assist in following proper protocol, as prescribed by law. The CPM shall be notified of the find within 72 hours.

Cul-14 The project owner shall ensure that the designated cultural resources specialist prepares a Cultural Resources Report. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The Cultural Resources Report shall include (but not be limited to) the following:

1. For all projects:
   a. A description of pre-project literature search, surveys, and any testing activities;
   b. Maps showing areas surveyed or tested;
   c. A description of any monitoring activities;
   d. Maps of any areas monitored; and
   e. Conclusions and recommendations.

2. For projects in which cultural resources were encountered, include the items specified above and also provide:

   f. site and isolate records and maps;

   g. a description of testing for, and determinations of, significance and potential eligibility; and

   h. a discussion of the research questions answered or raised by the data from the project.

3. For projects regarding which cultural resources were recovered, include the items specified above and also provide:

   i. A description of pre-project literature search, surveys, and any testing activities;

   j. Results and findings of any special analyses conducted on recovered cultural resources materials;

   k. An inventory list of recovered cultural resources materials; and

   l. The name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the designated cultural resources specialist completes the Cultural Resources Report within one hundred and twenty (120) days following completion of cultural resources activities on behalf of the project or the analysis of the recovered cultural materials. Within fourteen (14) days after completion of the report, the project owner shall submit the Cultural Resources Report to the CPM for review and written approval.

CUL-15 The project owner shall submit an original, an original quality copy, or a computer disc copy of the CPM approved Cultural Resources Report to the public repository that will receive the recovered data and materials for curation, to the SHPO, and to the appropriate regional archaeological information center(s). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the Cultural Resources Report to be sent to the curating repository, the SHPO, and the regional information center shall include the following (based on the applicable scenario set forth in **CUL-14**):

1. Original quality copies of all text;

2. Originals of any topographic maps showing site and resource locations;
3. Originals or original quality copies of drawings of significant or diagnostic cultural resources materials found during preconstruction surveys or during project related monitoring, data recovery, or mitigation; and
4. Photographs of the site(s) and the various cultural resources materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within thirty (30) days after receiving approval of the Cultural Resources Report, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s).

For the life of the project, the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM approved Cultural Resources Report with the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center.

CUL-16 Following the filing of the CPM approved Cultural Resources Report with the appropriate entities, the project owner shall ensure that all cultural resources materials, maps, and data collected during data recovery and mitigation for the project, are delivered to a public repository that meets the U.S. Secretary of Interior requirements for the curation of cultural resources. The project owner shall pay the curation fee required by the repository.

Verification: For the life of the project, the project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resources materials collected during data recovery and mitigation for the project.

C. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section addresses the Project s potential construction and operational impacts on geological hazards, geological and paleontological resources, and surface water hydrology. Paleontological resources include the fossilized remains or trace evidence of prehistoric plants or animals, which are preserved in soil or rock. These fossils are scientifically important because they help document the evolution of particular groups of organisms and the environment in which they lived.

CEQA directs the lead agency to consider whether a project will cause adverse impacts to a unique geological feature or paleontological resource. (Cal. Code of Regs., tit. 14,／15000 et seq., App. G). In addition, CEQA requires an analysis regarding any project impacts that may potentially expose persons or structures to geologic hazards.

In addition to evaluating impacts under CEQA, the geological and paleontological analysis is done to verify that the applicable laws, ordinances, regulations, and standards (LORS) have been identified and that the Project can be designed and constructed in accordance with all applicable LORS.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant sponsored the testimony of geologist Deems Parson concerning geological resources. The testimony established that there are no known geologic resources of recreational, commercial, or scientific value that may be affected by the Project. Furthermore, no active faults pass through the immediate vicinity of the Project. (Ex. 58, p. 74.)

The Project site is located within Seismic Zone 4 under the definitions of both the California Building Code and the Uniform Building Code. The nearest active fault

is the Zayante-Vergeles Fault, located approximately 8 miles to the east of the site.[77] While there are potentially liquefiable soils within 1,000 feet of the new generation units, none of these soils are located in the construction zone of the Project. Furthermore, potential impacts from liquefiable and/or expansive soils can be addressed by conventional design measures consistent with the California Building Code. (*Id*.)

The Project will implement erosion control, as required by the Monterey County Department of Public Works, for all excavation and grading. The site will be graded to a minimum one percent slope to promote positive drainage. Soil erosion will be minimized through Best Management Practices (BMP) as specified in the Stormwater Pollution Prevention Plan (SWPPP) that Applicant will develop for construction grading operations. (*Id*.)

Applicant s testimony on paleontological resources was offered by witness Robert Mason, along with his analysis of cultural resources. Ex. 58, pp. 59-63.) He noted that during construction activities in undisturbed Quaternary Marine Terrace deposits, a paleontologist will periodically check the excavation area. If fossil materials are found, work will be stopped in the immediate area and a paleontologist will be retained to investigate the site and determine appropriate mitigation steps. (Ex. 58, p. 63.)

Commission staff introduced the testimony of geologist Robert Anderson on both geology and paleontology. The testimony analyzed the Project site and area for potential impacts from faulting and seismicity and for impacts from liquefaction, hydrocompaction, subsidence, and expansive soils. While the MLPP site probably experienced peak ground acceleration of close to 0.39g during the 1989 Loma Prieta earthquake, modern code requirements and Conditions of Certification **GEO-1 and -2** will ensure a safe facility.

[77] The estimated peak horizontal ground acceleration for the site is 0.36g based on a 7.9 maximum credible earthquake on the San Andreas Fault.

Concerning potential Project impacts to paleontological resources, the Staff testimony agrees with Applicant that there is a low probability that vertebrate fossils will be encountered during construction of the power plant and related facilities. (Ex. 65, p. 233.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we find:

1. Geological and paleontological resources exist in the Project area.

2. The evidence establishes that there are no known geologic resources of recreational, commercial, or scientific value that may be affected by the Project.

3. The Moss Landing Power Plant will have no significant impact on geological resources.

4. Construction and ground disturbance activities associated with construction of the Moss landing Power Plant Project have the potential to impose direct, indirect, and cumulative impacts to paleontological resources.

5. The Conditions of Certification will ensure that activities associated with the Project will cause no direct, indirect, or cumulative adverse impacts to paleontological resources.

6. Implementation of the conditions of Certification will ensure that the project will be constructed and operated in compliance with applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the Project will not cause any significant adverse direct, indirect, or cumulative impacts to geological or paleontological resources.

CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the CPM (the functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license).

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, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 Engineered Grading Requirement, and Section 3318.1 — Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.
2. Monitor geologic conditions during construction.
3. Prepare the Final Engineering Geology Report.

The Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3309.3 Grading Designation, shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy, for the intended use, of the site as affected by geologic factors.

The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC Appendix Chapter 33, Section 3318.1, shall contain the following: A final

description of the geology of the site and any new information disclosed during grading; and the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318 Completion of Work, to the CPM and the CBO.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the designated paleontological 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 are not in concert with 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 ten (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 ninety (90) days prior to the start of construction, the project owner shall submit the name and resume and the availability for its designated paleontological resource specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resource specialist.

At least ten (10) days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, 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.

In addition to the project owner s adoption of the guidelines of the Society of Vertebrate Paleontologists (SVP 1994) the Paleontological Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;
- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;
- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;
- An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;
- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
- Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and
- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least sixty (60) days prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the 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 start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontological resource specialist shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter 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) thirty days prior to the start of project construction, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological 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 potentially 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. The owner shall submit to the curation facility a copy of the approved Paleontological Resources Report has been approved by the CPM.

Verification: The project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the designated paleontological resource specialist within 90 days following completion of the analysis of the recovered fossil materials. Within 15 days of receiving notice from the CPM that the Paleontological Resources Report has been approved, the project owner shall submit a letter to the CPM stating that a copy of the approved Paleontological Resources Report has been transmitted to the curation facility.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activity s potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation

measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

D. SOIL AND WATER RESOURCES

This portion of the Decision concentrates on the project s potential to induce erosion and sedimentation, adversely affect surface and groundwater supplies, degrade surface and groundwater quality, create thermal discharge impacts and increase the potential for flooding.[78]

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soils

The 239-acre MLPP site is located inland approximately one-quarter mile from the edge of the ocean shore adjacent to Monterey Bay. The site is relatively flat with an elevation of approximately 30 feet above mean sea level. The site is outside the 100-year flood plain and is underlain by a thick series of sand, silt and clay beds. The site s dune soils are highly susceptible to wind-induced erosion, but other soils at the location have only a slight to moderate risk of wind-induced erosion. Some artificial fill, made up of clayey sands and native silty sands, has been deposited on the site in the upper 3-12 feet. (Ex. 76, p. 5.)

Because the site has been used for power generation for the past 50 years, it is essentially flat and little additional grading will be required. Nevertheless, site preparation will include some new surface disturbance to soils. No new linear facilities outside of the site will be needed for the Project. Duke Energy has submitted a draft erosion control plan for the Project that identified best management practices to be used for erosion control and the discharge of contaminated stormwater offsite. The site is subject to an existing Stormwater Pollution Prevention Plan (SWPPP). (Ex. 76, p. 21.)

[78] Staff s analysis of this topic area appears in Exhibits 74 and 76.

Once existing tanks at the site are removed, PG&E will begin soil testing for any contamination.[79] PG&E is responsible for any necessary site remediation. To address concerns expressed by DTSC and the Coastal Commission regarding pollution risks from earthmoving activities, Commission staff has proposed Condition of Certification **Soil&Water-5.**[80]

Both Applicant and Staff have analyzed the potential for the Project to accelerate erosion or sedimentation and thereby degrade water quality. Staff concurred with Applicant s best management practices for erosion control and stormwater management. (6/20/00 RT 187-188.)

2. Water Supply

a. Potable Water

Fire, service water and domestic water needs will be supplied through the use of groundwater. Potable water is supplied by the Moss Landing Mutual Water Company from two wells located to the south of the plant. This water is chlorinated before distribution. Applicant estimates that during construction, 10,000 gpd of drinking water will be required and that annual domestic water demand during operation will be no greater than 1.1 million gallons. Potable water may also be used for maintenance activities on an intermittent basis. Water for fire safety for the proposed combined cycle units will also come from potable water. See **Soil & Water Resources Table 2** for the proposed water balance. (Ex. 76, p.12.)

[79] This is part of the purchase-sale agreement between PG&E and Duke Energy.

[80] Applicant notes in its Post-Hearing Brief that because PG&E will not be able to fully remediate the MLPP site 60 days prior to construction, Applicant requests that the verification for Condition of Certification **SOIL&WATER-5** be changed from 60 days to 30 days prior to construction. Staff did not object to Duke s request.

Historically, 54,200 gpd of well water or approximately 60-acre feet per year was used by the Moss Landing facility. This apparently includes groundwater used for plant washdown activities by Units 1 through 5. Applicant estimates that operation of the proposed project will require 43,000 gpd or approximately 48-acre feet per year of potable water. *(Id.)*

b. Ocean Cooling Water

Cooling water requirements for the project will be met through the use of once-through ocean water taken from the existing Units 1 through 5 intake structure located in Moss Landing Harbor. Each of the two proposed combined cycle units will require approximately 125,000 gallons per minute (gpm), for a total of 250,000 gpm. In comparison, Units 6 and 7 require a total of approximately 600,000 gpm. This ocean cooling water will be used for steam turbine condenser and auxiliary cooling requirements. *(Id.)*

Applicant proposes to modify the existing Units 1-5 intake structure, which was constructed in 1949, to meet current Clean Water Act 316(b) requirements. The existing traveling screens will be moved forward 350 feet from their present location within the existing Units 1-5 cooling water intake structure to within 10 feet of the intake structure entrance. Relocating and installing the screens at an angle will reduce impingement and entrainment of marine organisms.[81] *(Id.)* Impingement occurs from suction when the cooling water intake system holds organisms against the traveling screens. Entrainment is where aquatic organisms such as larvae and fish eggs are drawn into the facility s cooling system.

[81] The effects of entrainment and impingement are discussed in more detail in the section of this Decision entitled **Biological Resources**.

Applicant has proposed these changes to the cooling water intake structure in order to reduce project impacts and to comply with Section 316(b) of the Clean Water Act. This section of the act requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. However, the definition of this standard has been a matter of debate. Compliance with the requirements of subsection 316(b) is affected by several variables, which may result in differing approaches for different installations. These variables include site location, local environment, aquatic species and organisms, plant configuration (i.e. new or refurbished facility), and cost-effectiveness.

To determine the appropriate BTA for the Moss Landing Power Plant Project Applicant studied and evaluated several alternative technologies. The results and analysis of this effort has been presented in the *Moss Landing Power Plant Modernization Project 316(b) Resource Assessment*, dated April 28, 2000. (Ex. 57.)

The alternative technologies evaluated in the report included:

1. Offshore and onshore intake locations/configurations.
2. A once-through cooling water system.
3. Various behavioral barriers, which include light, sound, bubble screens, and velocity caps.
4. Diversion systems.
5. Physical barriers.
6. Fish collection, removal, and conveyance systems.
7. Operational and flow-reduction alternatives.

Several alternatives were not considered likely to result in a reduction in the loss of aquatic organisms compared to present conditions. Applicant considered both onshore and offshore alternative intake locations and behavioral barriers not acceptable. Entrainment and impingement losses were not expected to be substantially reduced through the use of physical barriers, which include travelling screens, barrier nets, a Gunderboom, and a fish pump system. Cooling system changes and discharge temperature regulation were not expected to substantially reduce entrained organism mortality, and were also rejected from further consideration. (Ex. 57, pp. 7-1 through 7-40.)

The remaining alternatives were evaluated against the feasibility and cost analysis criterion. Curtailment of power generation, mechanical draft and natural draft cooling options, air-cooled condenser (dry cooling) reduced cooling water flow at reduced loads, and alternatives to chemical biocides were eliminated based on either cost or feasibility.

Applicant concluded that the currently proposed design is the best technology available to reduce entrainment and impingement of aquatic organisms. The modifications proposed to the existing Units 1-5 cooling water intake structure will involve the addition of new angled traveling screens to reduce approach velocities and to keep the intake free from debris. Approach velocity will be approximately 0.5 feet per second (fps) compared to 0.8 fps at the existing Units 6 and 7 intake. Ex. 76, pp. 24-25.) The holes in the new traveling screens are approximately 3/8 inch in diameter. (6/20/00 RT 55.)

Applicant s 316(b) Resource Assessment concluded that its proposed design represents best technology available because it will: 1) reduce flow velocities, 2) eliminate the 350-foot long tunnel as an area subject to entrapment of marine species, and 3) control debris accumulation on the traveling screens. The latter feature reduces the risk of species becoming entangled in debris at the screen. Debris buildup also tends to increase intake velocities by reducing the surface

area of the intake screens. The assessment concluded that these design changes to the intake structure are expected to significantly reduce the impingement rates which were previously observed with the operation of Units 1 through 5. (Ex. 57, pp. 7-39 to 7-40.) Commission staff concurred that the proposed design represents the best technology available. (6/20/00 RT 192.)

3. Water Quality

The Commission also received evidence on the potential for the Project to degrade water quality. Wastewater disposal can lead to soil, surface and groundwater degradation and impairment of beneficial uses. Commission staff evaluated both stormwater runoff from the existing facility and wastewater discharge to wastewater ponds. Applicant proposes to discharge the spent cooling water from the proposed units to the existing Units 6 and 7 wastewater outfall system. Other wastewater discharge streams include the concentrated brine from the evaporator system, boiler blowdown, washwater and others. These waste streams are routed to the three-wastewater treatment ponds where they are neutralized, solids are removed and the wastewater is discharged to Monterey Bay pursuant to permits issued by the Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC).

While Applicant will not discharge cooling water to Elkhorn Slough, the MLPP site will continue to discharge stormwater to the slough as permitted by the existing NPDES permit and Stormwater Pollution Prevention Plan (SWPPP). (Ex. 76, p. 13.)

The Project s NPDES permit (Ex. 77) identifies a number of effluent limitations that the Project must meet to protect marine aquatic life and human health. These effluent limitations reflect requirements contained in the California Ocean Plan. (Ex. 76, p. 20; Ex. 77, p. 7.) The evidence establishes that the existing

facility creates no water quality degradation. Staff witness Joe O Hagan testified that so long as the site continues with its ongoing compliance with existing permits such as the NPDES permit, no water quality degradation will occur. (6/20/00 RT 188.)

4. Thermal Discharge

a. California Thermal Plan

In 1972, the State Water Resources Control Board adopted the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California , more commonly known as the Thermal Plan.[82]

The Thermal Plan sets limits on the discharge of wastewaters with elevated temperatures into coastal, estuarine and interstate waters in order to meet water quality objectives. A major aim of the Thermal Plan is to protect marine resources in the ocean, enclosed bays and estuaries from the adverse impacts of thermal waste.

Thermal waste is defined as cooling water and industrial process water used to carry waste heat from such large point sources as power plants. There are two categories of discharges: existing which are discharges in place or under construction prior to adoption of the Thermal Plan in 1971, and new which are discharges developed after the Plan was adopted. The proposed Project is considered a new discharge by both the Energy Commission and RWQCB staff. The Project will be discharging to the existing outfall located in Monterey Bay. Elements of the Thermal Plan which are particularly relevant to the Project include the following:

[82] The Thermal Plan was later amended in 1975.

- The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving water by more than 20°F.
- The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at: (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

The Thermal Plan allows the RWQCB to grant exceptions to the specific water quality objectives in accordance with Section 316(a) of the Clean Water Act. (Ex. 76, p. 3-4.)

b. Thermal Discharge Impacts

Applicant evaluated the proposed discharge of the Project to determine whether or not operation of the proposed new combined cycle units could comply with the California Thermal Plan standards.[83] Beginning in March 1999, Applicant developed a study plan in consultation with the Central Coast Regional Water Quality Control Board. (Ex. 73, Waters, p. 4.) The objective of the study was to characterize the existing thermal plume from operation of Units 6 and 7, to predict temperature changes in the discharge plume resulting from operation of the new combined cycle units, and to determine if there is a potential for interference with larval fish in the vicinity of the discharge. (Ex. 56, p. 4.) The study, also included an assessment of alternatives and modifications that, if necessary, can be made to the project to achieve compliance with the Thermal Plan. After a series of draft reports reviewed by a Technical Advisory Group, the Final Thermal Plan Compliance Report was issued on May 1, 2000 (Ex. 56.) The

[83] A discussion of the impacts of the Project s estimated thermal discharge upon marine life is contained in the **Biological Resources** section of this Decision.

existing, design and predicted discharge flow rates are shown in **Soil & Water Resources Table 2**.

Soil & Water Resources Table 2

Specifications of the Cooling Water Systems at MLPP

	Design	**Actual**	**Projected**
Units 6 & 7	600,000 gpm	532,000 gpm	600,000 gpm
Units 1 & 2	250,000 gpm	-	250,000 gpm
All four units	850,000 gpm	850,000 gpm	850,000 gpm

Source: Ex. 56, Table 1-1; Ex. 76, p. 15.)

The thermal discharge study was based on data collected over 3 to 8 months by stationary temperature recorders placed in the bay, Moss Landing Harbor, and Elkhorn Slough. Temperature measurements were taken from a boat during March and July 1999 and aerial infrared plume surveys were conducted at the same time as the boat surveys.[84] (Ex. 76, p. 15.)

The results of the thermal impacts study indicate a thermal discharge plume from the proposed Project which is similar to the present plume with temperature increases about 600 feet from the discharge up to 41 percent higher (e.g. if a present temperature increase of 5¡F occurs on the surface, in the future worst-case it could be 7¡F). Based upon this evaluation, Applicant expects that even under worse case conditions, the discharge will not exceed 4°F above receiving

[84] Applicant prepared draft reports pursuant to the study plan and RWQCB direction which were submitted to members of the Technical Working Group and representatives of other agencies on September 1, 1999, December 31, 1999, February 15, 2000, March 15, 2000, and April 5, 2000. Each analysis included further analysis and information in response to comments received on the prior draft. (Ex. 73, Waters, p. 4.)

water temperatures 1,000 feet from the discharge, at the shoreline or at the surface of any ocean substrate for more than 50 percent of any tidal cycle. (Ex. 56, p. 53-55.)

The study also concludes that the maximum thermal plume temperatures will not exceed the natural water temperatures by more than 20°F under most operating conditions at any point on the ocean surface as a result of vigorous mixing around the discharge point. *(Id.)* However, the study also states that maximum temperature of the thermal discharge will exceed the natural temperature of the receiving water by more than 20°F under some operating conditions. *(Id.)* Applicant anticipates that this would occur when only the older Units 6 and 7 are operating or during extended periods of high power generation with all units operating and has therefore requested an exemption from the Thermal Plan. If granted, the exemption would to allow, under specified operating conditions, exceedance of the 20°F standard.

In response to Applicant s request for exemption, the Regional Water Quality Control Board has proposed the daily and instantaneous thermal effluent limitations based upon varying operating conditions reflected **in Soil & Water Resources Table 3**.

SOIL & WATER RESOURCES TABLE 3

Proposed NPDES Thermal Effluent Limitations

Operating Condition	Daily Temperature*	Instantaneous Maximum*
Case A	28°F (15.6°C)	34°F (18.9°C)
Case B	26°F (14.4°C)	32°F (17.8°C)
Case C	20°F (11.1°C)	26°F (14.4°C)

- These are the maximum temperatures by which discharge water temperatures are allowed to exceed receiving water temperatures for each time period.

Case A: Either one or both Units 6 and 7 in operation, but neither Unit 1 nor 2 in operation.
Case B: Either one or both Units 1 and 2 in operation, and either one or both Units 6 and 7 in operation.
Case C: Either one or both Units 1 and 2 in operation, but neither Unit 6 nor 7 in operation.
(Ex. 76, p. 17.)

