CALIFORNIA
ENERGY
COMMISSION

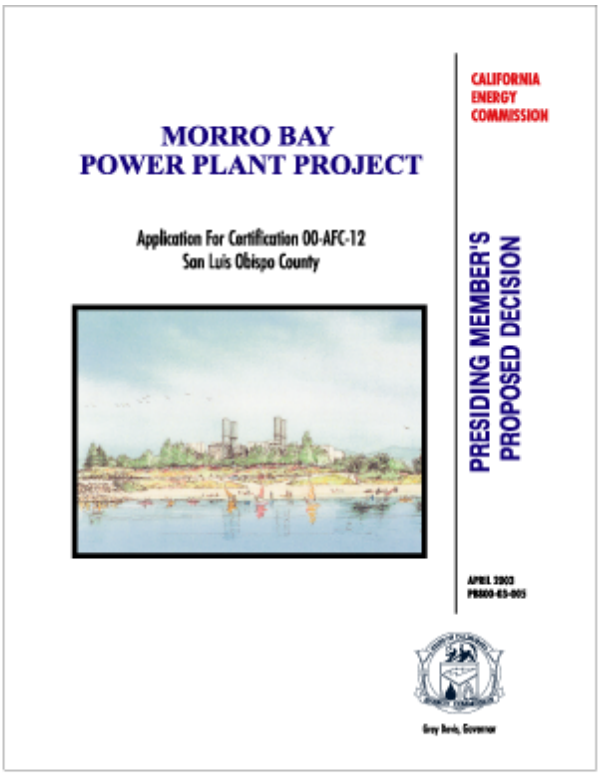
MORRO BAY POWER PLANT PROJECT

Application For Certification (00-AFC-12)
San Luis Obispo County

PRESIDING MEMBER'S PROPOSED DECISION

APRIL 2003
PB800-03-005

Gray Davis, Governor



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The Committee hereby submits its Presiding Member's Proposed Decision (PMPD) for the Morro Bay Power Plant Project (Docket Number 00-AFC-12). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code of Regs., §§ 1749-1752. 5).

We recommend the Application for Certification for the Morro Bay Power Plant Project to be approved, subject to the Conditions of Certification set forth herein, and that the Commission grant the Applicant a license to construct and operate the project.

Written comments on this document are due no later than Friday, June 13, 2003. The Committee will conduct a public conference in Morro Bay on Monday, June 30, 2003, to take oral comments on the PMPD. The details of the conference will be announced in a separate notice.

Dated: April 29, 2003

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

WILLIAM J. KEESE
Chairman and Presiding Member
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INTRODUCTION

The following section contains a summary of this Decision, an overview of the process used at the Commission to certify power plant sites and facilities, and a history of the procedural steps of this particular case.

A. SUMMARY

This Decision contains our rationale for determining that the proposed Morro Bay Power Plant Project (Project) complies with all applicable laws, ordinances, regulations, and standards, and may therefore be licensed. It is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record supporting our findings and conclusions, and specified the measures required to ensure that the Project is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

The Project is a major modernization of the existing Morro Bay Power Plant (MBPP). Duke Energy Morro Bay LLC (Duke or Applicant) proposes to remove the existing facility and replace it with a new combined-cycle power plant just north of the existing MBPP. The existing MBPP consists of four natural gas-fired generating units, employing 1950s and 1960s technology. Generating capacity of the existing plant is 1002 MW. The proposed Project will have two modern combined-cycle units. Each new unit will consist of two natural gas-fired turbines, a heat recovery steam generator and one steam turbine. The heat recovery system will also include supplementary firing, or "duct-firing," to boost performance. (Ex. 117, p. 26.) Generating capacity of the Project, including duct firing, will be 1200 MW.

Natural gas will continue to be delivered from an existing PG&E pipeline. The Project will continue to interconnect with the electrical grid at the existing PG&E switchyard, which is located on the eastern portion of the plant site. (Ex. 117, p. 26.) Based on current design, Applicant expects the proposed Project to exceed $800 million in capital costs. (Ex. 117, p. 24.)

Duke anticipates that the Project will proceed in three stages: Phase I - demolition of the tank farm, which will take three months; Phase II - construction of the new power block, which will take 21 months; and Phase III - demolition of the existing MBPP, which will begin after the new units commence commercial operation and take no longer than 36 months. (Ex. 117, pp. 26-27.)

In proposing the modernization Project, Applicant has identified the following objectives:

- Develop a more efficient combined-cycle facility, with duct-firing, that can compete more effectively in the California and regional electricity market than the existing facility;
- Make use of existing infrastructure wherever possible and practical;
- Develop a project that is consistent with local plans;
- Avoid or minimize environmental impacts;
- Improve the environment including the visual setting; and
- Optimize the design to meet these requirements and feasibility from a business perspective. (Ex. 117, p. 36.)

The proposed Project will have a number of environmental benefits relative to the existing plant. For example, the two new combined-cycle units will have four 145-foot-tall stacks, which are significantly lower than the three 450-foot-tall existing stacks. This feature, along with relocation of the power plant to the site of the existing tank farm north of the old plant, will reduce visual impacts for a great number of viewers. The Project will also increase generation capacity from the existing 1,002 MW to 1,200 MW, a 20 percent increase. This will be

achieved while decreasing by approximately 30 percent the amount of natural gas required to produce each MW of electricity. To control air emissions, MBPP's new combined cycle units will employ best available control technology (BACT), including selective catalytic reduction (i.e., reduction catalyst, aqueous ammonia injection) for controlling nitrogen oxides and an oxidation catalyst for controlling carbon monoxide. Together, these factors will result in reduced air emissions from the modernized power plant. All emissions will be fully offset in accordance with applicable law.