Applicant s witness Brian Waters explained in his testimony the need to apply for an exemption from the 20¡F Delta-T requirement. He noted that the only component of the proposed discharge that results in it being characterized as new is the additional cooling water from the new combined-cycle units, even though that component of the discharge is in full compliance with requirements in the Thermal Plan. He adds that even with blending the discharge water from the existing and the proposed units, the total discharge will comply with the 4¡F requirement at all times, and with the 20¡F requirement most of the time. (Ex. 73, Waters, p. 6.) Staff witness Joe O Hagan agreed with this characterization, noting that discharge from the proposed new units by themselves would meet the 20¡F requirement contained in the Thermal Plan. He agreed with Applicant that the need for a variance arises from the application of a more stringent thermal criterion to the existing portion of the discharge waters which flow from Units 6 and 7. (6/20/00 RT 193:13-194:9.)

c. Alternatives for Compliance with the Thermal Plan

Because Applicant requested an exemption from the Thermal Plan, its Final Thermal Plan Compliance Report provided a discussion of potential alternatives that could be implemented at the facility to ensure compliance with the Thermal Plan. (Ex. 56, pp. 56-71.) The evaluation of alternatives includes a separate offshore discharge for the new units, use of closed-cycle cooling technology and additional pumping to limit temperature rise.

The evaluation for a new offshore discharge system would locate the discharge from the new combined cycle units away from the existing discharge facility for Units 6 and 7. The new offshore discharge system would consist of two new 10-foot concrete pipes that would be routed west from the power plant, across Moss

Landing Harbor and out to sea approximately 700 feet at a depth of 30 feet. Applicant estimates the cost to construct this alternative is approximately $19 million. A key concern for this alternative, besides those environmental impacts associated with construction of the line, is that the modifying effects of the new combined cycle discharge on Unit 6 and 7 discharge would be lost. (Ex. 76, p. 19.)

Closed-cycle cooling systems, either mechanical or natural draft cooling towers or dry cooling, could be used in place of once-through cooling and would drastically reduce the temperature and volume of the wastewater discharge. Installed cost estimates for wet or dry cooling range from $13 million to $15 million above the anticipated costs of the proposed cooling water intake structure improvements. In addition, there would be costs associated with decreased capacity of the power plant.[85] For wet cooling towers, blowdown disposal salt spray drift would raise environmental concerns. Natural draft cooling towers would be 250 feet in diameter and about 370 feet in height with an estimated added cost of about $13 million. With capacity losses the estimated life cost would be about $51 million. Air cooled condensers would pose a penalty of more than 60 MW with a life-time cost of about $114 million. (*Id.*; Ex. 56, p. 64-66.) The use of any closed-cycle cooling proposals would also forgo the Project s modifying effects on thermal discharge temperatures.

Another alternative considered is additional pumping of water to reduce the thermal load per volume of water. However, while this alternative would reduce thermal loading, entrainment and impingement would increase.

[85] The Thermal Study estimates the reduction at about 25 MW, with an annual revenue loss of approximately $2 million per year. Over the life of the Project, cooling towers would cost approximately $60 million. (Ex. 56, p. 62.)

The final alternative considered was general curtailment of Units 6 and 7 to ensure compliance with the Thermal Plan standard of 20°F above the receiving water. Since the proposed combined cycle units are more efficient than the existing units, curtailment would probably focus on the older units. Costs associated with this would result from lost capacity for the project owner. Applicant estimates that replacement costs for this lost capacity, about 430 MW, would range from $150 million to $260 million. (Ex. 56, p. 70.)

An alternative not considered by Applicant is the use of a multiport diffuser. Staff testified that the design of a multiport diffuser for any given application depends on numerous factors including discharge flowrate, water depths, currents, stratification and required performance. For the Moss Landing Project, a separate diffuser could be built for the proposed new combined cycle units. The resulting cost would be approximately $10 million, in addition to the $19 million cost estimated in the Final Thermal Plan Compliance Report for the separate outfall for the combined cycle units. Another alternative would be to append a multiport diffuser to the existing outfall. Assuming a 2,000-ft diffuser length, the cost would be approximately $20 million . (Ex. 76, p. 20.)

The conclusion of both the Thermal Plan Compliance Report (Ex. 56, Ch. 3) and the 316(b) Resource Assessment Report (Ex. 57, Ch. 7) is that, except for planned improvements for the Units 1 and 2 intake, there were no feasible alternatives capable of further minimizing adverse environmental impacts to marine resources. (Ex. 56, Ch. 3; Ex. 57, Ch. 7; 6/20 RT 61, 79, 160.) These determinations included federal Clean Water Act parameters which take into account disproportionate economic costs of alternatives. (Ex. 56; pp. vii, ix, 5, 56, 59-71; Ex. 57, pp. 7-37 to 7-39; 6/20 RT 159-160.) The reports were reviewed by the Project s Technical Working Group made up of representatives of the California Energy Commission (CEC) and their consultant Dr. Michael Foster, the California Regional Water Quality Control Board and their consultants Dr. Pete Raimondi and Dr. Greg Cailliet, the California Dept of Fish and Game,

the California Coastal Commission, and Duke Energy North America and their consultants Dr. Dave Mayer and Brian Waters.

Commission staff concluded that, while some of the alternative discharge measures could reduce thermal plume from the Project, the fact that the Project s thermal discharge would be too modest to constitute a significant impact upon water quality meant none of the alternative mitigation steps are warranted.[86] (Ex. 76, p. 32.)

d. Agency Comments

i. California Regional Water Quality Control Board-Central Coast Region

The jurisdiction of the Commission and that of the Regional Water Quality Control Board (RWQCB or Regional Board) parallel one another in water-related aspects of the Project s review. While the Commission reviews the overall power plant project, the RWQCB regulates the Project s intake and discharge systems via the National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the federal Clean Water Act (33 USC,/1257 et seq.). Staffs of the two agencies have worked together closely in reviewing the Project.

On June 26, 2000 the staff of the RWQCB issued its draft of the NPDES permit for the Project.[87] (Ex. 77.) The Draft NPDES permit addresses the Project s discharge of industrial process wastewater, discharge of uncontaminated cooling water (thermal discharges) and its discharge of stormwater from the site. The

[86] Staff noted, however, that if follow-up studies show the Project failing to meet Thermal Plan requirements, consideration should be given to a multiport facility that would reduce thermal effects. (Ex. 76, p. 32.)

[87] While not yet issued at the time of the final evidentiary hearing, the anticipated Draft NPDES permit was marked for identification as Exhibit 77. Waste Discharge Requirements Order No. 00-041, Draft NPDES No. CA0006254, issued June 26, 2000, is proposed for consideration at the September 15, 2000 meeting of the RWQCB.

permit also places conditions on the Project to ensure the MLPPP complies with the California Thermal Plan. (Ex. 77, pp. 8-10.) The Draft NPDES permit notes that the temperature of discharged cooling water from the upgraded project will meet the 20¡F temperature limitation under most operating conditions. However, it finds that the discharge may exceed the 20¡F limitation when only the older Units 6 and 7 are operating or during extended periods of high power generation with all units operating. (Ex. 77, p. 8.) The Draft NPDES permit s Effluent Limitations delineate the temperature standards for the Project under conditions where the 20¡F limitation will not be met.[88]

ii. California Coastal Commission

In a letter to this Commission dated July 24, 2000, the Coastal Commission acknowledged the proposed exemption to the 20¡F standard contained in the Draft NPDES permit. Nevertheless, the letter noted that Coastal Commission staff has remaining concerns about the Project s thermal discharge plume. The concerns include the force of the discharge, the short distance from the discharge point to the surface, and the lack of multiport diffusers at the discharge, all of which they fear may result in a higher than anticipated level of significance for the plume.

iii. Monterey Bay National Marine Sanctuary

In a letter to the Commission dated July 26, 2000, the Superintendent of the Monterey Bay National Marine Sanctuary (MBNMS) stated that the MBNMS has regulatory prohibitions against discharges into the Sanctuary, or against discharges from outside the Sanctuary that subsequently enter the sanctuary and harm resources. The letter asserts that the proposed Project will violate this prohibition. The Sanctuary may authorize violations if the an activity causes only negligible short-term adverse effects on Sanctuary resources and qualities.

[88] The Proposed Thermal Limitations from the Draft NPDES permit are contained in **Soil & Water** Table 3, which appears *supra*.

The letter questions the reliability of thermal discharge modeling estimates. As a result, the Sanctuary asks the Commission to include additional mitigation measures requiring Applicant to fund a biological monitoring program to verify the true effects of the thermal discharge.[89] The details of this request are addressed in the Biological Resources section of this Decision.

COMMISSION DISCUSSION

Applicant s Thermal Plan (Ex. 56), the 316(b) study, (Ex. 57) and the testimony of expert witnesses for both Applicant and Staff establish that a thorough review of the Project s potential impacts to soil and water recourses has been carried out. (6/20/00 RT 175-194.) While the Project will violate the California Thermal Plan 20¡F standard on occasion, the RWQCB proposes to grant an exemption to the standard, based on the lack of significant environmental effects. Commission staff supports the exemption and notes that the many months of study by the Technical Working Group has shown that thermal discharge from the Project is not likely to have a significant environmental effect. (6/20/00 RT 190.) In fact, with the addition of the discharge from the new proposed units, thermal loading from the existing offshore discharge facility will be reduced. *(Id.)* Subsequent thermal testing required of the Applicant by the NPDES permit and the Commission s Conditions of Certification will verify the modeling efforts to date.

The record includes a complete review of alternatives to the proposed cooling water discharge. The record further establishes that based on the proposed off-site mitigation package and with the implementation of the Conditions of Certification the Project will have no significant impacts upon soil and water resources.

[89] The letter requests Applicant be required to pay an additional $450,000 to $600,000 to fund a biological monitoring program to determine thermal discharge effects.

FINDINGS AND CONCLUSIONS

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

1. Soils in the project area are subject to wind and water erosion.

2. Applicant has submitted a draft erosion control plan for the construction phase of the Project which identified best management practices to be used to control erosion and the discharge of contaminated stormwater offsite.

3. The Project s compliance with existing and new permits, including the National Pollutant Discharge Elimination System (NPDES) permit will result in no significant water quality degradation.

4. The Project s proposed thermal discharge will not result in any significant detrimental biological impacts.

5. The construction and operation of the Project will not cause any significant or cumulative adverse impacts to soil and water resources.

6. Implementation of the Conditions of Certification will ensure that the Project will conform with all applicable laws, ordinances, regulations, and standards related to soil and water resources and identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that with implementation of the Conditions of Certification, construction and operation of the Moss Landing Power Plant Project will create no signification direct, indirect, or cumulative adverse impacts to soil or water resources.

CONDITIONS OF CERTIFICATION

SOILS&WATER-1: Prior to the initiation of any earth moving activities, the project owner shall submit the proposed erosion and sediment control plan to the CBO and the Energy Commission CPM for concurrent review and approval. The project owner shall implement the approved erosion and sediment control plan.

Verification: The project owner shall submit the proposed erosion and sediment control plan for review and approval by the designated CBO and the Energy Commission CPM 60 days prior to the initiation of any earth moving activities. The Energy Commission CPM shall coordinate comments

on the proposed plan with the designated CBO and with other interested agencies including the Coastal Commission.

SOIL&WATER-2: The project owner shall submit the final, approved National Pollutant Discharge Elimination System Permit from the Central Coast Regional Water Quality Control Board governing the discharge of the project's once through cooling water to the Energy Commission. The project owner shall comply with all provisions of the National Pollutant Discharge Elimination System Permit. The project owner shall notify the Energy Commission CPM of any proposed changes to this permit including any application for permit renewal.

Verification: Within 30 days following receipt of a final, approved National Pollutant Discharge Elimination System Permit from the Central Coast Regional Water Quality Control Board, the project owner shall submit to the Energy Commission CPM a copy of the permit. The project owner shall submit to the Energy Commission CPM in the annual compliance report a copy of the annual monitoring report submitted to the Central Coast Regional Water Quality Control Board for NPDES No. CA006254 (Order 00-41). The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of this permit.

SOIL&WATER-3: If necessary, the project owner shall update the waste discharge requirements (Order 99-132) for Class I Surface Water Impoundments from the Central Coast Regional Water Quality Control Board and Hazardous Waste Facility Permit from the Department of Toxic Substances Control (EPA ID No. CAT 080011653) to reflect discharge from the new combined cycle units. For the life of the project, the project owner shall notify the Energy Commission CPM of any proposed changes to these permits, including any application for permit renewal.

Verification: 60 days prior to commercial operation, the project owner shall submit to the Energy Commission CPM a copy of the revised permits allowing discharge from the new combined cycle units. If changes to these permits are not necessary to allow discharge of waste streams from the new combined cycle units, the project owner shall notify the Energy Commission CPM in writing of the fact. The project owner shall submit to the Energy Commission CPM in the annual compliance report a copy of the annual monitoring report submitted to the Central Coast Regional Water Quality Control Board for Waste Discharge Requirements for Class I Wastewater Surface Impoundments (Order No. 99-132). The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of this permit or the Hazardous Waste Facility Permit from the Department of Toxic Substances Control.

SOIL&WATER-4: The project owner shall characterize the extent and influence of the thermal plume under the varying conditions experienced at the discharge. A technical advisory committee shall be established by CEC Water and Biological Resources staff and Central Coast Regional Water Quality Control Board staff with representatives of California Department of Fish and Game, California Coastal Commission, Regional Water Quality Control Board, Energy Commission, and the project owner. The study objectives, sample design, metrics and methods (protocols) will be developed by the technical advisory committee. The goal of the study is to provide a detailed, three-dimensional characterization of the thermal plume and project compliance with applicable permit requirements. The study protocols will be developed and put into a study plan within twelve months of the certification. The project owner will commence the thermal plume characterization and monitoring study within one month of the start of operation of the new power plant. All units (1&2 and 6&7) should be in operation during the study (worst case). The project owner will prepare the study plan and conduct the data collection. The project owner shall prepare a draft report of the study results that is scientific in style and includes methods, analysis, results, and conclusions, within six months from the end of data gathering and submit it to the CEC CPM. The other agencies shall be included in the review, as each agency desires. A final report shall be completed within nine months of the end of data collection.

Verification: The project owner will submit a draft study plan (based on technical advisory committee direction) to the CEC CPM within nine months of certification for review and approval. Within twelve months of certification, an approved final study plan will be provided to the CPM. This study plan will be prepared by the project owner as guided by the technical advisory committee established by CEC Water Resources staff and CEC CPM in consultation with the agencies. The CPM will ensure that the monitoring studies are conducted according to the study plan.

The project owner will submit a draft report that discusses the results of the thermal plume characterization and monitoring, that is a scientific style report including methods, analysis, results, and conclusions within six months of the end of field sampling, and they will submit an approved final report within nine months from the end of field sampling. The CPM will ensure that a study results draft report is submitted within six months of the completion of the field sampling, and that a final report is completed within nine months from the completion of the field sampling.

If the project owner has not complied with any aspect of this condition, the CPM will notify the project owner of making this determination.

SOIL&WATER-5 No earth disturbing activities for construction of the proposed project shall occur until the site has been successfully remediated by PG&E. If the site has not been remediated, no earth moving activities shall occur until the Energy Commission has approved a plan submitted by the project owner. This plan shall identify measures that will be undertaken to ensure that contaminated soil and/or surface or groundwater disturbed during construction activities will not degrade adjacent water resources and associated aquatic habitats.

Verification: The project owner shall submit a letter, at least 30 days prior to the start of construction, from the Department of Toxic Substances Control indicating that the site has been successfully remediated by PG&E. If the site has not been remediated, the project owner shall submit a plan for approval to the Energy Commission CPM. This plan will identify measures that will be undertaken to ensure that contaminated soil and/or surface or groundwater disturbed during construction activities will not degrade adjacent water resources and associated aquatic habitats. The Energy Commission CPM shall coordinate review of this plan with the Department of Toxic Substances Control, Regional Water Quality Control Board, the Department of Fish & Game and the Coastal Commission. No earth moving activities associated with construction of the proposed project will occur until the proposed project has been approved by the Energy Commission CPM.

E. WASTE MANAGEMENT

The project will generate hazardous and non-hazardous wastes during construction and operation. This section reviews Applicant s waste management plans to reduce the risks and environmental impacts associated with the handling, storing, and disposing of project-related wastes.

Federal and state laws regulate the management of hazardous waste. Hazardous waste generators must obtain EPA identification numbers, and use only permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must handle the transfer of hazardous waste to disposal facilities.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence of record was uncontroverted that hazardous and non-hazardous wastes generated by the Project will be managed in accordance with applicable law. Staff and Applicant both concluded in their testimonies that the proposed Project will pose no potential for significant impacts to Applicant s workers, the public, or the environment, and that the MLPPP will comply with the applicable laws, ordinance, regulations and standards governing waste management and disposal. (Ex. 65, pp. 77-78; Ex 63, pp. 37-40; Ex. 66, p. 15; 6/7/00 RT 57-61.)

Applicant s witness, Dr. Eric Walter, discussed the two existing waste management potential impacts. The impacts fall into the categories of: 1) Operational and Construction Waste Streams and Waste Handling Practices; and 2) Site Assessment Activities. (Ex. 63, p. 36.)

1. Operational and Construction Waste Streams

Because the MLPP site has been in operation for nearly 50 years, the operational and construction waste stream management practices at the site are well developed and comply with governing local, state, and federal regulations controlling the handling, treatment, storage, and disposal of wastes (Id.) In addition, since MLPP is a hazardous waste generator, it maintains a current EPA identification number[90] which will continue to be used for hazardous waste which is generated during Project construction. (*Id*.)

Applicant s testimony noted that non-hazardous waste streams generated at the existing MLPP are routinely segregated according to recyclable fractions in order to minimize the quantity of waste disposed offsite. There are four non-hazardous waste disposal sites within a 50-mile radius of MLPP that have adequate capacity to accommodate both the operational and construction waste streams. There are also three soil treatment and soil recycling facilities permitted to accept non-hazardous petroleum contaminated soils. (Ex 63, p. 38.) Non-hazardous liquid wastes generated by operation and maintenance activities at the site are discharged into waters of the state after treatment, in accordance with the current National Pollutant Discharge Elimination System (NPDES) permit requirements. Non-hazardous liquid waste generated by dredging around the cooling water intake system is disposed of by the Moss Landing Harbor District according to their dredging permit. (*Id*.)

Solid hazardous waste generated by current operations at the MLPP is transported and disposed at hazardous waste facilities located in California and Arizona, depending upon waste classification. In California, there are three major Class I landfills permitted to accept hazardous waste[91]. Staff witness Mike

[90] CAT 080 011 653.

[91] The three California Class I landfills are: Kettleman Hills in Kings County, Buttonwillow in Kern County, and Westmoreland in Imperial County.

Ringer noted in his testimony that these landfills have remaining operating lifetimes extending up to 90 years. His testimony states that even without the recycling carried on at MLPP, the generation of hazardous waste from the Moss Landing site would be a small fraction (less than 1 percent) of existing Class I landfill capacity and will not significantly impact the capacity or remaining life of any of California s Class I landfills. (Ex. 65, pp. 75-76.) Waste oil from the MLPPP site is recycled by licensed oil recyclers. (Ex. 63, p. 38.)

2. Phase I/Phase II Site Assessment Activities

Comprehensive Phase I and Phase II site assessments previously completed by PG&E revealed that the only contamination detected near the proposed Project footprint consists of low levels of petroleum hydrocarbons in shallow subsurface soils. PG&E retains responsibility to remediate this contamination as part of its purchase/sale agreement with Duke Energy. (*Id.*) Applicant s witness testified that there are also localized impacts to the soil and groundwater in the vicinity of the once-through cooling intake and discharge pipes that will be installed as part of the Project. PG&E is responsible for remediation here as well and is currently proceeding with clean-up activities under oversight by the California Department of Toxic Substances Control. (Ex. 63, p. 39.)

Commission staff testimony provided detailed review of existing and proposed waste management streams at the Project site and concluded that the management of wastes generated during construction and operation of MLPPP will not result in any significant adverse impacts if Applicant implements the waste management measures contained in Conditions of Certification **Waste-1** through **Waste-4.** (Ex. 65, pp.69-80.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we find:

1. The Project will generate hazardous and non-hazardous wastes during construction and operation.

2. Phase I and Phase II Environmental Site Assessments carried out by PG&E found only low-level contamination in the vicinity of the Project footprint.

3. PG&E is responsible for remediation of contamination existing at the Moss Landing Power Plant site at the time of the site s sale to Duke Energy.

4. Under Applicant s waste management plan, the Project will recycle hazardous and non-hazardous wastes to the extent possible and in compliance with applicable law.

5. Hazardous wastes which cannot be recycled will be transported to Class I landfills.

6. Compliance with all applicable laws, ordinances, regulations, and standards ensures that wastes generated during construction and operation of the proposed Project will be managed in an environmentally safe manner.

7. The management of all Project wastes will be in compliance with all applicable laws, ordinances, regulations, and standards.

8. Disposal of Project wastes will not result in significant adverse impacts to existing waste disposal facilities.

9. The Conditions of Certification set forth below and waste management practices detailed in the Application for Certification will reduce potential waste management impacts to a level of insignificance.

The Commission therefore concludes that implementation of waste management measures proposed in the Application for Certification and implementation of the Conditions of Certification below will not result in any significant adverse impacts from the management of wastes generated during construction and operation of the Moss Landing Power Plant Project. We further conclude that the Project will

conform with all laws, ordinances, regulations, and standards relating to waste management in the pertinent portions as identified in **Appendix A**.

CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action, the project owner shall notify the CPM of any such action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator that the owner contracts with.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-2 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CPM, for review and comment, a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all expected waste streams, including projections of frequency and hazard classifications; and
- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than thirty (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 60 days prior to the start of project operation. The project owner shall submit any required revisions within fifteen (15) 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 an environmental professional (as defined by American Society for Testing and Materials practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) available for consultation during soil excavation activities. If potentially contaminated soil is unearthed during

excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, or other signs, prior to any further construction activity at that location, the environmental professional shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner stating the recommended course of action. If, in the opinion of the environmental professional, significant remediation may be required, the project owner shall contact representatives of the Monterey County Environmental Health Department and the Berkeley Field Office of the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall notify the CPM in writing within 5 days of any reports filed by the environmental professional, and indicate if any substantive issues have been raised.

WASTE-4 Silt or related dredge material removed by the project owner during work or maintenance on the cooling water intake system shall be tested and disposed of in an inland disposal facility approved by the California Department of Toxic Substances Control or the local Regional Water Quality Control Board. Similar work performed by the Moss Landing Harbor District for the project owner shall comply with the District s permit.

Verification: The project owner shall notify the CPM via the Annual Compliance Report of the disposition of any silt or dredge material removed.

VIII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant project affect, in differing degrees, the community in which it is located. The effect of the various elements of a project upon the local area varies from case to case depending upon the nature and the extent of the community and of the associated impacts. In the present case, the technical elements discussed in this portion of the Decision are those addressing likely areas of potential local concern.

A. LAND USE

The discussion of the land use impacts for the Moss Landing Power Plant Project focuses on two main issues: the conformity of the project with local land use plans, ordinances, and policies; and the potential of the project to have direct, indirect, and cumulative conflicts with existing and planned uses. In general, a power plant project can be incompatible with existing or planned land uses when it creates unmitigated noise, dust, public health hazards or nuisances, traffic, or visual impacts, or when it significantly restricts existing or future uses.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. The Site

The existing Moss Landing Power Plant, constructed by PG&E and in operation since 1950, is a 239-acre industrial complex that includes seven electric generation units, ten exhaust stacks, 19 fuel tanks, and various warehouse and office buildings. The existing electric power generation Units 1-5 were retired from service in 1995. The proposed Project consists of replacing Units 1-5 with two 530 MW, natural gas-fired, combined cycle units. In addition, the Project includes the removal of the eight 225-foot tall stacks that were previously used for Units 1-5. Four 145- foot tall exhaust stacks would be constructed in

association with the new generation units. Because the Project will make use of the existing infrastructure at the site, no new linear facilities would be constructed to serve the Project. Such facilities include electric transmission lines, natural gas pipelines, and water pipelines. (Ex. 66, p. 84.)

In addition to the Project, Applicant plans to take several other measures as part of its modernization of the Moss Landing Power Plant. The activities include the demolition and removal of 19 fuel oil storage tanks that once provided fuel oil for Units 1-7, the installation of Selective Catalytic Reduction (SCR) air emission control technology to existing Units 6 and 7, and installation of an energy management center. Monterey County is the lead agency for environmental review of these additional measures. (*Id*.) Nevertheless, the Commission has analyzed these projects as part of its cumulative impact analysis for the proposed Project.

2. The Vicinity

Existing land uses in the vicinity of the Project site are characterized by ocean-dependent industrial, visitor-serving retail, recreational wetlands and beaches, limited residential, and agricultural uses. Directly adjacent to the site to the north is the 143-acre PG&E Moss Landing Switchyard. Zoning is HI (Coastal Zone or CZ). The Elkhorn Slough National Estuarine Research Reserve lies north of the PG&E Switchyard. Highway 1 lies directly west of the MLPP site and to the west of the highway is the Moss Landing Harbor with its facilities for approximately 600 commercial and pleasure boats. Various fish processing and other fisheries support industries are located on Moss Landing Island. The zoning is light industrial: LI (CZ) Just to the south of the Project site across Dolan Road lies the heavy industrial site of the National Refractories magnesia and refractory brick factory. Zoning is HI (CZ) To the east and adjacent to the East Tank Farm is the Dolan Industrial Park, which is zoned LI (CZ). Applicant s witness Kirk

Marckwald testified that the Project would not conflict with any of these surrounding uses. (Ex. 60, p. 3; 6/15/00 RT 66.)

The nearest residence is located adjacent to the PG&E switchyard and approximately 1,600 feet north of the existing MLPP site.[92] (Ex. 62, p. 5.) An additional single residence is located to the south near the intersection of Moss Landing Road and Highway 1. The nearest cluster of residences (approximately 30 houses) is located more than one-half mile southwest of the plant and is separated from the Project site by an industrial site, antique stores, Moro Cojo Slough, and Highway 1. Another group of houses is located to the east within one-quarter mile of the fuel tank farm, off Elkhorn Road. (Ex. 60, p. 3.)

Prime farmland is located approximately 1.7 miles from the MLPP. Farmland of statewide importance is approximately 1.3 miles distant and unique farmland is found approximately 1.6 miles from the Project site. There are no prime farmlands, farmlands of statewide importance, or unique farmlands located at the Project site or within _ mile radius of the site. Agricultural activity adjacent to the MLPP is primarily cattle grazing. Additional agriculture in the area includes row crops such as brussel sprouts, strawberries, and artichokes. (*Id*.)

Park and wildlife areas within approximately a five-mile radius of the MLPP site are shown in Figure 6.9-2 of the AFC. These include the Elkhorn Slough National Estuarine Research Reserve (NERR), located 3.5 miles east of the site. The Elkhorn Slough NERR is managed by the California Department of Fish and Game. In addition, Moss Landing is at the center of the Monterey Bay National Marine Sanctuary (MBNMS), the nation s largest marine sanctuary, which stretches from north of San Francisco to Cambria. (*Id*.)

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[92] While Applicant s Land Use testimony (Ex. 60, p. 3) refers to the nearest residence as located approximately 1,500 feet from the existing MLPP , Applicant s Rebuttal Testimony on Noise (Ex. 62, p. 5, fig. 1) appears to correct the estimated distance to the nearest residence. Figure 1 of

The various land uses within one-mile of the MLPP site, are illustrated in color in LAND USE Figures 1 and 3 of the Final Staff Assessment, Part 2. (Ex. 66, pp. 86, 88.) Zoning designations within one mile of the MLPP site are shown in LAND USE Figure 2. (Ex. 66, p. 87.) Parks and Wildlife areas located within approximately 7 miles of the Project site can be seen in Figure 6.9-2 of the AFC. (Ex.5, fig. 6.9-2.)

3. Coastal Access

The Moss Landing Power Plant Project is consistent with Coastal Commission policy that prefers onsite expansion of existing power plants over the development of new plants in undeveloped areas of the coastal zone. (Pub. Resources Code,／30260.) Nevertheless, both the California Coastal Act and the Monterey North County Land Use Plan also encourage further improvement of public access around the power plant. Furthermore, the Energy Commission must require public access as a condition of certification for projects located in the coastal zone or other areas with recreational, scenic, or historical value. (Pub. Resources Code,／25529.)

To address these requirements for public access, Staff organized a public workshop, held May 24, 2000, at which representatives of Duke Energy, the California Coastal Commission, Monterey County and the Energy Commission staff met to create a plan for developing public access to coastal resources in the vicinity of the Project. At the workshop, Applicant agreed to the following: 1) dedication of an easement and funding ($100,000) for the planning, design, and construction of a boardwalk to and along Moss Landing Beach; 2) funding of $60,000 for an environmental assessment of coastal access in the context of an Elkhorn Slough Circle Trail, and funding of $250,000 for ongoing maintenance of

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Exhibit 62 shows the nearest residence as 1,607 feet distant from existing Units 6 and 7 and a distance of 1,855 feet from the proposed new Units 1 and 2.

that trail system if the system is deemed compatible with resource protection in the Elkhorn Slough; and 3) dedication of an easement within Applicant s ownership on the west side of Highway 1 for a proposed trail identified in the North County Land Use Plan. (Ex. 66, p. 90; Ex. 72.) These public access improvements are reflected in Conditions of Certification **LAND-1** through **LAND-3.**

4. Construction Impacts

Construction impacts of the Project will be temporary and last for approximately 29 months, including cumulative impact activities. Construction will focus within the MLPP site and will not disturb surrounding land uses. Temporary traffic impacts will occur on streets and highways in the surrounding area due to construction employees and materials deliveries. These will generally occur during off-peak periods and will not be significant. Other typical construction impacts such as noise, dust, and visual effects will be short term, limited to the MLPP site and will have little or no off-site impacts. As a result of these factors, the testimony of both Applicant and Staff concluded that construction-related impacts will not be significant. (Ex. 60, p. 4; Ex. 66, pp. 107-108.)

5. Operational Impacts

Project operation and maintenance will require 10 new employees. Based on recent experience with employees at the existing MLPP, the 10 new employees are likely to live in Santa Cruz, Monterey and San Benito Counties. Assuming that the new families are the same average size as the average family in the three counties, there would be an increase of 22 people as a result of Project operation. Applicant and Staff each separately concluded that the presence of the 10 new employees and their families will not have a significant effect on local communities or established land uses. (Ex. 60, p. 5; Ex. 66, pp. 92, 108.)

Because the Project would be located entirely within the boundaries of the existing MLPP site, its operation will be compatible with existing zoning and would not constitute a change in the current development pattern of the area established in the Monterey County Local Coastal Program. Operational impacts of the Project are addressed in more detail under each respective topic area, such as **Air Quality**, or **Noise**. As mitigated by the Conditions of Certification, Commission Staff determined that none of these impacts are significant and none will have a significant impact on local land uses. (Ex. 66, pp. 105-106.)

6. Cumulative Impacts

As noted above, Applicant is planning additional construction activities at the MLPP site in the near term.[93] Portions of these activities may occur concurrently with the construction of the Project. These additional construction activities will all take place entirely on the MLPPP site. In addition, Applicant has stated that peak period construction work for these other activities will not coincide with the construction work on the Project. (Ex. 60, p. 5.) The Project and all the other identified construction activities are consistent with power generation activities which have occurred at the MLPP site since 1950 and are consistent with the Heavy Industrial (Coastal Zone) zoning of the site. (*Id*.)

While no known land use developments are planned within a 1-mile radius of the MLPP site, few developments, unrelated to the Project, are planned within the 5-mile radius vicinity. These include two proposed housing developments and a golf course. (*Id*.) Construction schedules for these projects are either unknown

[93] The activities include the demolition and removal of 19 fuel oil storage tanks, the installation of Selective Catalytic Reduction (SCR) on existing Units 6 and 7, and installation of an energy management center.

at this time or are expected to occur before construction begins at the MLPP site. As a result, Applicant s witness testified that no cumulative offsite land use impacts are expected to occur during the construction activities at the MLPP site. (*Id*.)

Staff analysis of the Project s cumulative impacts during construction found that increased dust, noise, and traffic may affect nearby land uses, but are not expected to be significant. (Ex. 66, p. 107.) Since the overall cumulative effect of all modernization activities will be the reduction of the footprint of the Moss Landing Power Plant, Staff determined there would be a positive cumulative land use impact. (*Id*.) With the mitigation measures contained in the Conditions of Certification, Staff testified that impacts during operation would not cause or contribute substantially to any cumulative, indirect land use impacts. In fact, Staff witness Eric Knight, found that due to noise reduction work on Units 6 and 7, and the removal of existing stacks and tanks from the site, the net cumulative impact to nearby land uses would be positive, rather than adverse. (*Id*.)

COMMISSION DISCUSSION

The Commission has relied upon the land use analysis and testimony of the Applicant,[94] the Commission staff,[95] and the California Coastal Commission.[96] Coastal Commission representatives agreed to all revisions to recommendations in the June 13, 2000, letter (Ex. 72) to this Commission. (6/15/00 RT 72, 81.) Based on this information the Commission is able to determine that the Project is consistent with the current North County General Plan and zoning requirements. It is also consistent with the goals and policies of the Monterey County General Plan and local coastal program. The Project conforms with and will compliment

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[94] Ex. 60, pp. 1-6, Attachments A, B, Table 1; 6/15/00 RT 65-74.

[95] Ex. 66, pp. 81-112; 6/15/00 RT 74-83.

[96] Ex. 72.

the environmental quality of the Moss Landing community. This is so because it is consistent with existing and planned land uses and will not unduly restrict existing or planned uses. Finally, the Project includes plans for developing public access which is consistent with the goals and objectives of the California Coastal Commission and those of the Energy Commission as expressed in the Warren-Alquist Act.

FINDINGS AND CONCLUSIONS

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

1. The proposed project would be located within the existing boundaries of the 239-acre Moss Landing Power Plant (MLPP) industrial complex.

2. The MLPP industrial complex site includes: generating units, exhaust stacks, fuel storage tanks, seawater intake and outfall structures, warehouses, office buildings, and related equipment. The site is directly adjacent to the existing 143-acre Pacific Gas and Electric (PG&E) Moss Landing Switchyard, containing transmission lines, towers, switches, bus bars, and transformers.

3. The existing MLPP site is located near Moss Landing Harbor in an area which includes industrial facilities, agricultural lands, scattered residences, recreational beaches, and the tidal wetlands of the Elkhorn Slough.

4. The nearest residence to the existing MLPP site is located approximately 1,500 feet to the north with the nearest cluster of residences located more than one-half mile to the southwest.

5. The Moss Landing Power Plant Project is consistent with the current North County General Plan and zoning ordinances.

6. The proposed Project is consistent with the goals and policies of the Monterey County General Plan and Local Coastal Program.

7. The Project is compatible with existing and planned land uses, and would not preclude or unduly restrict existing or planned land uses.

8. The Project is consistent with maintaining the environmental quality and character of the Moss Landing community.

9. The Conditions of Certification contain specific provisions to meet the objectives of the California Coastal Act as specified by the California Coastal Commission in its report to the Energy Commission pursuant to Public Resources Code section 30413(d).

10. Applicant s plan for developing public access to coastal resources is consistent with the goals and objectives of the California Coastal Commission and the Warren Alquist Act.

We therefore conclude that construction and operation of the Project will not result in significant adverse direct, indirect, or cumulative land use impacts.

Implementation of the Conditions of Certification will ensure that the Project will meet all applicable laws, ordinances, regulations, and standards governing land use.

The Moss Landing Power Plant Project complies with local land use designations and if constructed and operated under the Conditions of Certification which follow, the Project will not impose significant adverse impacts upon local land uses.

CONDITIONS OF CERTIFICATION

LAND-1 To help promote coastal access adjacent to the project site and to satisfy Section 25529 of the Warren-Alquist Act, the project owner shall:

(1) Provide Monterey County with a public access easement over a portion of the land lying above the project s outfall structure and to the west of Sandholt Road. The easement shall be in a form and content acceptable to Monterey County. The project owner, in consultation with Monterey County and the California Coastal Commission, shall determine the exact alignment and width of the easement after establishing appropriate buffer areas to ensure public safety and to allow necessary maintenance activities of the outfall structure, including the surge chambers.

(2) Provide one hundred thousand dollars ($100,000) for the purposes of improving coastal access in the vicinity of the project s outfall structure. These funds shall be exclusively used for the planning, design, and construction of boardwalk and other trail improvements to provide improved coastal access, including access over the easement provided in paragraph #1 above as well as for improving lateral access along the adjacent beach area in a manner protective of the existing sensitive dune habitat. In the event that a nearby site may provide an ecologically or recreationally preferable alternative for a similar style access enhancement, the California Energy Commission staff will review said alternative, and reassign designated funds accordingly.

Verification: Within ninety (90) days after the start of construction of the project, the project owner shall provide the following:

- A public access easement over a portion of the project s outfall to Monterey County, with a copy of the easement forwarded to the Energy Commission Compliance Project Manager (CPM).
- Deliver a check to the California Energy Commission in the amount of $100,000 to be placed into a special account for the planning, design, and construction of the boardwalk.

LAND-2 To help promote coastal access adjacent to the project site and to satisfy Public Resources Code Section 25529, the project owner shall:

(1) Provide sixty thousand dollars ($60,000) to carry out an environmental assessment of a proposed Elkhorn Slough Circle Trail, including water-based recreation conditions, specifically to determine how current and future visitation to the area can be accommodated without compromising resource and species protection objectives for the Slough, as identified in Chapter 3 of the Coastal Act, the Local Coastal program, the Endangered Species Act and any other appropriate laws, ordinances, regulations and standards. The project owner, the Elkhorn Slough Foundation, the California Coastal Commission, and the CPM shall mutually agree on the final scope and principal investigator for this evaluation. In the event that the parties cannot mutually agree on the scope of work or its principal investigator (6/15/00 RT 68), the CPM, in consultation with the Executive Director of the Coastal Commission, shall make the final determination. In the event that funds are remaining from this project, they shall be assigned to an entity agreed upon by the CPM and the Executive Director of the Coastal Commission for the express purpose of enhancing access opportunities in and around the Elkhorn Slough.

(2) If the environmental assessment concludes that additional visitors can be accommodated by means of the proposed Elkhorn Slough Circle Trail, or portions thereof, the project owner shall provide an endowment of two hundred and fifty thousand dollars ($250,000), the proceeds of which will fund the equivalent of one seasonal aide position (12 hours per week on an annual average basis) for observation and maintenance activities along the Elkhorn Slough Circle Trail. At least once a year, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission staff to confer about the implementation of this resource protection/coastal access program and to determine if the funds generated by the $250,000 endowment are sufficient to carry out the agreed-upon hours of service. If the parties mutually agree that the funds generated are not sufficient to pay for the agreed-upon hours of service, the project owner shall contribute sufficient funds to cover the anticipated shortfall for the year. In the event that the parties cannot mutually agree on the provision of service, the CPM, in consultation with the Executive Director of the Coastal Commission, shall make the final determination.

(3) If the environmental assessment concludes that current levels of visitors, or additional visitors cannot be accommodated without compromising adopted resource and species protection objectives for the Slough, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission to determine a mutually agreeable, alternative coastal access program(s) to receive the $250,000 endowment. In the event that the parties cannot mutually agree on alternatives, the CPM, in consultation with the Executive Director of the Coastal Commission, shall make the final determination.

Verification: Within sixty (60) days after the start of construction of the project, the project owner shall: 1) meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission for the purpose of agreeing on the final scope and principal investigator for the environmental assessment, and 2) shall deliver a check to the California Energy Commission in the amount of $60,000 for the environmental assessment. The environmental assessment shall take no longer than six (6) months to complete.

Within sixty (60) days of completion of the environmental assessment, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission for the purpose of

discussing the results of the assessment, and if necessary selecting an alternative coastal access program(s) to receive the $250,000 endowment.

Within thirty (30) days of the final meeting to discuss either the results of the environmental assessment or to choose an alternative coastal access program to receive the $250,000 endowment, as well as interest at the rate of 8 percent accrued on the endowment since the start of project construction, to the California Energy Commission. The Energy Commission will transfer the $250,000 endowment along with any interest accrued, to the appropriate entity that will carry out the purpose of these funds.

LAND-3 The project owner shall provide Monterey County with an offer to dedicate a public access easement of not less than ten (10) feet in width for that portion of the proposed trail identified in the North County Land Use Plan passing through the project owner's property west of Highway 1. The offer shall be in a form and content acceptable to Monterey County. The offer shall identify no-entry areas adjacent to the intake structures for both the project and existing Units 6 and 7 that the project owner determines any future trail must avoid to ensure public safety. Subject to the no-entry areas, the offer shall specify that the precise trail alignment shall be agreed to at a future time through cooperation between the project owner and the public agencies responsible for funding, constructing, maintaining and accepting liability for the trail. To the extent that some, or the entire trail, cannot feasibly be located away from the paved road surface of Highway 1, the public access easement shall be immediately adjacent to the western edge of the existing 80-foot right-of-way for Highway 1 (see also condition of certification **TRANS-11**).

Verification: Within 90 days after the start of construction of the project, the project owner shall provide Monterey County with an offer to dedicate a public access easement for the proposed trail identified in the North County Land Use Plan, with a copy of the offer forwarded to the CPM.

LAND-4 The project owner shall comply with the parking standards established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.58).

Verification: At least 30 days prior to the start of construction of any permanent parking, the project owner shall submit written evidence to the CPM that the project conforms to all applicable parking standards as established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.58). The submittal to the CPM shall include evidence of review by the County.

LAND-5 The project owner shall ensure that any temporary signs used during construction of the project comply with the sign regulations established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.60).

Verification: At least 30 days prior to the installation of any permanent signage, the project owner shall submit written evidence to the CPM that any temporary signs to be used will conform to the Monterey County Zoning Ordinance (Title 20, Chapter 20.60). The submittal shall include a description of the number and location of all signs. The submittal to the CPM shall also include evidence of review by Monterey County and shall attach and address any recommendations from the County. Within 15 days after the completion of construction, the project owner shall notify the CPM in writing that all temporary signs have been removed.

LAND-6 The project owner shall construct a public access parking area on the Duke Energy owned lot that is located between Sandholdt Road and the Monterey Bay shoreline or shall work with the Moss Landing Harbor District for the construction of approximately 35 public-access parking spaces on the Moss Landing Harbor District lot located north of and adjacent to the old Santa Cruz Cannery building located on Sandholdt Road. It is Monterey County s understanding that the Moss Landing Harbor District will offer their lot for public access if Duke Energy constructs the parking spaces.

Verification: At least thirty (30) days prior to commercial operation the project owner shall submit to the CPM evidence that public access parking has been installed and approved by Monterey County.

B. NOISE

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this sound, the times of day or night during which it is produced, and the proximity of the facility to sensitive receptors combine to determine whether a project s noise will cause significant adverse impacts to the environment. In the licensing process, the Commission evaluates whether noise produced by project-related activities will be consistent with applicable noise control laws and ordinances.

In this portion of the Decision, we examine the likely noise impacts from the Moss Landing Power Plant Project and the sufficiency of measures proposed to control them.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The MLPPP will be located within the existing Moss Landing Power Plant site, which is zoned for heavy industrial use. Sensitive sound receptors in the vicinity of the Project are limited to scattered residences, the nearest of which is located approximately 1,500 feet north of the MLPP site property line and 1,855 northwest of the proposed location for new generator Units 1 and 2. (Ex. 65, p. 103; Ex. 63, fig. 1.) Additional nearby residences include boats moored in the Inner Channel of Moss Landing Harbor, some of which serve as residences; a single home at Highway 1 and Moss Landing Road, to the south; a residential neighborhood adjacent to Allen Street; additional boats moored in the harbor to the north; and several residences at the Calcagno Dairy Farm, east of the Project. No hospitals, libraries, schools, or churches lie near enough to the site to be affected by the noise from the Project. (Ex. 65, p. 103.)

In order to predict the likely noise effects of the Project on these sensitive receptors, Applicant commissioned an ambient noise survey of the area. Noise

monitoring for the survey took place at the residence to the north, at the Allen Street neighborhood, and at the Calcagno Dairy residences. The survey results show a high, steady level of background noise ranging from 53 to 58 dBA with little variance from day to night. (Ex. 65, p. 104.)

Noise caused by Project construction heard at the nearest residence will generally be at or near the existing background levels and thus barely noticeable. Noisier work, such as pile driving is projected to reach 63 dBA at the nearest residence. However, such noise will be temporary in nature and will be limited to daytime hours. (Ex. 65, p. 105.) Because of the temporary nature of construction noise, it is not subject to the standards for background noise.

The loudest construction noise is likely to be created by steam blows. This is part of the construction process for all projects involving a steam turbine. High-pressure steam is used to flush the system to remove accumulated dirt, rust, scale, and construction debris. The steam blows are performed several times daily over a period of two or three weeks. While steam blows can generate noise as loud as 104 dBA at the nearest residence, Condition of Certification **NOISE-4** requires Applicant to equip its piping with a silencer that will reduce the noise to a level of 74 to 84 dBA at the nearest residence and only between 8 a.m. and 5 p.m. (*Id*.) Available alternative methods are even quieter. However, the quieter method uses lower steam pressures over a continuous 35 hour period. Thus, while not as loud as the conventional steam blows, it lasts for a longer period of time. Which ever method is used by the Project, Condition of Certification **NOISE-5** requires Applicant to notify neighbors of any impending steam blows.

Commission staff witness Steve Baker concluded his analysis of noise impacts from the Project by stating that the MLPPP can be built to comply with all local and state applicable noise laws, ordinances, regulations and standards. Furthermore, with implementation of the Conditions of Certification, the Project will present no significant adverse noise impacts. In fact, as a result of the entire

modernization process at the site, the MLPPP will likely result in a cumulative noise impact that is beneficial rather than adverse.[97] (Ex. 65, p. 109.)

[97] Noise levels are expected to drop by a factor of 2 at some locations after installation of SCR. This is because the SCR installation will include installation of much quieter forced draft and new induced draft fans for Units 6 and 7. (Ex. 58, p. 53.)

DISTANCE TO CLOSEST RESIDENTIAL RECEPTOR

FIGURE 1

Source: Exhibit 62, received into evidence on 6/7/00.

FINDINGS AND CONCLUSIONS

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

1. Construction and operation of the MLPPP will increase noise levels above existing ambient levels I the surrounding community.

2. Monterey County General Plan Noise Element specifies that noise levels from 50 to 70 dBA L_{dn} or CNEL are normally acceptable for industrial or utility land use categories such as the Project site.

3. The sensitive receptors nearest the MLPPP are located 1,855 feet away from new Units 1 and 2 of the proposed Project.

4. Noise associated with construction activities at the Project will be temporary in nature and mitigated to the extent feasible; therefore, they will not result in a significant impact to the surrounding community.

5. The Project s operation noise levels will not significantly elevate noise levels in the community above the existing ambient noise levels.

6. Implementation of the Conditions of Certification, which follow, will ensure that noise levels will not significantly increase as a result of the MLPPP.

7. With implementation of the Conditions of Certification, the Project will be constructed and operated in conformity with the applicable laws, ordinances, regulations, and standards.

We therefore conclude that the Moss Landing Power Plant Project will not create any significant direct, indirect, or cumulative adverse noise impacts.

CONDITION OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of rough grading, the project owner shall notify all residents within one-half mile of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended.

This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of rough grading a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (see below for example), 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 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the Monterey County Department of Health, Division of Environmental Health, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30 day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of project construction, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high

noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of rough grading, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 110 dBA measured at a distance of 100 feet. The project owner shall conduct steam blows only during the hours of 8 a.m. to 5 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule. At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within one-half mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Within five (5) days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall

conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints. If the results from the survey indicate that the project noise levels are in excess of 70 dBA at the MLPPP property boundary, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the Monterey County Department of Health, Division of Environmental Health, and to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted within 30 days after the facility is in full operation, and 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.

NOISE-8 Noisy construction work (that which causes offsite annoyance, as evidenced by the filing of a legitimate noise complaint) shall be restricted to the times of day delineated below:

High-pressure steam blows:	8 a.m. to 5 p.m.
Other noisy work	7 a.m. to 10 p.m.

The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

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NOISE COMPLAINT RESOLUTION FORM

Moss Landing Power Plant Project
(99-AFC-4)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____
Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____
Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

C. SOCIOECONOMICS

The socioeconomic analysis evaluates the effects of project-related population changes on local schools, medical and protection services, public utilities, and other public resources, as well as the fiscal and physical capacities of local government to meet these needs. The construction phase of project development is typically the focus of the analysis because of the potential influx of workers into the area. Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents move to the project area, increasing demand for community resources that are not readily available.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant conducted a socioeconomic analysis of a four-county study area that includes Monterey, Santa Cruz, Santa Clara, and San Benito counties. This was based on the assumption of the maximum reasonable commuting distance for workers to be approximately 90 minutes one-way. (Ex. 58, pp. 65-68.) Staff, on the other hand considered the reasonable study area to be more limited, with a study area consisting of only Monterey, Santa Cruz, and San Benito counties. Staff expects most of the Project s socioeconomic and fiscal impacts to occur in Monterey County. (Ex. 65, p. 220.)

1. Construction Impacts

A maximum of about 650 construction workers will travel to the MLPP site each day over the entire 29-month construction period for the Project and the three cumulative project activities (tank demolition, SCR project, and onsite maintenance activities). Peak construction is expected to last about four months. However, the average daily work force levels during construction will be about 210 construction employees. Specific trades required for construction include carpenters, laborers, ironworkers, operators, pipefitters, electricians, millwrights,

boilermakers, insulators, painters, and teamsters. (Ex. 65, p. 220.) The evidence is undisputed that a sufficient workforce is available locally to staff the various construction positions. Therefore, no temporary or permanent relocation of workers is necessary for project construction. (Ex. 65, p. 221; Ex. 58, p. 68.)

The average 210 construction jobs at the Project are likely to support an additional 230 secondary jobs in Monterey County during the construction period. Because hiring of construction workers is expected to occur from within the three-county area, the potential demand for housing during the construction period is expected to be minimal or none. This is because of a considerable surplus of local construction workers available to staff the various jobs on the Project. (Ex. 65, pp. 220-221.) For the same reason, school children of construction workers are not expected to relocate, and school enrollments would not be affected as a result of Project construction. (Ex. 58, p. 69.)

The fiscal impacts from the Project will be substantial. Estimated construction payroll is $115 million. In addition, an estimated $10 million in equipment and materials will be purchased locally during construction. The Project will pay an estimated $19 million in sales taxes with about $2 million distributed to Monterey County and $17 million distributed to the State of California. Prior to commercial operation, the project will also pay an estimated $3 million in property taxes.[98] (Ex. 58, p. 70.)

2. Operational Impacts

The current MLPP site has a work force of approximately 85 employees. Applicant estimates that an additional 10 employees will be required to operate the new Project. Assuming that this hiring leads to 10 new families moving into

[98] These property taxes will be collected by Monterey County and distributed among 177 separate categories. Approximately 47 percent is allocated to County school districts, 26 percent to local government, 0.8 percent to hospitals, and 0.1 percent to Moss Landing Harbor District. (Monterey Tax collector s Office, 1999; Ex. 58, p. 70; Ex. 65, p. 223.)

the area, both Applicant and Staff analyses show that there will be no resulting significant impacts on local employment, housing, schools, utilities, or emergency services. Condition of Certification **Worker Safety-4**, which requires Applicant to fund a ladder truck for the local fire district, will fully mitigate any Project impacts to fire protection and emergency services. (Ex. 58, pp.70-71; Ex. 65, pp. 221-224.)

3. Environmental Justice

Both Applicant and Staff conducted separate analyses to determine whether the Project has the potential to raise environmental justice issues. Both parties applied the federal guidelines, which require federal and state agencies to identify and address disproportionately high adverse human health or environmental effects of projects on minority and low-income populations.[99] The process assesses 1) whether the potentially affected community includes minority and/or low-income populations; and 2) whether the environmental impacts are likely to fall disproportionately on minority and/ or low-income members of the community.

Applicant s analysis in the AFC found that in the tri-county area of Monterey, Santa Cruz and San Benito counties the minority population and the low-income population were both below 50 percent.[100] As a result, Applicant concluded the Project has no potential to raise environmental justice issues. (Ex. 5, p. 6.10-18.) Staff took a different approach and evaluated the percentages of low-income and of minority people within a 5-mile radius of the Project. This was based on Staff s

[99] President Clinton s Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations was signed on February 11, 1994.

[100] According to the guidelines, a minority population exists is the minority percentage of the affected area is 50 percent or more of the general population.

assumption that the environmental effects of the Project (air, noise, traffic, water, etc.) are experienced within a 5-mile radius. (Ex. 65, 224.)

Staff s approach revealed that minorities make up 58.5 percent of the population living within the assumed 5-mile radius impact area. While this is greater than the 50 percent minority threshold in the federal guidelines, it only addresses the first of the two criteria. Staff s environmental analysis for air quality shows that the maximum impact for all criteria pollutants from the Project is below the threshold standard. Therefore, based on the air quality analysis, Staff found that the Project would have no significant environmental impact on minority populations in the area. As a result, the Project raises no environmental justice issues. (Ex. 65, p. 225.)

4. Cumulative Impacts

Both Staff and Applicant analyzed cumulative impacts as a combination of impacts from the Project as well as from the Tank Demolition Project, the SCR Project for Units 6 and 7, and onsite maintenance activities. (Ex. 58, p. 72; Ex. 65, p. 226.) Both parties concluded that no significant cumulative impacts would result from the combination of Projects. *(Id.)* In addition, Applicant analyzed the potential for cumulative impacts in conjunction with several housing developments within a 5-mile radius of the Project and construction work on the Moss Landing Marine Lab. Applicant concluded that the various construction projects in the area would not conflict with work on the MLPPP nor will construction on projects at the MLPP site conflict with other known construction projects within a 5-mile radius. (Ex. 58, p.72.)

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant Project will draw primarily upon the local labor force from Monterey, Santa Cruz, and San Benito Counties for construction and operation workers.

2. The Project will not cause an influx of a significant number of construction or operation workers into the local area.

3. The proposed Project is not likely to have a significant adverse effect on traditional socioeconomic considerations including employment, housing, schools, medical, tax revenues, and fire and police protection.

4. Applicant s purchase and donation of one ladder truck to the North County Fire Protection District and the provision of funds for additional trained staff will adequately mitigate any impacts from the Project associated with fire protection and local emergency response.

5. The Project and related improvements at the MLPP site will likely result in substantially increased revenue from sales taxes due to construction activities.

6. The Project will likely result in an increase of $4 to $5 million in annual property tax revenues and an additional $1 million in annual natural gas transportation franchise fees to Monterey County.

7. The Project owner will recruit employees and purchase materials within Monterey County to the greatest extent possible.

8. The Applicant estimates it will spend approximately $11 million for local purchases of materials and supplies during construction.

9. The Project will have no significant adverse impacts on minority populations in the local area.

10. There is no evidence to establish a measurable diminution of property values as a result of the Project.

We therefore conclude that Implementation of the Conditions of Certification will ensure that Project-related construction and operation activities do not impose any significant adverse socioeconomic impacts.

Implementation of the Conditions of Certification will ensure that the Project will conform with all applicable laws, ordinances, regulations, and standards relating to socioeconomic factors.

In summary, the Moss Landing Power Plant Project will not result in any significant direct, indirect, or cumulative adverse socioeconomic impacts.

CONDITION OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Monterey, Santa Cruz, and San Benito Counties first unless:

- to do so will violate federal and/or state statutes;
- the materials and/or supplies are not available; or
- 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; or
- to do so would violate union agreements.

Verification: At least 60 days prior to the start of construction or at a lesser time mutually agreed to by the project owner and the CPM, the project owner shall submit to the Energy Commission Compliance Project Manager (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. The CPM shall review and comment on the submittal as needed.

D. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the Moss Landing Power Plant Project will affect the regional and local transportation systems in the vicinity of the Project. In some cases large numbers of construction workers can, over the course of the construction period, increase roadway congestion and affect traffic flow. In addition, the transportation of large pieces of equipment can require rail use and the alternation of traffic flows and roadway use. Traffic related to plant operation does not tend to produce similar types of impacts because of the limited number of vehicles involved.

Therefore, during these licensing proceedings, we identified the roads and routings which will be used; potential traffic problems associated with those routings, the anticipated number of deliveries of oversized/overweight equipment; anticipated encroachments upon public rights-of-way; the frequency of and routes associated with, delivery of hazardous materials; and the availability of alternative transportation methods.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant and Staff examined traffic and transportation impacts resulting from the construction and operation of the Project. (Ex. 63, pp. 43-48; Ex. 65, pp. 81-92.)

1. Setting

The Monterey Bay area is served by a number of transportation forms including highway systems, arterial street, transit facilities, rail, maritime, and airport facilities. The site of the proposed Moss Landing Power Plant Project is located at the intersection of Highway 1 and Dolan Road. Primary access to the MLPP site is through the main entrance located 400 feet east of the intersection on Dolan Road. A secondary site entrance exists on Dolan Road, approximately _

mile east of the main plant entrance. A secondary passage exists for exit only onto Highway 1, about 1,000 feet north of the Dolan Road/Highway 1 intersection. It is open only between the hours of 4:15 p.m. and 4:45 p.m., Monday through Friday for employees turning right to exit onto Highway 1. (Ex. 58, p. 42.)

2. Construction

Applicant estimates that construction will occur over a 29-month period. During this period the size of the construction workforce will range from about 10 workers during the first month to a peak of about 650 workers during month 13. [101] During a 5-month stretch workers will number 400 or more employees. The estimated average number of workers traveling to and from the site on a typical day is 242. Applicant s testimony states that even during the period of maximum impacts (approximately 650 construction workers per day) there will not be a Loss of Service (LOS) on any of the nearby road segments as a result of the Project. This is because Project trips will be added primarily during off-peak periods. (Ex. 58, p. 43.)

To ensure that the Project will comply with all LORS relating to the transport of oversize loads and the transport of hazardous materials, Applicant has also proposed to implement travel demand management measures and to construct physical improvements at several locations. These measures are identified in the March 2000 Transportation Management Plan submitted to Monterey County. Applicant has proposed the following strategies to reduce traffic impacts from the proposed project by minimizing trips and managing the direction of travel:

Work hours during construction will be scheduled to avoid peak travel periods with the morning shift starting no later than 7:00 a.m., the afternoon shift not ending between 4:00 — 5:30 p.m., and the evening shift not starting between 4:00 — 6:00 p.m.;

[101] The Final Staff Assessment cites approximately 732 workers expected during the peak month. (Ex. 65, p. 88.)

All overweight shipments will be made by rail;

Truck traffic related to the project will be prohibited from making the southbound left-turn from State Route 1 to Dolan Road between the hours of 6:30 — 8:30 a.m. and 4:00 — 6:00 p.m.;

Truck traffic related to the project will be prohibited from making the westbound left-turn from Dolan Road to State Route 1 during all hours;

Workers will be required to obtain a special permit, by demonstrating the need to travel northbound on State Route 1, to exit the Dolan Road gate and travel westbound;

On-site meal services will be provided to discourage off-site trips for food; and

Employee carpooling will be encouraged by designating a travel demand management coordinator, providing preferred parking for carpools/vanpools, and by providing free vanpool service.

Mitigation for Construction Impacts.

Of particular concern is the safety impact from additional traffic at the State Highway 1/Dolan Road intersection. The addition of truck traffic from the project entering this intersection (especially making the left-turn from westbound Dolan Road to southbound State Route 1) is a problem because of the limited sight distance, high speeds, and few gaps in traffic. Applicant has agreed to implement truck restrictions as well as physical improvements at this intersection for the most problematic movements.

These physical improvements, which are being identified by Staff, Caltrans, and Monterey County, will mitigate project traffic impacts at those locations, thereby reducing a potential significant impact to less than significant. Mitigation measures to address project impacts to other roadway segments and intersections in the study area have been negotiated between Applicant and Monterey County staff as part of the CEQA process for the four proposed actions on the site, including the MLPPP. In introducing his testimony on Traffic and Transportation impacts of the Project, Staff witness Steve Brown clarified that these physical improvements are intended to mitigate the Project s contribution to

cumulative impacts of the various construction projects planned for the MLPP site. (Ex. 65, p. 90; Ex. 68, p.1; 6/7/00 RT 90.)

The physical improvements to local roads will include:

State Route 1/Dolan Road - Applicant will do the following to the satisfaction of Caltrans:

construct a northbound right-turn lane on State Route 1 with a 4 shoulder;

create a dedicated right-turn lane on westbound Dolan Road (creating two westbound lanes at State Route 1);

improve the shoulder on the east side of State Route 1 (north of Dolan Road);

lengthen the southbound left-turn pocket on State Route 1; and

modify the southbound acceleration lane in the median of State Route 1.

Contractors Driveway/Dolan Road - Applicant will design and construct a westbound right-turn lane, an eastbound left-turn lane, and a southbound left-turn median acceleration lane on Dolan Road at the Contractor s driveway.

Off-site Intersections — Applicant, in negotiations with Monterey County, has agreed to fully fund the following improvements with future reimbursements for the portion above the Project s fair share contribution:

Dolan Road/Castroville Boulevard

Add an eastbound right-turn lane on Dolan Road; and
Lengthen the northbound right-turn lane on Castroville Boulevard.

Elkhorn Road/Castroville Boulevard

Add eastbound and westbound left-turn lanes on Castroville Boulevard;
Correct the vertical curve sight distance problem on Castroville Boulevard; and
Improve the westbound merge onto Castroville Boulevard.

Castroville Boulevard/San Miquel Canyon Road

Improve the eastbound right-turn lane on Castroville Boulevard; and
Improve the channelization (striping).

In addition, Applicant will carry out upgrades to the rail spur on the eastern portion of the site to improve safety and operational capacity.

Staff witness Brown also noted revisions to Condition of Certification **TRANS-6.** (Ex. 68, p. 2-3.) He testified that the changes were a result of finding cultural resources in the area. If the protection of these resources is likely to delay the road improvements, Staff revisions to **TRANS-6** would provide an alternative mitigation measure until more permanent road improvements can be made.[102] (6/7/00 RT 91-92.)

Monterey County Response

In a letter to the Commission date July 25, 2000, the Monterey County Board of Supervisors expressed concern that the Staff approach to mitigation could result in shifting traffic problems from the Highway 1/Dolan Road intersection to other areas of North Monterey County. The letter recommends replacing **TRANS-6** with conditions which include a phased program to allow turning movements by trucks at Highway 1 and Dolan Road. The County recommendations are as follows:

1) If permanent improvements are not completed at Dolan Road and Highway 1 prior to commencement of construction

[102] During cross-examination Staff witness Brown explained that Caltrans has what is called a design exception process by which a certain amount of initial construction of improvements may be allowed, so long as the improvements are functional. Final improvements would follow later, as feasible. Both stages of improvement are consistent with Condition of Certification **TRANS-6**. (6/7/00 RT 93-95.)

2) of the New Generation Project then Duke Energy shall restripe Highway 1 and Dolan Road as an interim measure, or complete other interim measures as appropriate to increase traffic flow per Caltrans approval. If approval is not granted by Caltrans, Duke Energy may proceed with construction of the New Generation Project and must show a good faith effort to expedite completion of the interim measures in a timely fashion.

3) Until Duke Energy completes the permanent improvements at [the intersection of] Highway 1 and Dolan Road, no more than a total [of] 400 day shift project workers for all modernization projects (New Generation, SCR, Tank Farm Demo, Energy Center/Oily Water Separator) shall be allowed on site until the improvements are completed.

4) Require the State Department of Transportation to consider these improvements as a high priority and expeditiously grant the Encroachment Permit.

The Commission directs Applicant and Staff to provide additional language which will, if possible, revise the language of Condition of Certification **TRANS-6** in a manner consistent with the recommendations of the Monterey County Board of Supervisor as expressed in its July 25, 2000, letter.

3. Operational Impacts

Once operation begins, the Project will employ approximately 10 new people in addition to the existing 85 employees who work at the at the MLPP site. Based on existing traffic volumes, this addition would be negligible, with the new employees spread over three shifts. In addition, deliveries of small materials for the Project will be made by truck, as they are made now to the site. Applicant estimates that the Project itself will generate only a single additional truck delivery per week. Aqueous ammonia will be delivered by rail in Department of Transportation-approved 23,000-gallon rail tank cars. Operational impacts will not be significant. (Ex. 58, p. 45.)

4. Cumulative Impacts

Staff analysis identified 40 long-term developments in various stages of approval or implementation throughout the north Monterey County area, which are estimated to generate a total of 12,500 daily trips. In addition, Staff expects a substantial amount of population growth in the City of Salinas and on the Monterey Peninsula. The Project s contribution to these cumulative impacts will be small, as the operational phase will only employ 10 persons. (Ex. 65, p. 96.)

Three other projects are proposed for the MLPP site (Tank Farm Demolition, Selective Catalytic Reduction, and Oily Water Separator/Energy Management Center). The planned staggering of these activities will result in a combined peak construction level (measured by employees) that is slightly less than the individual peak (for the MLPPP) analyzed in this document. *(Id.)*

FINDINGS AND CONCLUSIONS

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

1. Construction and operation of the Moss Landing Power Plant Project will cause increased traffic on the local area s road network.

2. The Project s work shift management plan will minimize the Project s contribution to congestion during peak construction hours.

3. The additional amounts of traffic attributable to Project construction and operation will not significantly degrade performance of the region s roads.

4. All overweight shipments will be by rail, which will minimize disruption to the roadway system. Improvements to the rail spur are planned as part of the project

5. The transportation of hazardous substances can be mitigated to insignificance by compliance with federal and state standards. Aqueous ammonia will be delivered by rail.

6. Most traffic and transportation impacts resulting from the MLPPP will occur during the construction phase.

7. The combination of physical improvements and truck movement prohibitions at the State Highway 1 and Dolan Road intersection will mitigate the Project s impacts at this location.

8. Traffic impacts associated with the MLPPP will be insignificant after the project commences operation.

We therefore conclude that implementation of the Conditions of Certification, and the construction and operation of the Project will not result in significant adverse impacts to the area road network.

With the implementation of the Conditions of Certification, the Project will be constructed and operated in conformity with all applicable traffic and transportation laws, ordinances, regulations, and standards.

We finally therefore conclude that construction and operation of the Project will not result in significant direct, indirect, or cumulative impacts to the area s transportation network.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with California Department of Transportation (Caltrans) and Monterey County limitation on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for both rail and roadway use.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months.

TRANS-2 The project owner or their contractor shall comply with California Department of Transportation (Caltrans) and Monterey County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months.

TRANS-3 The project owner shall comply with all federal and state regulations for the transport of hazardous materials. If determined to be necessary by the California Public Utilities Commission (CPUC), Caltrans, California Highway Patrol, and Monterey County, the project owner shall work with these agencies to develop and implement a plan particularly related to hazardous materials deliveries, to manage traffic at the following public at-grade crossings along the railroad spur line:

- Dolan Road (mile post 0109.00)
- Dolan Court (mile post 0108.00)

As appropriate, the plan should include provisions for safely warning and stopping vehicular traffic (such as flashing lights, gates, or a flagman). If a plan is prepared, a copy shall be provided to the CPM.

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 transport of hazardous substances. In the event that the CPUC, Caltrans, the California Highway Patrol, and Monterey County determine that a plan to manage traffic at the above listed at-grade crossings is necessary, and such plan is developed, at least 30 days prior to the shipment of any hazardous materials by rail, the project owner shall submit a copy of the plan to the CPM.

TRANS-4 Following completion of the project s construction, the project owner shall repair Dolan Road to its pre-construction condition.

Protocol: Prior to start of construction, the project owner shall photograph Dolan Road from State Route 1 to Castroville Boulevard. The project owner shall provide the CPM, Monterey County and Caltrans with a copy of these photographs. Prior to start of construction, the project owner shall also notify Caltrans about the schedule for project construction. The purpose of this notification is to

postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction related activities associated with other projects.

Verification: Within 30 days of the completion of project construction, the project owner will meet with Monterey County and the CPM (if available) to determine, and receive approval for, the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near original condition as possible. The project owner shall provide to the CPM a letter from Monterey County stating their satisfaction with the road improvements.

TRANS-5 During construction of the power plant and all related facilities, the project owner shall enforce a policy that project-related parking occurs on-site.

Verification: The CPM shall periodically observe conditions in the field to verify project-related parking is occurring on-site.

TRANS-6 Prior to reaching a construction staffing level of 400 for the project, the project owner shall implement the following physical improvements at the State Route 1/Dolan Road intersection, to the satisfaction of Caltrans:

- Construct a northbound right-turn land on State Route 1 with shoulder;
- Create a right-turn paved area on westbound Dolan Road to facilitate right turns to State Route 1;
- Improve the shoulder on the east side of State Route 1, north of Dolan Road;
- Lengthen the southbound left-turn pocket on State Route 1 and modify the existing two-way left turn lane in the median of State Route 1 to a southbound merge lane.

Should a construction staffing level of 400 not be reached for the project, these physical improvements shall be completed by the project owner to the satisfaction of Caltrans prior to the start of commercial operation.

Verification: At least 30 days prior to reaching the 400 staffing level for construction of the project, the owner shall notify the CPM that the roadway improvements have been completed and are ready for inspection. As each physical improvement is completed, the project owner shall notify the CPM in the next Monthly Compliance Report.

TRANS-7 Within 60 days after the start of project construction activities, the project owner shall complete the construction of the following physical improvements at the Dolan Road entrance:

- Construct a westbound right-turn lane, an eastbound left-turn lane, and a southbound left-turn median acceleration lane on Dolan Road at the contractor s driveway.

Protocol: The project owner shall, in coordination with Monterey County, design and construct the roadway improvements described above to the satisfaction of Monterey County Public Works staff.

Verification: Within 60 days after the start of project construction activities, the project owner shall notify the CPM that these roadway improvements have been completed and are ready for inspection.

TRANS-8 The project owner shall implement the travel demand management strategies described in the mitigation section above, including: shift management, overweight shipments by rail, on-site food availability, incentives for carpooling, and truck movement restrictions at the State Route 1/Dolan Road intersection. The project owner shall report on the status of each strategy element in the monthly or annual compliance report as appropriate.

Verification: The project owner shall report on the status of each strategy element in the monthly or annual compliance report as appropriate. The CPM will periodically review and verify compliance of the transportation demand management strategies in consultation with Monterey County and Transportation Agency for Monterey County.

TRANS-9 Prior to start of project construction activities, the project owner shall make all necessary arrangements to allow the use of the existing rail line for delivery of construction materials and export of construction and demolition debris.

Protocol: All rail improvements should be coordinated with Union Pacific and all relevant permits obtained from the CPUC.

Verification: At least 30 days prior to shipping any overweight or hazardous materials via the rail spur, the project owner will obtain a letter from the CPUC indicating the facility has been sufficiently improved for such use. This letter will be submitted to Monterey County and the CPM for their files.

TRANS-10 Prior to start of project construction activities, the project owner shall pay the County to implement improvements to three intersections as identified herein: Dolan Road/Castroville Boulevard, Elkhorn Road/Castroville Boulevard, and Castroville Boulevard/San Miquel Canyon Road.

Protocol: The project owner and the County may establish a reimbursement arrangement to cover the portion of the improvements beyond the fair share of the project.

Verification: Within 30 days after the start of project construction, the project owner shall submit to the CPM evidence that the County has been paid to implement the improvements.

TRANS-11 Prior to start of project construction, the project owner shall dedicate the right-of-way needed for the ultimate transportation facility in the State Route 1 corridor. Caltrans has defined the ultimate right-of-way as 105 , necessitating 10 of dedication on the west side and 15 on the east side of State Route 1. The dedication shall also include permanent access rights along the project frontage.

Verification: Prior to start of project construction, the project owner shall submit written verification to the CPM demonstrating that the dedication has occurred.

E. VISUAL RESOURCES

Visual resources are the natural and the cultural features of the environment that one sees. Visual quality is considered to be the value of these visual resources. Scenic resources are those visual resources that contribute positively to visual quality. The California Environmental Quality Act (CEQA) requires an examination of a project s visual impacts on the environment which have the potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code of Regs., tit. 14, Appendices G and I.) Under this topic, it is thus relevant to assess whether the Project will create a substantial intrusion upon the viewshed.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Visual Setting

The Project is proposed to be located at the existing Moss Landing Power Plant site on the Pacific Coastline, centered in Monterey Bay at the inlet of Elkhorn Slough. Land uses in the area include open space wildlife habitat, industry, agriculture and marine-related uses. The existing MLPP is a large-scale industrial complex with 1950s vintage power generation and fuel storage facilities. The site is 239 acres, not including the PG&E switchyards, which lies immediately adjacent to the north. Major features of the site include Units 6 and 7 power plant structures at 180 feet in height, with two stacks 500 feet high, plus power plant structures for Units 1 through 5 at 75 feet high with eight stacks of 225 feet in height. In addition, there are 19 circular oil storage tanks, each about 200 feet in diameter and 32 feet high. (See the Site Location Map, Figure 2-2.)

Since the 1950s, the power plant and its 500-foot high stacks have been a major landmark on Monterey Bay. (Ex. 58, p. 55.) The site is surrounded by heavy industry with the PG&E switchyard to the north, National Refractories to the

south across Dolan Road, and to the west, Highway 1 and the Moss Landing Harbor, with boatyards and seafood processing. (*Id*.) On clear days, the MLPP s 500-foot stacks can be seen from up to twenty miles away. However, Applicant s testimony stated that, based on field observations, a viewer must be within 5 miles of the plant to discern any parts other that the high stacks. (*Id*.)

2. Visual Effects of the Project

The Project includes installation of two 530 MW gas-fired electric generation units approximate 1,000 feet east of the existing tall stacks, within the existing oil tank farm. In addition, the Project involves removal of eight 225-foot tall stacks, thus providing a positive visual effect from most vantage points. The new Units 1 and 2 will be placed in a visually compact configuration, to reduce impacts. To further reduce visual effects of the Project from Dolan Road, the new units will be placed behind an existing berm with mature vegetation. (Ex. 58, p. 56.)

The Project would include four stacks, in the center of the power train assemblies, which are 18 feet in diameter and 145 feet tall. The Heat Recovery Steam Generator (HRSG) units will be 71 feet tall, 32 feet wide and 100 feet long. The Gas Turbine Generators (GTGs) will be 26 feet high, 23 feet wide and also 100 feet long. The single Steam Turbine Generator is 52 feet high, 23 feet wide, and 94 feet long. The SCR units placed on existing Units 6 and 7 will not be visible. (Ex. 58, p. 57.)

Both Applicant and Commission staff concluded that construction activities associated with the Project are sufficiently far from the nearest residences that visual impacts due to construction would not be significant. Furthermore, by utilizing the existing infrastructure at the MLPP site, connection to linear facilities such as transmission lines and gas pipelines, will either not take place or will not be visible. (*Id*.)

In analyzing the likely visual impacts of the Project when operational, Staff applied its usual methodology for visual analysis. (Ex. 65, pp. 121-124.) This involves applying numerous criteria to the view of the Project from each of 11 Key Observation Points (KOPs). In consultation with the Commission staff, Applicant selected the 11 KOPs for the development of photo simulations that could be used as a basis for visualizing the Project s potential visual effects. For the location of the various KOPs, please see **Visual Resources Figure 1**, which follows. The Project s effect on the views from each of the KOPs is summarized in Table 6.13-3: *Summary of Visual Changes from Key Observation Points,* which also follows. In summary, the analysis found that 3 of the KOPs show a positive visual impact as a result of the Project, while 8 KOPs show a neutral effect. (Ex 58, p. 57.)

An additional visual effect of the Project includes modernized lighting which will control upward glare at the site to the extent such lighting control is consistent with worker safety. Furthermore, the water droplet plume will be visible less frequently than the existing water droplet plume at the site. (*Id*.) Staff noted that the new plume would be inconspicuous and not cause a significant visual effect. Because of the Project s use of once-through cooling, with ocean water, there will be no cooling towers or visible vapor plumes typically associated with such towers. (Ex. 65, p. 151.)

Staff concluded its evaluation of the 11 KOPs by noting that because most viewers will see a measured visual improvement, the overall visual effect of the Project is positive. (*Id*.) Figure 2-9 which follows illustrates the profile change at the site before and after the Project is constructed.

SITE LOCATION MAP
FIGURE 2-2

Source: Ex. 5, Fig. 2-2.

ELEVATIONS
EXISTING PLANT AND PROJECT
VIEW LOOKING NORTH

Figure 2-9

Source: Ex. 5, Fig. 2-9.

VISUAL RESOURCES Figure 1
Key Observation Points

Source: Ex. 65, p. 128

SUMMARY OF VISUAL CHANGES FROM KEY OBSERVATION POINTS

Source: Ex. 5, p. 6.13-58

FINDINGS AND CONCLUSIONS

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

1. The Moss Landing Power Plant is proposed to be located entirely within the boundaries of the existing Moss Landing Power Plant.

2. The Project does not require the installation of offsite transmission lines, because connections from the new combined cycle units will be made to PG&E s 230 kV switchyard immediately north of the Project location.

3. The construction activities associated with the Project are sufficiently far from residences that visual impacts due to construction would not be significant.

4. The tying of natural gas, water, and wastewater connections to existing underground systems will create no visual impacts.

5. The weight of evidence indicates that the Project will not create any significant adverse visual impacts.

6. The Project s removal of eight 225-foot tall stacks and the separate, phased removal of nineteen 200-foot in diameter circular oil storage tanks will improve the overall visual assessment of the power plant site.

The Conditions of Certification which follow impose all feasible mitigation capable of sufficiently reducing the visual impacts below a level of significance.

With implementation of Conditions of Certification, the Project will meet all applicable laws, ordinances, regulations, and standards relating to visual resources which are contained in Appendix A of this Decision.

We therefore conclude that construction and operation of the Moss Landing Power Plant Project will not cause any significant direct, indirect, or cumulative adverse visual impacts.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall treat the project structures visible to the public in a non-reflective color to blend with the surrounding environment. The project owner shall treat the exhaust towers with a heat-resistant color that minimizes contrast and harmonizes with the surrounding environment.

Protocol: The project owner shall submit a treatment plan for the project to Monterey County for review and comment and to the California Energy Commission Compliance Project Manager (CPM) for final review and approval. The treatment plan shall include:

- specification, and 11 x 17 color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
- a milestone schedule for completion of the treatment; and,
- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

The project owner should not specify the treatment of 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.

The project owner shall notify the CPM within one week after all precolored structures has been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: Not later than 90 days prior to any field coating of structures, the project owner shall submit its proposed plan to the CPM for review and approval. This submittal shall include verification that Monterey County has agreed to the color scheme. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve

the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

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 new structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 The Energy Commission recognizes that fencing will be used for a variety of purposes on the Moss Landing site. The perimeter fence will be planted with vines according to the landscape plan (VIS-4). Internal fences required for animal control will be designed specifically for that purpose. Some internal safety fencing will be left open for surveillance purposes. Fencing used for screening shall be non-reflective and shall have slats to provide sufficient screening. Prior to installing any permanent fence the project owner shall notify the CPM, and provide the specifications for review and approval. This submittal shall include verification that Monterey County has agreed to fencing specifications.

Verification: At least 90 days before the installation of any permanent fencing, the project owner shall submit the specifications to the CPM for review and approval. This submittal shall include verification that Monterey County has agreed to fencing specifications.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 15 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall design and install, for the proposed power plant, lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and

so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;

- High illumination areas not occupied on a continuous, where there is not a safety issue associated with reduced illumination, basis such as maintenance platforms are provided with switches or motion detectors to light the area only when occupied; and
- A lighting complaint resolution form (following the general format of that in Attachment 1) will be used by plant operations to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.
- Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 90 days before installation of any permanent lighting, the project owner shall provide the lighting plan to the CPM for review and approval. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the lighting plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection.

Attachment A form

MOSS LANDING
POWER PROJECT

Appendix A

LORS: Laws, Ordinances, Regulations, and Standards

AIR QUALITY

FEDERAL

Under the Federal Clean Air Act (40 CFR 52.21), 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 and PSD analyses has been delegated by the Environmental Protection Agency (EPA) to the Monterey Bay Unified Air Pollution Control District (District). Additionally, the District s NSR program has been designated equivalent to PSD. The NSR permit will serve as the PSD permit. The PSD requirements apply only to those projects (known as major sources) that exceed 100 tons per year for any pollutant.

STATE

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

LOCAL

The proposed project is subject to the Monterey Bay Unified Air Pollution Control District (District) rules and regulations. The rules and regulations are discussed in the Preliminary Determination of Compliance (PDOC) issued January 7, 2000 (District 2000a). Rules that apply to the MLPP are summarized here for convenience.

DISTRICT RULE NO. 200 P ERMITS REQUIRED

New emission sources shall obtain a separate written authority to construct for each permit unit from the Air Pollution Control Officer. An authority to construct shall remain in effect until the permit to operate the equipment for which the application was filed is granted or denied or the application is cancelled. Duke Energy Moss Landing LLC has applied for and will be issued Authorities to Construct (ATCs) for the installation and temporary operation of this equipment. Upon completion of initial compliance testing, Permits to Operate (PTOs) will be issued.

DISTRICT RULE NO. 203 A PPLICATION

Duke Energy Moss Landing LLC supplied separate applications for each permit unit and utilized the District s permit application forms as required by this Rule.

DISTRICT RULE NO. 205 PROVISION OF SAMPLING AND TESTING FACILITIES

The permits will include conditions establishing sampling facilities as required by this Rule.

DISTRICT RULE NO. 206 STANDARDS FOR GRANTING APPLICATIONS

The Air Pollution Control Officer shall not issue an Authority to Construct or Permit to Operate unless the applicant has shown that the equipment may be expected to operate without emitting air contaminants in violation of Section 41700, 41701, or 44300 (et.seq.) of the Health & Safety Code, or of the District Rules and Regulations. Prior to issuing the PTO, the District will verify that the equipment has been installed pursuant to the ATC.

DISTRICT RULE NO. 207 REVIEW OF NEW OR MODIFIED SOURCES

This rule requires that the project be publicly noticed prior to issuance of the permits, and identifies the BACT and offset provisions. The permits will be conditioned such that compliance with the emission limits established by this Rule will be continuously monitored.

SECTION 4.1 - BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology is defined as: a) has been contained in any State Implementation Plan and approved by EPA; b) the most stringent emission limitation or control technique that has been achieved in practice for a class of source, or c) any other emission limitation or control technique which the District s Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT will apply to any air pollutant that results in an emissions increase of 25 pounds per day for NOx as NO2 and of volatile organic compounds (VOC); 150 pounds per day of SOx as SO2 and of Total Suspended Particulates (TSP); 550 pounds per day of CO; or 82 pounds per day of PM10.

SECTION 4.2 - OFFSETS

Emissions offsets for new sources are required when those sources exceed the following emissions levels:

Volatile organic compounds - 137 lbs/day

Oxides of nitrogen - 137 lbs/day

Sulfur oxides - 150 lbs/day

Carbon Monoxide - 550 lbs/day

Total Suspended Particulates - 150 lbs/day

Particulate Mater less than 10 microns - 82 lbs/day

The emission offsets provided shall be adjusted according to the distance of the offsets from the MLPP. The ratios range from 1:1 to 2.5:1, depending on the relative offset location, air pollutant attainment status, and interpollutant trading.

DISTRICT RULE NO. 208 STANDARDS FOR GRANTING PERMITS TO OPERATE

This rule contains the criteria by which the District issues Permits to Operate (PTOs) to replace Authorities to Construct.

DISTRICT RULE NO. 213 CONTINUOUS EMISSIONS MONITORING

The requirements of this Rule are applicable to all of the combustion equipment contained in these applications, such that CEMs will be installed, calibrated, maintained, and operated in accordance with EPA standards.

DISTRICT RULE NO. 214 BREAKDOWN CONDITIONS

This is the implementing regulation in which the District has established the criteria for reporting breakdowns.

DISTRICT RULE NO. 218 TITLE V: FEDERAL OPERATING PERMITS

The permits will be conditioned such that the facilities Title V permit must undergo a Major Modification prior to combusting fuel in the gas turbines. Upon completing this Title V permit issuance for this Major Modification , the facility will be in compliance with the requirements of this Rule.

DISTRICT RULE NO. 219 TITLE IV: ACID DEPOSITION CONTROL

The facility is presently an Acid Rain source, and will remain so after this project. The District s Acid Rain permits are incorporated into a facilities Title V Permit.

DISTRICT RULE NO. 400 VISIBLE EMISSIONS

The equipment can not exceed the 20% opacity standard.

DISTRICT RULE NO. 402 NUISANCES

A person shall not discharge from any source whatsoever such quantities of air contaminants which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public. Appropriate conditions will be included on the permits to ensure compliance with the requirements of this Rule.

DISTRICT RULE NO. 403 PARTICULATE MATTER

The 0.15 grains per dry standard cubic foot emission limit is applicable to the Gas Turbines at the facility, but this standard is superseded by the emission limitations imposed through the NSR (Rule 207) permitting process.

DISTRICT RULE NO. 404 SULFUR COMPOUND AND NITROGEN OXIDES

The Gas Turbines are subject to BACT limits imposed by Rule 207 and are therefore exempt from the requirements of this Rule.

DISTRICT RULE NO. 412 SULFUR CONTENT OF FUELS

This rule requires that the sulfur content of any gaseous fuel combusted contain 50 grains or less of sulfur per 100 cubic feet.

DISTRICT RULE NO. 421 VIOLATIONS AND DETERMINATION OF COMPLIANCE

This Rule provides standards for compliance determinations required by, or derived from federal law.

DISTRICT RULE NO. 423 NEW SOURCE PERFORMANCE STANDARDS (NSPS)

40 CFR Part 60, Subpart A - General Provisions. The facility is subject to the requirements of this part because the equipment is subject to 40 CFR Subpart GG.

The notification and record keeping, performance tests, compliance with standards and maintenance requirements, circumvention, monitoring requirements, and general notification and reporting requirement provisions contained in //60.7, 60.8, 60.11, 60.12, 60.13, and 60.19 will be subsumed under the testing, monitoring, reporting requirements established as conditions on this permit pursuant to District requirements. This will include initial testing, annual testing, record keeping, reporting, and the requirement to monitor operations with the use of CEMs.

40 CFR Part 60, Subpart GG -Standards Of Performance For Stationary Gas Turbines. The Gas Turbines are subject to the requirements of this NSPS. In addition to utilizing good combustion practices and combusting only natural gas, the Gas Turbines utilize dry-low NOx combustors, and the back-end control of SCR to limit pollutant emissions. The allowable NOx concentration limit derived from /60.332(a)(1) would be 141 ppmvd.

The allowable SO2 concentration limit derived from /60.333 would be 150 ppmv.

The testing and monitoring requirements contained in //60.334 and 60.335 will be subsumed under the testing and monitoring requirements established under the NSR conditions contained on the permits. This will include the annual emissions testing requirement and the requirement to monitor operations with the use of CEMs.

DISTRICT RULE NO. 424 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

40 CFR Part 61, Subpart A -General Provisions. The facility is subject to the requirements of this part because the facility is subject to 40 CFR Part 61, Subpart M.

40 CFR Part 61, Subpart M -National Emission Standard For Asbestos
The facility is subject to the requirements of 61.145 - 61.147, Standards for Demolition and Renovation.

DISTRICT RULE NO. 431 EMISSIONS FROM ELECTRIC POWER BOILERS

This rule establishes numerous requirements on Boilers 6-1 and 7-1 at the Moss Landing Power Plant. Included in these requirements is the elimination of fuel oil as a

primary fuel (allowed only for emergency use) and a NOx limit of 10 ppm when combusting gaseous fuels with future effective dates of December 31, 2000 for the first unit and December 31, 2001 for the second unit.

The elimination of fuel oil and the 10 ppm NOx limit when combusting gaseous fuels established the methodology for calculating both the historical (baseline) emissions for the facility, and the future potential to emit of Boilers 6-1 and 7-1. In calculating the baseline for the facility, the District utilized the natural gas emission factors including this 10 ppm NOx limit for the heat input from the fuel oil combusted during the baseline period.

BIOLOGICAL RESOURCES

FEDERAL

The Endangered Species Act of 1973 (16 U.S.C., /1531 et seq.), and implementing regulations, (50 C.F.R./17.1 et seq.), designate and provide for protection of threatened and endangered plants and animals and their critical habitat.

Migratory Bird Treaty Act (16 U.S.C./701-718) and implementing regulations (50 C.F.R.) Subchapter B (/10.1-24.12) provides protection for migratory birds.

Marine Mammal Protection Act (16 U.S.C. Chapter 31/1361-1375) provides protection for marine mammals.

Monterey Bay National Marine Sanctuary. The protection and preservation of the Monterey Bay National Marine Sanctuary is governed by the National Marine Sanctuaries Act and its accompanying regulations. The National Marine Sanctuaries Act (16 USC 1431 et. seq.) and implementing regulations (15 CFR 922 et. seq.) provide for the identification, conservation, research and management of national marine sanctuaries such as the Monterey Bay National Marine Sanctuary (15 CFR 922.130 et. seq.).

STATE

California Native Species Conservation and Enhancement Act, (Fish & Game Code, /1750 et seq.), mandates as state policy, maintenance of sufficient populations of all species of wildlife and native plants and the habitat necessary to ensure their continued existence at optimum levels.

California Endangered Species Act, (Fish & Game Code, /2050 et seq.), protects California s endangered and threatened species. The implementing regulations, (Cal. Code Regs., tit.14, /670.5), lists animals of California declared to be threatened or endangered.

Native Plant Protection Act (Fish & Game Code, /1900 et seq.), establishes criteria for determining if a species, subspecies, or variety of native plant is endangered or rare and regulates the taking, possession, propagation, transportation, exportation, importation, or sale of endangered or rare native plants.

Fish and Game Code, section1603 requires that any person planning to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by the department, or use any material from the streambeds, must notify the department prior to such activity so that the department can carry out its mandate by proposing measures necessary to protect the fish and wildlife.

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibit the taking of birds, mammals, reptiles and amphibians, and fish, respectively, listed as fully protected in California.

Fish and Game Code, section 1900 et seq., gives CDFG authority to designate state endangered and rare plants and provides specific protection measures for identified populations.

Fish and Game Code, section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act except as provided for under federal rules and regulations.

LOCAL

Monterey County Coastal Implementation Plan, Part 2, Regulations for Development in the North County Land Use Plan Area, Chapter 20.144.040 — Environmentally Sensitive Habitat (ESH) Development Standards.

Biological Survey Requirement

1. A biological survey (BS) shall be required for all proposed development that:
   - is or may be located within 100 feet of an ESH;
2. General Development Standards
3. All development shall be prohibited in the following ESHs: riparian corridors, wetlands, dunes, sites of known rare and endangered species of plants and animals, rookeries, major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as environmentally sensitive.
4. Development containing or within 100 feet of ESH shall be modified to reduce adverse impacts to an insignificant level. Mitigation measures of the BS will be considered and incorporated into the conditions of approval.
5. New land uses within 100 feet of ESH cannot adversely affect the habitat either on a project or cumulative basis. Projects will only be approved where the decision will not set a precedent for development which, on a cumulative basis, could degrade the habitat.
6. Deed restrictions or conservation easement dedications over ESH areas shall be required as a condition of approval, even on previously developed parcels of land.
7. Where the proposed project is to occur on an already-developed parcel, restrictions or easement dedications over the habitat area shall still be required.
8. Removal of vegetation and land disturbance on parcels containing or adjacent to ESH areas must be limited to the extent necessary for structural improvements and driveway access. Modifications will be made to reduce habitat impacts.

9. Use of native species found in the project area shall be required in the landscaping as a condition of approval.

10. Construction activities and industrial uses affecting rare, threatened, and endangered birds must protect these birds during breeding and nesting seasons as a condition of approval. These regulations shall not prohibit emergency operation of public utilities.

Specific Development Standards

1. Riparian, Wetland, and Aquatic Habitats

d. All development must be set back a minimum of 100 feet from the landward edge of vegetation associated with coastal wetlands (including Elkhorn Slough and Moro Cojo Slough).

Development with the potential to impact riparian, wetland, or aquatic habitat must be conducted to avoid breeding seasons and other critical phases in the life cycles of commercial fish and shellfish and rare, threatened or endangered indigenous species. Mitigation measures shall be made conditions of approval.

Development near harbor seal haul-out areas cannot adversely impact the viability or long-term maintenance of this habitat.

Development proposing wastewater discharge into Monterey Bay and coastal waters of Monterey County will be reviewed by the Health Department. Submission of these studies is a requirement of application completion.

CULTURAL

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 48 44739-44738 190 September 30, 1983: Federal Guidelines for Historic Preservation Projects: The U.S. Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary s standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for 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 requires federal agencies to take into account the effects of their undertakings on historic properties through consultation 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 (NHRP). The eligibility criteria and the process are used by federal, state, and local agencies in the evaluation of the significance of cultural resources. Similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the California Register of Historic Resources (CRHR). Recent revisions to section 106 in 1999 have emphasized the importance of Native American consultation.

Executive Order 11593, Protection of the Cultural Environment, May 13, 1971, (36 CFR 8921) orders the protection and enhancement of the cultural environment by 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 (NAGPRA)(1990), Title 25, United States Code section 3001, et seq. defines cultural items, sacred objects, and objects of cultural patrimony, establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

STATE

Public Resources Code section 5020.1 defines several terms, including the following:

(j) historic resource includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

(q) substantial adverse change means demolition, destruction, relocation, or alteration such that the significance of an historic resource would be impaired.

Public Resources Code, section 5024.1 establishes a California Register of Historic Resources (CRHR); sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.

Public Resources Code, section 5097.5 states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

Public Resources Code, section 5097.94 and section 5097.98 define procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials.

Public Resources Code, section 5097.99 prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.

Public Resources Code, section 5097.991 states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

Public Resources Code, section 21000, et seq. CEQA: This act requires the analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

Public Resources Code, section 2183.2 states that, if a project may affect a resource that has not met the definition of an historic resource set forth in Section 21084, then the lead agency may determine whether a project may have a significant effect on unique archaeological resources; if so, an Environmental Impact Report (EIR) shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, such resources must be avoided; if they cannot be avoided, mitigation measures shall be required. The law also discusses excavation as mitigation; discusses the costs of mitigation for several types of projects; sets time frames for excavation; defines unique and non-unique archaeological resources; provides for mitigation of unexpected resources; and sets financial limitations for this section.

Public Resources Code section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines an 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: subsection (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of an historic resource. Subsection (b) discusses mitigation through avoidance of damaging effects on any historic resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

CEQA Guidelines, Title 14, California Code of Regulations, section 15064.5 Determining the Significance of Impacts to Archaeological and Historic Resources. Subsection (a) defines the term historic resources. Subsection (b) explains when a project may be deemed to have a significant effect on historic resources and defines terms used in describing those situations. Subsection (c) describes CEQA s applicability to archaeological sites and provides a bridge between the application of the terms historic resources and unique archaeological resources.

CEQA Guidelines, Title 14 California Code of Regulations, section 15064.7 Thresholds of Significance . This section encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term cumulatively significant.

CEQA Guidelines, Appendix G Issue V: Cultural Resources: Lists four questions to be answered in determining the potential for a project to impact archaeological, historic, and paleontological 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.

Health and Safety Code, section 7050.5 states that if human remains are encountered, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the descendant may inspect the site of the discovery. The descendant shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

LOCAL

MONTEREY COUNTY

GENERAL PLAN

To encourage the conservation and identification of Monterey County s archaeological resources, the County will: 1) identify and conserve important representative and unique archaeological sites and features; and 2) encourage various historical and educational societies or other appropriate organizations in their efforts to improve the public s recognition of its cultural heritage and the citizens responsibilities for archaeological or cultural resources preservation. These objectives will be accomplished through the following:

The County shall take such action as necessary to compile information on the location and significance of its archaeological resources so this information may be incorporated into the environmental or development review process;

The Archaeological Sensitivity Zones map shall be used, along with whatever other data is appropriate, to evaluate whether archaeological resources are threatened by proposed development projects. The map shall be updated continuously as new data become available.

All proposed development, including land divisions, within high sensitivity zones shall require an archaeological field inspection prior to project approval;

All major projects (i.e., 2.5 acres or more) that are proposed for moderate sensitivity zones, including land divisions, shall require an archaeological field inspection prior to project approval;

Projects proposed for low sensitivity zones shall not be required to have an archaeological survey unless specific additional information has been obtained to suggest that archaeological resources are present;

Where development could adversely affect archaeological resources, reasonable mitigation procedures shall be required prior to project approval; and

All available measures, including purchase of archaeological easements, dedication to the County, tax relief, purchase of development rights, consideration of reasonable project alternatives, etc., shall be explored to avoid development on sensitive archaeological sites (Monterey County, 1982a, pp. 29-30).

NORTH COUNTY LAND USE PLAN, LOCAL COASTAL PROGRAM

The Coastal Act was passed by the State Legislature and became effective on January 1, 1977. The Act established a framework for resolving conflict among competing uses for coastal land and placed its highest priority on the preservation and protection of natural resources. Local government carries out the goals and policies of the Act. Monterey County is divided into four zones. The MLPP is in the area addressed by the North County Land Use Plan (Plan).

KEY POLICY

Key policies of the Plan include the maintenance and protection of archaeologically sensitive areas, whether or not they have been surveyed and mapped. New land use will be considered compatible with the Plan s objectives only if there is a design to avoid or minimize impacts to archaeological resources.

GENERAL POLICIES

The Plan stipulates that Monterey County shall encourage timely identification of archaeological resources so that preservation of resources can be considered during the conceptual design phase of land use planning or project development.

Whenever development occurs in the coastal zone, including excavation activity and vegetation removal for agricultural use, the Archaeological Site Survey Office or other appropriate authority shall be contacted to determine whether there has been an archaeological survey. If no survey has been completed, the parcel on which the proposed development will be placed shall be surveyed if located within 100 yards of various floodways specified in the Plan.

Additionally, a survey shall be completed if the parcel is located within 100 yards of a known archaeological site. The archaeological survey should address the sensitivity of the site, appropriate levels of development, and mitigation consistent with the site s need for protection.

All available measures shall be explored to avoid development on sensitive prehistoric or archaeological sites.

When developments are proposed in areas where cultural resources have been identified, projects shall be designed to avoid impact. Emphasis shall be placed on preserving the entire site rather than on excavation, particularly where the site has religious significance.

SPECIFIC POLICIES

No development in archaeologically sensitive areas or restricted under General Policies shall be categorically exempt from environmental review.

If avoidance is not possible, mitigation shall be conducted in accordance with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission. Any adverse impact of development on cultural resources shall be mitigated to the maximum extent feasible. Off road vehicles, unauthorized collecting of artifacts, and other activities potentially damaging to cultural resources sites are prohibited.

Access to known cultural resources sites shall be limited. Any access should be concentrated in areas with supervision or interpretive functions (Monterey County 1982b),

MONTEREY COUNTY COASTAL IMPLEMENTATION PLAN

The Monterey County Coastal Implementation Plan seeks to regulate development in the North County Land Use Plan Area. New projects shall be considered compatible with the intent of the plan only if they incorporate all site planning and design features necessary to avoid or mitigate impacts to archaeological resources.

FACILITY DESIGN

The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical, are included in the application as part of the engineering appendices, Appendices 8-3 through 8-8, and summarized in Section 7.3, Table 7-1 and Section˚8, Engineering (MLPPP 1999a). A summary of these LORS includes: Title˚24, California Code of Regulations, which adopts the current edition of the California Building Code (CBC) as minimum legal building standards; the 1998 CBC for design of structures; American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code; and National Electrical Manufacturers Association (NEMA) standards.

MECHANICAL LORS AND DESIGN CRITERIA

The application (MLPPP 1999a, Appendix 8-5) lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure the project's mechanical systems are designed to the appropriate codes and standards.

GEOLOGY AND PALEONTOLOGY

FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control. The United States Bureau of Land Management (BLM) requires an excavation permit for excavations and grading on land under their jurisdiction. The Moss Landing Power Plant Project (MLPPP) is not located on lands under the jurisdiction of the BLM. Therefore, there are no federal LORS with respect to geological hazards or resources, or paleontological resources, that are applicable to this 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) that were based upon the UBC that includes supplemental standards specific to California. The CBC supplements their grading and construction ordinances and regulations.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project s environmental impacts.

Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.

Sections (X) (a) and (b) pose questions about the project s effect on mineral resources.

The Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (SVP) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The Act (codified in 40 C. F. R.,／ 68.110 et seq.) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Health and Safety Code, section 25534, directs facility owners, storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Title 8, California Code of Regulations, Section 5189, requires facility owners to develop and implement effective safety management plans to 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 Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article˚80 was in 1997 (UFC, 1997). These articles contain minimum setback requirements for outdoor storage of ammonia.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

LAND USE

STATE

CALIFORNIA COASTAL ACT OF 1976 (PUB. RESOURCES CODE/30000 ET SEQ.)

The California Coastal Act establishes a comprehensive scheme to govern land use planning along the entire California coast. The Coastal Act sets forth general policies (/30200 et seq.) which govern the California Coastal Commission s review of permit applications and local plans. Specific to energy facilities, the Coastal Act requires that the Coastal Commission designate specific locations within the coastal zone where the establishment of a thermal power plant subject to the Warren-Alquist Act could prevent the achievement of the objectives of the Coastal Act (/30413(b)). Pursuant to section 30500, each local government lying within the coastal zone is required to prepare a local coastal program (LCP) for management of that portion of the coastal zone within its jurisdiction. Once the Coastal Commission certifies a LCP, the authority to issue coastal development permits for development within the coastal zone is delegated to the local jurisdiction (/30519(a)). Notwithstanding section 30519(a), section 30600(a) of the Coastal Act specifies that a proponent must obtain a coastal development permit for any development other than a facility subject to the provisions of Section 25500 (i.e., a thermal power plant or related facility subject to the Warren-Alquist Act).

WARREN-ALQUIST ACT (PUB. RESOURCES CODE/ 25500 ET. SEQ.)

Pursuant to section 25529 of the Warren-Alquist Act, the Energy Commission shall require public access to coastal resources as a condition of certification of a facility proposed in the coastal zone. Section 25529 provides in full:

When a facility is proposed to be located in the coastal zone or any other area with recreational, scenic, or historic value, the [Energy] commission shall require, as a condition of certification of any facility contained in the application, that an area be established for public use, as determined by the commission. Lands within such area shall be acquired and maintained by the applicant and shall be available for public access and use, subject to restrictions required for security and public safety. The applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public use zone for the benefit of the public, the applicant may dedicate such zone to the state. The [Energy] commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.

LOCAL

MONTEREY COUNTY GENERAL PLAN

The Monterey County General Plan contains countywide goals, objectives, policies, and the countywide land use plan. The General Plan is organized into four components:

natural resources, environmental constraints, human resources, and county development. Each of these components addresses subject matter required for one or more of the mandatory general plan elements (land use, circulation, housing, open space, safety, conservation and noise). The General Plan also addresses parks and recreation, public services and facilities, historic preservation, demographics, socioeconomics, and air and water quality. In regard to industrial land use, it is the goal of Monterey County to encourage industrial development which maintains the quality of the environment and is economically beneficial to the area, located in close proximity to major transportation routes, and which is compatible with surrounding land uses (Monterey County, 1982a).

NORTH COUNTY LAND USE PLAN (INCLUDING THE MOSS LANDING COMMUNITY PLAN)

The coastal zone of Monterey County is divided into four planning areas: North County, Big Sur, Carmel, and Del Monte Forest. The MLPPP is located in North County, which includes the unincorporated area of the coastal zone from the Marina City limits to the Santa Cruz County boundary at the Pajaro River, and inland nearly to Highway 101 to include as much as possible of the Elkhorn Slough watershed. The North County Land Use Plan, certified by the California Coastal Commission in 1982, serves as the Local Coastal Program for North County. The plan identifies policies regarding natural resources management, the public service system, land use and development, and public access to the shoreline.

A primary objective of the North County Land Use Plan is to plan for appropriate levels of land use and development in the coastal zone while protecting coastal resources and providing or maintaining coastal access and recreation opportunities. The plan seeks to maintain the rural character of North County, which is characterized by its predominant agricultural, low density residential and open space uses. In regard to industrial development, the plan states that the only industrial facilities particularly appropriate for North County are ones which are coast dependent (Monterey County, 1982b, pp. 47-48).

Incorporated into the North County Land Use Plan is the Moss Landing Community Plan. The plan includes polices pertaining to land use and development, and the protection of the character and visual resources of the Moss Landing community. According to the Moss Landing Community Plan, industries located in Moss Landing are generally dependent on a location near the coastline for their existence. The plan states that these coastal-dependent industries, such as the existing Moss Landing Power Plant, are given priority by the California Coastal Act over other land uses on or near the coast. It is the intent of the Moss Landing Community Plan to encourage coastal-dependent industrial facilities to expand within existing sites, and to allow for the reasonable growth of these industries, consistent with the protection of the area s natural resources (Monterey County, 1982b, p. 62).

MONTEREY COUNTY COASTAL IMPLEMENTATION PLAN (PART 1 AND PART 2)

Part 1 of the Monterey County Coastal Implementation Plan (Title 20, Zoning Ordinance) implements the Monterey County Local Coastal Program. Known as the Coastal Zoning Ordinance, this plan establishes zoning districts, regulations and permit processes for the unincorporated area of the County within the Coastal Zone. Each coastal zoning district specifies the uses that are allowed or may be allowed subject to discretionary permits. Electric power plants are among the principal uses allowed within the Heavy Industrial (Coastal Zone) Zoning District. No building permit, grading permit, or discretionary land use permit may be approved if it is found to be inconsistent with the Monterey County Local Coastal Program (Monterey County, 1995, pp. 1-3, and 118-120).

Part 2 of the Monterey County Coastal Implementation Plan, Regulations for Development in the North County Land Use Plan Area establishes regulations, standards, and procedures to fully implement the policies of the North County Land Use Plan. These regulations apply only to parcels within the North County Coastal Zone. Section 20.144.140 of the plan contains development standards for land use. The intent of this section is to ensure that future development in North County will be consistent with the protection of the area s significant human and cultural resources, agricultural uses, natural resources, and water quality. Also applicable to the proposed project is section 20.144.160, Moss Landing Community Development Standards. The intent of this section is to provide standards that allow the orderly development of the Moss Landing Community and the perpetuation of its coastal-dependent industries (Monterey County, 1988, pp. 1, 83 and 113).

NEED CONFORMANCE

STATE

CALIFORNIA CODE OF REGULATIONS

The Commissions Siting Regulations state The presiding member s proposed decision shall contain the presiding member s recommendation on whether the application shall be approved, and proposed findings and conclusions on each of the following: (a) Whether and the circumstances under which the proposed facilities are in conformance with the 12-year forecast for statewide and service area electric power demands adopted pursuant to Section 25309(b) of the Public Resources Code. (Cal. Code of Regs., tit. 20,⁄1752(a).)

PUBLIC RESOURCES CODE

The Energy Commission s Final Decision must include, among other things, Findings regarding the conformity of the proposed facility with the integrated assessment of need for new resource additions determined pursuant to subdivision (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 or, where applicable, findings pursuant to Section 25523.5 regarding the conformity of a competitive solicitation for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 that was in effect at the time that the solicitation was developed. (Pub. Resources Code,⁄25523(f).)

NEED CONFORMANCE CRITERION

In order to obtain a license from the Energy Commission, a proposed power plant must be found to be in conformance with the Integrated Assessment of Need. The criterion governing this determination, for projects deemed data adequate prior to July 1, 1999, are contained in the *1996 Electricity Report (ER 96)*, and are most succinctly described on page 72 of that document:

In sum, the *ER 96* need criterion is this: during the period when *ER 96* is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737.

Prior to January 1, 2000, the Public Resources Code prohibited the Energy Commission from certifying a power plant unless the Commission made a finding that the facility was found to be in conformance with the Commission s integrated assessment of the need for new resource additions. [Pub. Resources Code⁄⁄25523(f) and 25524(a).] The Public Resources Code directed the Commission to do an integrated assessment of need, taking into account 5- and 12-year forecasts of electricity supply and demand, as well as various competing interests, and to adopt the assessment in a biennial electricity report.

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

> Before the California electricity industry was restructured the regulated cost recovery framework for power plants justified requiring the commission to determine the need for new generation, and site only power plants for which need was established. Now that power plant owners are at risk to recover their investments, it is no longer appropriate to make this determination.

(Pub. Resources Code,／25009, added by Stats. 1999, ch. 581,／1.) Senate Bill 110 takes effect on January 1, 2000 (Cal. Const. Art. 4,／8.). As of January 1, 2000, the Commission is no longer required to determine if a proposed project conforms with an integrated assessment of need. As a result, an application for certification for which the Commission adopts a final decision after January 1, 2000, is not subject to a finding of need-conformance.

NOISE

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. ⁄651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. ⁄1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed; assuring that workers are made aware of overexposure to noise; and periodically testing the workers hearing to detect any degradation. There are no federal laws governing offsite (community) noise.

STATE

Similarly, there are no state regulations governing offsite noise. Rather, state planning law (Gov. Code, ⁄65302) requires that local authorities such as counties or cities prepare and adopt a general plan. Government Code section 65302(f) requires that a noise element be prepared as part of the general plan to address foreseeable noise problems.

Other state LORS include the California Environmental Quality Act (CEQA) and California Occupational Safety and Health Administration (Cal-OSHA) regulations.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. The CEQA Guidelines (Cal. Code Regs., tit. 14, ⁄15000 et seq., Appendix G, ⁄XI) explain that a significant effect from noise may exist if a project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
b) Exposure of persons to or generation of excessive 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.
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project .

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

MONTEREY COUNTY GENERAL PLAN NOISE ELEMENT

Two policies enunciated in this noise element (Monterey 1995) impact the construction and operation of a project such as the MLPPP. Policy 22.2.1 requires that new projects conform to the exterior noise parameters established in Table 6, Land Use Compatibility for Exterior Community Noise Environments. Table 6 specifies that noise levels from 50 to 70 dBA L_{dn} or CNEL are normally acceptable for industrial or utility land use categories such as the MLPPP.

Policy 22.2.5 requires that ambient sound levels be less at night (defined as 10 p.m. to 7 a.m.) than during the day. While this limitation is impractical for a power plant that is intended to operate day and night, it can be applied to construction activities.

MONTEREY COUNTY NOISE ORDINANCE

Chapter 10.60 of the Monterey County Health and Safety Code is entitled Noise Control (Monterey 1985). Paragraph 10.60.030 restricts the operation of noise-producing devices, requiring that, No person shall operate any machine which produces a noise level exceeding 85 dbA measured fifty feet therefrom . (Ord. 2459 ∕3, 1978.). This limitation can be applied to the operation of the MLPPP.

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES

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

LOCAL

No local or county ordinances apply to power plant efficiency.

POWER PLANT RELIABILITY

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation [Cal. Code Regs., tit. 20,／1752(c)].

PUBLIC HEALTH

FEDERAL

The Clean Air Act of 1970 (42 U.S.C., section 7401 et seq.) required establishment of ambient air quality standards to protect the public from the effects of air pollutants. These standards have been established by the United States Environmental Protection Agency (EPA) for the major air pollutants: nitrogen dioxide, ozone, sulfur dioxide, carbon monoxide, sulfates, particulate matter with a diameter of 10 micron or less (PM10) and lead. The Act required states to adopt plans to ensure compliance by 1982.

STATE

California Health and Safety Code section 39606 requires the California Air Resources Board (CARB) to establish California s ambient air quality standards to reflect the California-specific conditions that influence its air quality. Such standards have been established by the CARB for ozone, carbon monoxide, sulfur dioxide, PM10, lead, hydrogen sulfide, vinyl chloride and nitrogen dioxide. The same biological mechanisms underlie some of the health effects of most of these criteria pollutants as well as the noncriteria pollutants.

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

The California Health and Safety Code section 39650 et seq. mandates that the California Environmental Protection Agency (Cal-EPA) establish safe exposure limits for toxic, noncriteria air pollutants and identify the best available methods for their control. These laws also require that the new source review rules for each air district include regulations establishing procedures to control the emission of these pollutants. The toxic emissions from natural gas combustion are listed in CARB s April 11, 1996 California Toxic Emissions Factors (CATEF) database for natural gas-fired combustion turbines. Cal-EPA has developed specific cancer potency estimates for assessing their related cancer risks at specific exposure levels. For noncancer-causing toxic air pollutants, Cal-EPA established specific no-effects levels (known as reference exposure levels) for assessing the likelihood of producing health effects at specific exposure levels. Such health effects would be considered likely only when exposure exceeds these reference levels. The Energy Commission staff (staff) uses these Cal-EPA potency estimates and reference exposure values in its health risk assessments.

California Health and Safety Code section 44300 et seq. requires facilities, which emit large quantities of criteria pollutants and any amount of noncriteria pollutants to provide the local air district an inventory of toxic emissions. Such facilities may also be required

to prepare a quantitative health risk assessment to address the potential health risks involved. The CARB and the air quality management districts are responsible for ensuring implementation of these requirements for new emission sources.

LOCAL

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) has no specific rules implementing Health and Safety Code section 44300. However, it does require the results of a health risk assessment as part of the application for an Authority to Construct (ATC). MLPP has complied with this requirement.

MBUAPCD Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants, TACs),requires the application of best available control technology to a new or modified source emitting TACs. It further requires that the excess cancer risk from the project s carcinogenic emissions, as demonstrated through a risk assessment, not exceed 10 in one million and that the maximum increase in ambient 1-hour TAC concentrations of noncarcinogenic toxic emissions not exceed 1/420 th of the applicable permissible exposure limits (PELs). For a source of noncarcinogenic TACs, reasonable, available control technology must be applied. Furthermore, the maximum increase in ambient 1-hour TAC concentrations must not exceed 1/420 th of applicable PELs

SOCIOECONOMIC RESOURCES

CALIFORNIA GOVERNMENT CODE, SECTION 65995-65997

Senate Bill 50 and other statutory amendments enacted in 1998 provide that, notwithstanding any other provisions of local or state law (including CEQA), state and local agencies may not require mitigation for the development of real property for effects on school enrollment except as provided by new provisions in the Government Code. (Govt. Code, Sec. 65996(a).) The relevant provisions restrict fees for the development of commercial and industrial space to the $0.31 per square foot of "chargeable covered and enclosed space." [Govt. Code, Sec. 65995(b)(2).]

ENVIRONMENTAL JUSTICE

President Clinton s Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations was signed on February 11, 1994. The order required the US Environmental Protection Agency (USEPA) and all other federal agencies to develop environmental justice strategies. The USEPA subsequently issued Guidelines that require all federal agencies and state agencies receiving federal funds, to develop strategies to address this problem. The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

TRAFFIC AND TRANSPORTATION

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, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. In addition, the California Health and Safety Code addresses the transportation of hazardous materials.

Provisions within the California Vehicle Code are:

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 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. address 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 are 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, regulate 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 1988 Monterey County Coastal Implementation Plan, Chapter 20.144 created development standards regarding major roadways, state highways, and public transit.

The 1987 Monterey County/North County Land Use Plan (Local Coastal) Program established goals and policies regarding the preservation of highway capacity for coastal access.

In response to a statewide law intended to coordinate land use and transportation planning, Monterey County developed a Congestion Management Plan (CMP) that dictates the acceptable service levels on major roadways and intersections. The standard for the CMP roadways and intersections is Level of Service (LOS) D, however, none of the affected intersections are CMP intersections.

The Regional Transportation Plan (RTP) is a compilation of goals, policies, objectives, and projects that guide transportation policy in the region. The RTP provides a framework for evaluating future conditions in the project area.

The Monterey County General Plan, in its transportation and circulation element states that the standard for the roadways and intersections is LOS C.

TRANSMISSION LINE SAFETY AND NUISANCE

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 any significant hazards to area aviation.

FAA Advisory Circular (AC) No. 70/460-2H, Proposed Construction and or Alteration of Objects that may Affect the Navigation Space This circular informs each proponent of a project that could pose an aviation hazard of the need to file the Notice of Proposed Construction or Alteration (Form 7640) with the FAA.

FAA AC No. 70/460-1G, Obstruction Marking and Lighting . This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the distance and visibility necessary to avoid such collisions.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts could be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor.

The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis.

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 noise is limited instead through design and maintenance standards established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All high-voltage lines are designed to assure compliance. Such noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum. Since (as with communications interference) the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from lines of less than 345 kV such as the portion proposed to directly connect the proposed MLPP to the existing PG&E transmission grid. 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 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.

As with lines of the type proposed, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff usually recommends specific conditions of certification to ensure that such grounding is made within the right-of-way by both the applicant and property owners.

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 tree-trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, Fire Prevention Standards for Electric Utilities specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks that are addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

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.

Title 8, CCR, Section 2700 et seq., High Voltage Electric Safety Orders . These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.

INDUSTRIAL STANDARDS

There are no design-specific federal regulations to prevent hazardous shocks from power lines. Safety is assured through compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

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 considering both as EMF exposure. As noted by the applicant (MLPP 1999 pages 6.18-7 and 6.18-8), the available evidence as evaluated by CPUC and other regulatory agencies has not established that such fields pose a significant health hazard to exposed humans. However, it is important 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. Therefore, in light of present uncertainty, it is advisable to reduce such fields to some degree, where feasible, until the issue is better understood. The challenge has been to establish when and how far to reduce them.

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 relate to the magnetic field.

The measures employed for such field reduction can affect line safety, reliability, efficiency and maintainability, depending on the type and extent of such measures.

STATE

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It required PG&E and the other utilities within its jurisdiction to establish EMF-reducing design guidelines for all new or upgraded power lines and related facilities within their respective service

areas. This means that all lines to be used in connection with the proposed MLPP will have to meet the design requirements specified by PG&E for their service area. The CPUC further established specific limits on the resources to be used for each new or upgraded line with regard to redesign to reduce field strengths or relocation to reduce exposure levels. 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 of 1989.

In keeping with this CPUC policy, the Energy Commission staff requires evidence that each proposed line will be designed or upgraded 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 in ways, and to an extent, without significant impacts on line operation. The extent of such applications will be reflected by the ground-level field strengths as measured during operation. When estimated or measured for the line, such field strengths can be used by staff and other regulatory agencies for comparison with fields of lines of similar voltage and current-carrying capacity. Such 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 each new or modified line in California is currently required to be designed according to the EMF-reducing guidelines of the utility in the service area involved, its fields are required under existing CPUC policies to be similar, in terms of intensity, to fields from similar lines in that service area.

INDUSTRIAL STANDARDS

No federal regulations have been established 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 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, Montana, New Jersey, and New York) 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 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 as the previously noted radio noise, audible noise and nuisance shocks. The present focus is on the magnetic field because only it can penetrate building 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 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.

TRANSMISSION SYSTEM ENGINEERING

FEDERAL

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable LORS are intended to ensure the distance and visibility necessary to avoid such collision.

Title 14, Part 77 of the Federal Code of Regulations (CFR), Objects Affecting the Navigation Space . Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a Notice of Proposed Construction or Alteration is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant collision hazard to area aviation.

FAA Advisory Circular (AC) No. 70/460-2H, Proposed Construction and or Alteration of Objects that may Affect the Navigation Space . This circular informs each proponent of a project that could pose an aviation hazard of the need to file the Notice of Proposed Construction or Alteration (Form 7640) with the FAA.

FAA AC No. 70/460-1G, Obstruction Marking and Lighting . This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts can be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced

by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement. Since electric fields cannot penetrate the soil and other objects, underground lines do not produce the radio noise associated with overhead lines.

STATE

General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

As with radio noise, any audible noise from a transmission line usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum. Since (as with communications interference), the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It therefore, is generally not expected at significant levels from lines of less than 345 kV, such as the one proposed for Sunrise. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

FIRE HAZARDS

The fires addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees.

General Order 95 (GO-95), CPUC, Rules for Overhead Electric Line Construction . This order specifies tree-trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, Fire Prevention Standards for Electric Utilities . This code specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

GO-95, CPUC. Rules for Overhead Line Construction . These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements usually ensures the safety of the general public and utility and non-utility workers.

GO-128 Rules for Construction of Underground Electric Supply and Communications Systems . Provisions of this order establish requirements and minimum standards for the safe construction of underground AC power and communications circuits.

Title 8, CCR, Section 2700 et seq., High Voltage Electric Safety Orders . These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment. Compliance with the distancing requirements in this order will prevent hazardous shocks among utility and non-utility workers during activities around the line.

National Electrical Safety Code, (NESC) Part 2: Safety Rules for Overhead Lines. Provisions in this part of the code specify the national safe operating clearances applicable in areas where the line might be accessible to the public. Such requirements are intended to minimize the potential for direct or indirect contact with the energized line.

LOCAL

There are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit their obstruction or hazardous shock

hazards, or eliminate the interactive effects of their electric or magnetic fields. All the noted LORS are implemented industry wide in the country to ensure that lines are uniformly constructed to reflect existing health and safety information while ensuring efficiency and reliability.

VISUAL RESOURCES

FEDERAL AND STATE

The proposed project, including the tie into the existing electrical grid system, is located on property owned by the applicant, therefore is not subject to federal land management requirements. The project site is on a section of Highway 1 designated as a potential scenic highway, and near Elkhorn Slough, which is designated as a potential scenic waterway in the North County Land Use Plan. Without official designation, no federal or state regulations pertaining to scenic resources for the Elkhorn Slough or Highway 1 are applicable to the project, although the North County Land Use Plan establishes criteria to protect the visual resources in this area, and are listed below under local general plan policies.

LOCAL

Monterey County has specific policies on visual or aesthetic resources that apply to the Moss Landing project. These issues are addressed in the Monterey County Coastal Implementation Plan, Part 1& 2, and North County Land Use Plan, Local Coastal Program, implemented by the Monterey County Planning Department. The Local Plan provides policies for protection of shoreline view and locations of new structures on the least visually obtrusive portion of a parcel.

Monterey County Coastal Implementation Plan Part I (Title 20, Zoning Ordinance)
Chapter 20.28: Regulations for Heavy Industrial Zoning Districts (HI/CZ)

<u>Section 20.28.070.D:</u> All development shall have landscaping covering a minimum of 10 percent of the site area subject to a plan approved by the Director of Planning. The landscaping shall be in place prior to commencement of use.

<u>Section 20.28.070.E:</u> All exterior lighting shall be unobtrusive, harmonious with the local area, and constructed or located so that only the area intended is illuminated and off-site glare is fully controlled.

<u>Section 20.28.080.A:</u> All equipment and material storage areas shall be screened by solid wall, fences, or by adequate plantings of not less than 6 feet in height.

The Monterey County Coastal Implementation Plan, Part 2: Visual Resources Development Standards include a requirement for onsite inspection by a planner for industrial uses, to determine conformance with policies of the land use and development standards of the Implementation Plan.

The following guidelines specific to visual resources have been developed to protect scenic corridors:

1. The location and siting of structures shall allow for their maximum screening from public view by topography or vegetation and to minimize obstructions of or intrusion of views of the shoreline from public viewing areas.
2. The design of structures, including fencing shall incorporate natural materials, earth-tone colors, and otherwise blend with the rural setting.
3. Landscaping and lighting shall be unobtrusive and blend with the rural setting. Landscaping shall incorporate native plants common to the area.

4. The structures shall be modified for bulk, size, and height where necessary to protect and minimize visibility from the public viewshed.

WASTE MANAGEMENT

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C./6922)

RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- Record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- Labeling practices and use of appropriate containers,
- Use of a manifest system for transportation, and
- Submission of periodic reports to the EPA or authorized state.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

CALIFORNIA HEALTH AND SAFETY CODE/25100 ET SEQ. (HAZARDOUS WASTE CONTROL ACT OF 1972, AS AMENDED).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

TITLE 14, CALIFORNIA CODE OF REGULATIONS, /17200 ET SEQ. (MINIMUM STANDARDS FOR SOLID WASTE HANDLING AND DISPOSAL)

These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

TITLE 22, CALIFORNIA CODE OF REGULATIONS, ⁄66262.10 ET SEQ. (GENERATOR STANDARDS)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

LOCAL

There are no local LORS to be considered.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970 (the Act). The 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). This public law is codified at Title 29 of the Code of Federal Regulations, under General Industry Standards, Parts 1910.1 through 1910.1450 (29 CFR Part 1910.1 - 1910.1450) and clearly defines 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 safety and health standards now in force under the Act for general industry represent a compilation of materials authorized by the Act 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 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 Act.

Applicable Federal requirements include:

- 29 U.S. Code/651 et seq. (Occupational Safety and Health Act of 1970)
- 29 CFR Part 1910.1 - 1910.1450 (Occupational Safety and Health Administration Safety and Health Regulations)
- 29 CFR Part 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 Part 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 Part 450 (8 CCR Part 450 et seq.) The California Labor Code requires that the State Standards Board must adopt standards at least as effective as the federal standards, which have been, promulgated (Calif. Labor Code/142.3(a)). Health and Safety laws 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 Parts 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 to insure that their employees are informed about workplace hazards, potential exposure and the work environment (Calif. Labor Code ⁄ 6408). Cal/OSHA s principal tool in ensuring that workers and the public are informed is the Material Safety Data Sheet (MSDS) (8 CCR⁄5194). This regulation was promulgated in response to California s Hazardous Substances Information and Training Act of 1990 (1980 Calif. ⁄ 874 and Calif. Labor Code ⁄⁄ 6360-6399.7). It mirrored the Federal Hazard Communication Standard (29 CFR Part 1910.1200) which established an employee s right to know about chemical hazards in the workplace, but added the provision of applicability to public sector employers.

Finally, California Senate Bill 198 required 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 (8 CCR 3203).

Applicable State requirements include:

- 8 CCR⁄339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act
- 8 CCR⁄450, et seq. Cal / OSHA regulations
- 24 CCR⁄3, et seq. - incorporates the current edition of the Uniform Building Code
- La Follette Bill (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 ⁄ 255000 - 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, (24 CCR⁄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 the California Code of Regulations pertaining to the California Fire Code. (24 CCR Part 9) as defined in the California Building Standards Law (California Health and Safety Code/18901)

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 requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)
- Uniform Fire Code Standards
- California Building Code Title 24, California Code of Regulations (24 CCR/3, et seq.)

MOSS LANDING
POWER PROJECT

Appendix B

Proof of Service List

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	)	
	)	
Application for Certification	)	
of Duke Energy for the	)	**Docket No. 99-AFC-4**
MOSS LANDING Power	)	
Plant Project	)	

EXHIBIT LIST

Exhibit-1 Letter dated March 26, 1999, from Sierra Research to Doug Quetin, Monterey Bay Unified Air Pollution Control District (MBUAPCD), submitting a draft air quality modeling protocol. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-2 Letter dated April 12, 1999, from Sierra Research to Mike Sewell, MBUAPCD, submitted a revised air quality modeling protocol. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-3 Letter from Wayne Hoffman of Duke Energy to Ed Wylie of the US Army Corps of Engineers requesting a Letter of Authorization to renovate the intake structure at Moss Landing Power Plant, dated May 4, 1999. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-4 Letter dated May 7,1999, from Sierra Research to Paul Richins, CEC, transmitting electronic copies of air quality modeling files. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-5 Application for Certification (AFC), Moss Landing Power Plant Project, 99-AFC-4, Volume 1- text; volume 2- Technical Appendices, filed May 7, 1999, as supplemented by Duke Energy s Response to CEC Staff list of data inadequacies filed June 7, 1999. Sponsored by Applicant; received into evidence on 6/7/00; 6/15/00 and 6/20/00.

Exhibit-6 Moss Landing Power Plant Modernization Project, Preliminary Facilities Study Report, Pacific Gas and Electric Company, dated May 14, 1999. Sponsored by Applicant; received into evidence on 6/7/00.

Exhibit-7 Application to the MBUAPCD for Determination of Compliance/Authority to Construct, dated June 3, 1999. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-8 Memo dated June 7, 1999 from Sierra Research to Matt Haber (EPA Region IX), Mike Tollstrup (California Air Resources Board), and CURE, enclosing copies of MBUAPCD application materials. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-9 Letter dated June 11, 1999, from Sierra Research to Mike Sewell, MBUAPCD, enclosing additional information and responses to questions raised by the District. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-10 Letter from Peter Grass of the US Army Corps of Engineers to Wayne Hoffman of Duke Energy, granting permission for Duke Energy to modernize the intake structure at the Moss Landing Power Plant, dated June 21, 1999. Sponsored by Applicant; marked for identification.

Exhibit-11 Responses to CEC June 7, 1999 Data Adequacy requests related to Air Quality, Biological Resources, Cultural Resources, Land Use, Socioeconomics, Traffic & Transportation, Transmission System Engineering, Visual Resources, Water, Safety, Summary of LORS and Compliance, filed June 16, 1999. Received into evidence on 6/7/00; 6/15/00 and 6/20/00.

Exhibit-12 Letter dated June 21, 1999, from Sierra Research to Mike Sewell, MBUAPCD, enclosing additional information and responses to questions raised by the District. Sponsored by Applicant; received into evidence on 6/7/00 and 6/15/00.

Exhibit-13 Moss Landing Power Plant Modernization Project, Responses to the Items not Included in the Initial Data Adequacy Responses to CEC, dated June 17, 1999, filed June 23, 1999. Sponsored by Applicant; received into evidence on 6/7/00.

Exhibit-14 Letter dated June 30, 1999 from Sierra Research to Mike Sewell, MBUAPCD, enclosing additional information and responses to questions raised by the District. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-15 Letter from James Lynch of Duke Engineering & Services to Diane Steek of the U.S. Fish & Wildlife Service and Patricia Anderson of the California Dept. of Fish & Game regarding terrestrial biological avoidance and monitoring measures, dated July 19, 1999. Sponsored by Applicant; received into evidence on 6/21/00.

Exhibit-15a Responses to CEC June 7, 1999 Data Adequacy Requests related to Air Quality, Biological Resources, Cultural Resources, Land Use, Socioeconomics, Traffic & Transportation, Transmission, System Engineering, Visual Resources, Water, Safety, Summary of LORS and Compliance, filed July 30, 1999. Sponsored by Applicant; received into evidence on 6/7/00 and 6/15/00.

Exhibit-16 Moss Landing Power Plant Modernization Project, Responses to California Coastal Commission, dated June 16, 1999, filed August 26, 1999. Sponsored by Applicant; received into evidence on 6/7/00; 6/15/00 and 6/20/00.

Exhibit-17 Letter Dated August 31, 1999, from Sierra Research to Mike Sewell, MBUAPCD, enclosing additional information and responses to questions raised by the District. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-18 Letter from Calvin Fong of the US Army Corps of Engineers (USACE) to James Lynch of Duke Engineering and Services regarding no USACE authorization requirements for removal of nineteen oil storage tanks, dated September 23, 1999. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-19 Letter from James Bybee of the National Oceanic and Atmospheric Administration regarding the National Marine Fisheries Service review of The US Army Corps of Engineers letter of permission for renovation of the inlet structure at the Moss Landing Power Plant and the lack of Significant adverse impacts to essential fish habitat, dated September 24, 1999. Sponsored by Applicant; marked for identification.

Exhibit-20 Letter dated September 28, 1999 from Elton E. McCrillis, Duke Energy, to Mike Sewell, MBUAPCD, presenting information regarding the ratings for existing Boilers 6-1 and 7-1 at Moss Landing. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-21 Responses to Air Quality Data Requests 1-11, Cultural 13-16, Geology, Paleontology-18, Traffic 20-23, Waste Management-24, included with letter dated October 4, 1999 from Mark Seedall, Duke Energy, to Paul Richins, CEC. Sponsored by Applicant; received into evidence on 6/7/00 and 6/15/00.

Exhibit-22 Moss Landing Power Plant Modernization Project, Responses to CEC Data Request Cultural 13, 14, 15, and 16, filed October 4, 1999. Sponsored by Applicant; received into evidence on 6/7/00;

Exhibit-23 Moss Landing Power Plant Modernization Project, Responses to CEC Data Request 12 and 17, filed October 12, 1999. Sponsored by Applicant; marked for identification.

Exhibit-24 Letter dated October 13,1999 from Sierra Research to Mike Sewell, MBUAPCD, enclosing the PSD increments analysis for the Moss Landing Modernization Project. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-25 Letter dated October 20, 1999 from Sierra Research to Mike Sewell, MBUAPCD, enclosing requested revisions to the PSD increments analysis. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-26 Letter Dated October 21, 1999 from Elton E. McCrillis, Duke Energy, to Doug Quetin, MBUAPCD, regarding treatment of air emissions from various parcels at the Moss Landing site. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-27 Moss Landing Power Plant Modernization Project, Responses to California Coastal Commission Follow Up Question, filed October 25, 1999. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-27a California Independent System Operator (Cal-ISO) Comments on PG&E PFS, dated November 3, 1999. Sponsored by Applicant; received into evidence on 6/7/00.

Exhibit-28 Letter from Patricia Anderson of the California Dept. of Fish & Game to Bud Carney of the Monterey County Planning Dept. regarding comments on the Moss Landing Power Plant AFC Project, dated November 19, 1999. Sponsored by Applicant; received into evidence on 6/21/00.

Exhibit-29 Moss Landing Power Plant Modernization Project, Responses to CEC data Request 25-46 of 10.20.99 and 11.22.99, filed November 22, 1999. Sponsored by Applicant; received into evidence on 6/21/00.

Exhibit-30 Moss Landing Power Plant Modernization Project, Supplementary Filing Change in Project Description; Air Quality Incremental & Cumulative Impact Analysis; Responses to Additional California Coastal Commission Questions, filed November 22, 1999. Sponsored by Applicant; received into evidence on 6/7/00 and 6/21/00.

Exhibit-31 Letter dated November 22, 1999 from Sierra Research to Mike McCorison, Angles National Forest, enclosing copies of the air quality section of the AFC for the Moss Landing Modernization Project. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-32 Information related to air quality included in the November 22, 1999 letter from Wayne Hoffman, Duke Energy, to Paul Richins, CEC, regarding the Supplementary AFC Filing on the Change in the Project Description and other matters. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-33 Letter dated November 22, 1999 from Sierra Research to Mike Sewell, MBUAPCD, responding to a letter sent to the District by CURE. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-34 Letter dated November 23, 1999 from Sierra Research to Mike Sewell, MBUAPCD, presenting an updated status report regarding the off set acquisition program for the Moss Landing Modernization Project. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-35 Letter dated December 6, 1999 from Sierra Research to Mike Sewell, MBUAPCD, requesting clarification regarding the seasonal distribution of emission reduction credits from various sources. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-36 Letter dated December 8, 1999 from Sierra Research to Mike Sewell, MBUAPCD, presenting an updated status report regarding the offset acquisition program for the Moss Landing Modernization Project. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-37 Letter dated December 17, 1999 from Sierra Research to Mike Sewell, MBUAPCD, responding to District request for additional information. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-38 Letter dated December 22, 1999 from Sierra Research to Mike Sewell, MBUAPCD, providing additional information regarding future operations of existing Units 6 and 7. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-39 Moss Landing Power Plant Modernization Project, Detailed Facilities Study Plan, Pacific Gas and Electric Company, dated December 24, 1999. Sponsored by Applicant; marked for identification.

Exhibit-40 Electronic Mail Letter from Steven Ng, Electric Transmission Planning, Pacific Gas and Electric Company to Mark Seedall of Duke Energy regarding Additional Study Report, dated January 14, 2000. Sponsored by Applicant; marked for identification.

Exhibit-41 Letter from Roger Briggs of the California Regional Water Quality Board to Lee Genz of Duke Energy extending the discharge permit No. CA0006254, dated January 28, 2000. Sponsored by Applicant; marked for identification.

Exhibit-42 Letter from Diane Noda of the U.S. Fish & Wildlife Service to Wayne Hoffman of Duke Energy regarding the lack of significant impact to the southern sea otter from Duke s planned renovation of the Moss Landing Power Plant intake structure, dated February 1, 2000. Sponsored by Applicant; marked for identification.

Exhibit-43 Letter from Jeffery Miller of the California ISO to Mark Seedall of Duke Energy granting preliminary interconnection approval for the Moss Landing Power Plant Project, dated February 10, 2000. Sponsored by Applicant; marked for identification.

Exhibit-44 Letter dated February 10, 2000 from Sierra Research to Mike Sewell, MBUAPCD, providing comments on the District s Preliminary Determination of Compliance. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-45 Letter dated February 16, 2000 from Sierra Research to Mike Sewell, MBUAPCD, responding to requests for additional information from the District. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-46 Letter dated February 22, 2000, from Sierra Research to Mike Sewell, MBUAPCD, enclosing a copy of the sales agreement for the PG&E emissions reduction credits used as part of the offset package for the Moss Landing Modernization Project. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-47 Moss Landing Power Plant Modernization Project, Summary of California Dept. of Fish and Game and Duke Engineering & Service Site Visit, dated February 24, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-48 Moss Landing Power Plant Modernization Project, Duke Energy Comments on PSA Workshop, March 1, 2000. Sponsored by Applicant; received into evidence on 6/7/00 and 6/15/00.

Exhibit-49 Letter dated March 3, 2000 from Sierra Research to Mike Sewell, MBUAPCD, acknowledging an extension until April 30, 2000, of the deadline for issuance of the Finial Determination of Compliance. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-50 Moss Landing Power Plant Modernization Project, Duke Energy Comments on PSA Workshop, March 7, 2000. Sponsored by Applicant; received into evidence on 6/7/00 and 6/20/00.

Exhibit-51 Letter Dated March 7, 2000 from Mark Seedall, Duke Energy, to Doug Quetin, MBUAPCD, providing additional information related to the district s best available control technology determination for carbon monoxide. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-52 Moss Landing Power Plant Modernization Project, Federal Consistency Certification to California Coastal Commission, dated March 13, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-53 Letter dated March 14, 2000 from Michael Barr, Pillsbury, Madison & Sutro, to Doug Quetin, MBUAPCD, regarding the District s best available control technology determination for carbon monoxide. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-54 Proposed Environmental Enhancement Program, Duke Energy North America, April 10, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-55 Moss Landing Power Plant Project (MLPP) 99-AFC-4, filing of: Final Determination of Compliance, Erosion Control Measures, Dredging Operation Plan Plan for Moss Landing Harbor, Circulating Water Pump Information, Draft Waste Discharge Requirements & Draft Monitoring & reporting program for MLPP, May 18, 2000. Received into evidence on 6/15/00 and 6/20/00.

Exhibit-56 Moss Landing Power Plant Modernization Project Evaluation of Proposed Discharge System with respect to the Thermal Plan, Duke Energy Moss Landing LLC, dated April 28, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-57 Moss Landing Power Plant Modernization Project, 316(b) Resource Assessment, Duke Energy Moss Landing LLC, dated April 28, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-58 Moss Landing Power Plant Modernization Project Testimony (Project Overview, Environmental Summary, Public Health, Worker Safety, Transmission System Engineering, Transmission Line Safety & Nuisance, Hazardous Materials Handling, Waste Management, Traffic and Transportation, Noise, Visual Resources, Cultural & Paleontological Resources, Socioeconomics, Geologic Hazards & Resources, Agriculture & Soils, Facility Design, Power Plant Reliability, Power Plant Efficiency, Compliance Monitoring and Facility Closure), Duke Energy North America LLC, filed May 15, 2000. Sponsored by Applicant; received into evidence on 6/7/00: Project Overview; Transmission Line Safety; Hazardous Materials; Waste Management;; Socioeconomics; Compliance

Monitoring; Cultural Resources; and, Geology & Paleontology. Received into evidence on 6/7/00 and 6/20/00.

Exhibit-59 Moss Landing Power Plant Modernization Project, Responses to Twenty California Coastal Commission Questions, May 31, 2000. Attachment to this exhibit: Moss Landing Power Plant Site, Waters & Wetlands Report, Tank Modifications Project, Monterey, California, CH2M/Hill, May, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-60 Moss Landing Power Plant Modernization Project Testimony (Land Use), Duke Energy North America LLC, filed June 1, 2000. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-61 Moss Landing Power Plant Modernization Project Testimony (Air Quality), Duke Energy North America LLC, filed June 1, 2000. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-62 Moss Landing Power Plant Modernization Project Testimony, Rebuttal Testimony to the CEC s May 15, 2000 FSA, Part I Testimony, filed June 1, 2000. Sponsored by Applicant; received into evidence on 6/7/00.

Exhibit-63 Moss Landing Power Plant Modernization Project Testimony, Revisions to Duke's Previously Filed Testimony, filed June 1, 2000. Sponsored by Applicant; received into evidence on 6/7/00.

Exhibit-64 Moss Landing Power Plant Modernization Project, Declarations by Expert Witness, June 6, 2000. Sponsored by Applicant; received into evidence on 6/7/00 and 6/15/00.

Exhibit-65 CEC Staff FSA, Part I. Sponsored by Staff; received into evidence on 6/7/00.

Exhibit-66 CEC Staff FSA, Part II. Sponsored by Staff; received into evidence on 6/7/00 and 6/15/00.

Exhibit-67 Cal-ISO Testimony, Peter Mackin, May 22, 2000. Sponsored by Staff; received into evidence on 6/7/00.

Exhibit-68 CEC Errata to FSA Traffic & Transportation, June 7, 2000. Sponsored by Staff; received into evidence on 6/7/00.

Exhibit-69 Memo dated 6/12/00 from Gary Rubenstein to Mike Sewell, MBUAPCD, transmitting revised health risk assessment for construction activities. Sponsored by Applicant; received into evidence on 6/15/00.

Exhibit-70 Memo dated 6/12/00 from Nancy Matthews to Matt Layton, transmitting isopleths for construction impacts modeling analyses for Moss Landing. Sponsored by Applicant; received into evidence: 6/15/00.

Exhibit-71 CEC Air Quality Errata, Testimony of Matthew Layton, June 14, 2000. Sponsored by Staff; received into evidence on 6/15/00.

Exhibit-72 Letter dated June 13, 2000 from California Coastal Commission to Chairman Keese expressing support with modifications of CEC s proposed Land Use Conditions of Certification. Sponsored by Staff; received into evidence on 6/15/00.

Exhibit-73 Moss Landing Power Plant Modernization Project Testimony; Marine Biological Resources; Terrestrial Biological Resources; Surface and Ground Water Resources; Water Resources; Alternatives. File June 8, 2000. Sponsored by Applicant; received into evidence on 6/20/00.

Exhibit-74 CEC Staff FSA part III, filed June 8, 2000. Sponsored by Staff; received into evidence on 6/20/00.

Exhibit-75 CEC Staff Biological Resources, errata. Filed June 19, 2000. Sponsored by Staff; received into evidence on 6/20/00.

Exhibit-76 CEC Staff Soil and Water Resources, Errata. Filed on June 19, 2000. Sponsored by Staff; received into evidence on 6/20/00.

Exhibit-77 Public Review Draft, National Pollutant Discharge Elimination System (NPDES) Permit CA006254, Order No. 00-41. Waste Discharge Requirements for Duke Energy North America s Moss Landing Power Plant Units 1, 2, 6, and 7 in Monterey County. dated June 26, 2000; marked for Identification.

MOSS LANDING
POWER PROJECT

Appendix C

Exhibit List

STATE OF CALIFORNIA
Energy Resources Conservation
and Development Commission

In the Matter of:	)	
	)	**Docket No. 99-AFC-4**
Application for Certification	)	
of Duke Energy for the	)	**PROOF OF SERVICE LIST**
MOSS LANDING Power	)	
Plant Project	)	

I, _____ delare that on _____, I deposited copies of the attached _____in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to the following:

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 99-AFC-4
1516 Ninth Street
Sacramento, CA 95814-5512

* * * *

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

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I declare under penalty of perjury that the foregoing is true and correct.

_____
[signature]

MOSS LANDING
POWER PROJECT

Appendix D

Glossary of Terms and Acronyms

GLOSSARY OF TERMS AND ACRONYMS

	A
A	Ampere
AAL	all aluminum (electricity conductor)
AAQS	Ambient Air Quality Standards
ABAG	Association of Bay Area Governments
AC	alternating current
ACE	Argus Cogeneration Expansion Project Army Corps of Engineers
ACSR	aluminum covered steel reinforced (electricity conductor)
AFC	Application for Certification
AFY	acre-feet per year
AHM	Acutely Hazardous Materials
ANSI	American National Standards Institute
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ARCO	Atlantic Richfield Company
ASAE	American Society of Architectural Engineers
ASHRAE	American Society of Heating Refrigeration & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ATC	Authority to Construct
	B
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BAF	Basic American Foods
BARCT	Best Available Retrofit Control Technology
bbl	barrel
BCDC	Bay Conservation and Development Commission
BCF	billion cubic feet
Bcfd	billion cubic feet per day
b/d	barrels per day
BLM	Bureau of Land Management
BPA	U.S. Bonneville Power Administration
BR	Biennial Report
Btu	British thermal unit
	C
CAA	U.S. Clean Air Act
CAAQS	California Ambient Air Quality Standards
CALEPA	California Environmental Protection Agency
CALTRANS	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CCAA	California Clean Air Act
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CEERT	Coalition for Energy Efficiency and Renewable Technologies
CEM	continuous emissions monitoring
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFB	circulating fluidized bed
CFCs	chloro-fluorocarbons
cfm	cubic feet per minute

CFR	Code of Federal Regulations
cfs	cubic feet per second
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
COI	California Oregon Intertie
CPCN	Certificate of Public Convenience & Necessity
CPM	Compliance Project Manager
CPUC	California Public Utilities Commission
CT	combustion turbine current transformer
CTG	combustion turbine generator
CURE	California Unions for Reliable Energy
	D
dB	decibel
dB(A)	decibel on the A scale
DC	direct current
DCTL	Double Circuit Transmission Line
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DISCO	Distribution Company
DOC	Determination of Compliance
DOE	U.S. Department of Energy
DSM	demand side management
DTC	Desert Tortoise Council
DWR	California Department of Water Resources
	E
EDF	Environmental Defense Fund
Edison	Southern California Edison Company
EDR	Energy Development Report
EFS&EPD	Energy Facilities Siting and Environmental Protection Division
EIA	U.S. Energy Information Agency
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ELFIN	Electric Utility Financial and Production Simulation Model
EMF	electric and magnetic fields
EOR	East of River (Colorado River)
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
ER	Electricity Report
ERC	emission reduction credit {offset}
ESA	Endangered Species Act (Federal) Environmental Site Assessment
ETSR	Energy Technologies Status Report
	F
FAA	Federal Aviation Administration
FBE	Functional Basis Earthquake
FCAA	Federal Clean Air Act
FCC	Federal Communications Commission
FEIR	Final Environmental Impact Report
FIP	Federal Implementation Plan
FONSI	Finding of No-Significant Impact
FERC	Federal Energy Regulatory Commission
FSA	Final Staff Assessment G

GEP	good engineering practice
GIS	gas insulated switchgear geographic information system
gpd	gallons per day
gpm	gallons per minute
GW	gigawatt
GWh	gigawatt hour
	H
H_2S	hydrogen sulfide
HCP	habitat conservation plan
HHV	higher heating value
HRA	Health Risk Assessment
HRSG	heat recovery steam generator
HV	high voltage
HVAC	heating, ventilating and air conditioning
	I
IAR	Issues and Alternatives Report
IEA	International Energy Agency
IEEE	Institute of Electrical & Electronics Engineers
IID	Imperial Irrigation District
IIR	Issues Identification Report
IOU	Investor-Owned Utility
IS	Initial Study
ISO	Independent System Operator
	J
JES	Joint Environmental Statement
	K
KCAPCD	Kern County Air Pollution Control District
KCM	thousand circular mils (also KCmil) (electricity conductor)
KGRA	known geothermal resource area
km	kilometer
KOP	key observation point
KRCC	Kern River Cogeneration Company
kV	kilovolt
KVAR	kilovolt-ampere reactive
kW	kilowatt
kWe	kilowatt, electric
kWh	kilowatt hour
kWp	peak kilowatt
	L
LADWP	Los Angeles Department of Water and Power
LAER	Lowest Achievable Emission Rate
lbs	pounds
lbs/hr	pounds per hour
lbs/MMBtu	pounds per million British thermal units
LCAQMD	Lake County Air Quality Management District
LMUD	Lassen Municipal Utility District
LORS	laws, ordinances, regulations and standards
	M
m (M)	meter, million, mega, milli or thousand
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MCE	maximum credible earthquake
MCF	thousand cubic feet
MCL	Maximum Containment Level
MCM	thousand circular mil (electricity conductor)
$\mu g/m^3$	micro grams (10^{-6} grams) per cubic meter

MEID	Merced Irrigation District
MG	milli gauss
mgd	million gallons per day
MID	Modesto Irrigation District
MOU	Memorandum of Understanding
MPE	maximum probable earthquake
m/s	meters per second
MS	Mail Station
MVAR	megavolt-ampere reactive
MW	megawatt (million watts)
MWA	Mojave Water Agency
MWD	Metropolitan Water District
MWh	megawatt hour
MWp	peak megawatt
	N
N-1	one transmission circuit out
N-2	two transmission circuits out
NAAQS	National Ambient Air Quality Standards
NCPA	Northern California Power Agency
NEPA	National Energy Policy Act National Environmental Policy Act
NERC	National Electric Reliability Council
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NMHC	nonmethane hydrocarbons
NO	nitrogen oxide
NOI	Notice of Intention
NOL	North of Lugo
NO_x	nitrogen oxides
NO_2	nitrogen dioxide
NOP	Notice of Preparation (of EIR)
NOV	Notice of Violation
NRDC	Natural Resources Defense Council
NSCAPCD	Northern Sonoma County Air Pollution Control District
NSPS	New Source Performance Standards
NSR	New Source Review
	O
O_3	Ozone
OASIS	Open Access Same-Time Information System
OCB	oil circuit breaker
OCSG	Operating Capability Study Group
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration (or Act)
	P
PG&E	Pacific Gas & Electric Company
PDCI	Pacific DC Intertie
PHC(S)	Prehearing Conference (Statement)
PIFUA	Federal Powerplant & Industrial Fuel Use Act of 1978
PM	Project Manager particulate matter
PM_{10}	particulate matter 10 microns and smaller in diameter
$PM_{2.5}$	particulate matter 2.5 microns and smaller in diameter
ppb	parts per billion
ppm	parts per million
ppmvd	parts per million by volume, dry
ppt	parts per thousand
PRC	California Public Resources Code

PSD	Prevention of Significant Deterioration
PSRC	Plumas Sierra Rural Electric Cooperative
PT	potential transformer
PTO	Permit to Operate
PU	per unit
PURPA	Federal Public Utilities Regulatory Policy Act of 1978
PV	Palo Verde photovoltaic
PX	Power Exchange
	Q
QA/QC	Quality Assurance/Quality Control
QF	Qualifying Facility
	R
RACT	Reasonably Available Control Technology
RDF	refuse derived fuel
ROC	Report of Conversation reactive organic compounds
ROG	reactive organic gas
ROW	right of way
RWQCB	Regional Water Quality Control Board
	S
SACOG	Sacramento Area Council of Governments
SANBAG	San Bernardino Association of Governments
SANDAG	San Diego Association of Governments
SANDER	San Diego Energy Recovery Project
SB	Senate Bill
SCAB	South Coast Air Basin
SEGS	Solar Electric Generating Station
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCFM	standard cubic feet per minute
SCH	State Clearing House
SCIT	Southern California Import Transmission
SCR	Selective Catalytic Reduction
SCTL	single circuit transmission line
SDCAPCD	San Diego County Air Pollution Control District
SDG&E	San Diego Gas & Electric Company
SEPCO	Sacramento Ethanol and Power Cogeneration Project
SIC	Standard industrial classification
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAQMD	San Joaquin Valley Air Quality Management District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SMUDGEO	SMUD Geothermal
SNCR	Selective Noncatalytic Reduction
SNG	Synthetic Natural Gas
SO_2	sulfur dioxide
SO_x	sulfur oxides
SO_4	sulfates
SoCAL	Southern California Gas Company
SONGS	San Onofre Nuclear Generating Station
SPP	Sierra Pacific Power
STIG	steam injected gas turbine

SWP	State Water Project
SWRCB	State Water Resources Control Board
	T
TAC	Toxic Air Contaminant
TBtu	trillion Btu
TCF	trillion cubic feet
TCM	transportation control measure
TDS	total dissolved solids
TE	transmission engineering
TEOR	Thermally Enhanced Oil Recovery
TID	Turlock Irrigation District
TL	transmission line or lines
T-Line	transmission line
TOG	total organic gases
TPD	tons per day
TPY	tons per year
TS&N	Transmission Safety and Nuisance
TSE	Transmission System Engineering
TSIN	Transmission Services Information Network
TSP	total suspended particulate matter
	U
UBC	Uniform Building Code
UDC	Utility Displacement Credits
UDF	Utility Displacement Factor
UEG	Utility Electric Generator
USC(A)	United States Code (Annotated)
USCOE	U.S. Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
	V
VCAPCD	Ventura County Air Pollution Control District
VOC	volatile organic compounds
	W
W	Watt
WAA	Warren-Alquist Act
WEPEX	Western Energy Power Exchange
WICF	Western Interconnection Forum
WIEB	Western Interstate Energy Board
WOR	West of River (Colorado River)
WRTA	Western Region Transmission Association
WSCC	Western System Coordination Council
WSPP	Western System Power Pool