One of the most controversial areas of this case is the potential impact to the marine environment in the Morro Bay Estuary from the once-through cooling water system. For the last 50 years the MBPP, and in particular the once-through cooling system, have formed part of the existing environmental setting in Morro Bay. After a careful analysis of the evidence, we have determined that the proposed Project will have less impact on the aquatic environment than the existing power plant. Based on the requirements of the California Environmental Quality Act, (CEQA) the proposed Project will have no significant adverse impact on the aquatic environment.

Nevertheless, by our conservative analysis, we have determined that the proposed Project will cause a maximum 16.2 percent proportional mortality of susceptible aquatic species as a result of these organisms being entrained in the Project's once-through cooling water system. Though less than the impacts of the existing plant, such an adverse effect must still be addressed under the provisions of the federal Clean Water Act. Section 316(b) of the Act requires the use of "best technology available" (BTA) to avoid impacts. During the proceeding, Energy Commission staff proposed dry cooling as BTA. The parties presented extensive evidence on this topic. Based on the evidentiary record, we have determined that dry cooling is not feasible at the proposed Project site. In addition, we concur with the staff of the Central Coast Regional Water Quality Control Board that the cost of dry cooling at this particular site is far too high and

cannot be justified when compared to the preferred option – a habitat enhancement program (HEP).

Unlike the dry cooling option, a HEP will more broadly address some of the most serious environment problems in the Morro Bay Estuary. We have reviewed an extensive body of evidence on this subject and found that both the Applicant and the staff of the Regional Board have presented HEP approaches which can comply with applicable law. In fact, based on the evidence in our record, we firmly believe that even if dry cooling were feasible and cost free, it would not offer the environmental benefits to the Morro Bay Estuary that a successful HEP will provide. The record is clear that even without operation of the existing or the proposed new power plant, the Morro Bay Estuary is on a path of rapid decline, largely due to sedimentation. The HEP proposals associated with Duke's Project offer the most promising opportunities available to slow sedimentation and help preserve the estuarine environment of Morro Bay.

We have also determined that the Project may impact sensitive terrestrial species. The Decision contains requirements for funding of compensatory habitat and other mitigation measures to reduce such impacts to insignificant levels. The use of Native American monitors from affected local tribes will reduce the risk to cultural resources during construction activities.

Finally, the Project will provide significant financial benefits to the Morro Bay community. These benefits will include the local purchase of about $10.3 million worth of material for Project construction, a total construction payroll estimated at approximately $67 million, and on-going local expenditures for maintenance and materials projected at $260,000 annually. Once completed, the Project will have an annual operational payroll of approximately $8.6 million. Property tax revenues for the City of Morro Bay above the level provided by the existing plant are estimated at $626,700. Annual revenues to the County General Fund and school district will be an estimated $1.019 million and $1.662 million,

respectively. Moreover, Duke has agreed to support a minimum annual funding to the City of Morro Bay of $2 million from property taxes, franchise fees, and other city fees. The company will provide the City with additional funding to guarantee the $2 million annual payment should the combined totals not reach this level.

B. SITE CERTIFICATION PROCESS

The Morro Bay Power Plant Project and its related facilities fall within Commission licensing jurisdiction. (Pub. Resources Code, §§ 25500 et seq.) During its licensing proceedings, the Commission acts as the lead state agency under the California Environmental Quality Act. (Pub. Resources Code, §§ 25519 (c), 21000 et seq.) The Commission's certification process provides a thorough, timely review and analysis of all aspects of a proposed project. During this process, we conduct a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

The Commission’s process and associated documents are functionally equivalent to the traditional Environmental Impact Report process. (Pub. Resources Code, § 21080.5.) It is designed to allow 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.

Significantly, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally, or on a more formal level as Intervenors with the same legal rights and duties as the project developers. Public participation is encouraged at every stage, and our process requires substantially more opportunities for public participation and review than does the traditional CEQA process. Moreover, as explained in subsequent portions of this document, we have fully and fairly

examined the positions formally espoused by various Internvenors and members of the public. On balance, we believe that the participation of the public and local Intervenors has resulted in a painstaking scrutiny of the Applicant's proposal, as well as the development of Conditions of Certification which extensively reduce and safeguard against potential Project impacts.

The certification process begins when an Applicant submits the Application for Certification (AFC). Commission staff reviews this submission, and recommends to the Commission whether or not the accompanying information is adequate to permit formal 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 initial portion of the certification process is weighted heavily toward ensuring public awareness of the proposed project and obtaining such further technical information as is necessary. The Office of the Public Adviser is available to inform members of the public concerning the certification proceedings, and to assist those interested in participating. During this phase, the Commission staff sponsors numerous public workshops at which Intervenors, agency representatives, and members of the public meet with Staff and Applicant to discuss, clarify, and negotiate pertinent issues. Staff publishes its initial technical evaluation of a proposed project in the Preliminary Staff Assessment (PSA), which is made available for public comment. Staff's responses to public comment on the PSA and its complete analysis are published in the Final Staff Assessment (FSA).

The Committee also conducts various public events, including at least one Prehearing Conference, to assess the adequacy of available information, identify issues, and determine the positions of the various participants. Information gleaned from these events forms the basis for a Hearing Order organizing and scheduling formal Evidentiary Hearings. At these hearings, all 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 adduced during these hearings provides the basis for the decision-makers' analysis.

This analysis, in turn, appears in a Committee recommendation to the full Commission in the form of a Presiding Member's Proposed Decision (PMPD), which is available for a public review period of at least 30 days. This document provides the Committee's recommendation to the full Commission concerning a project's ultimate acceptability. The PMPD also determines a project's conformity with applicable laws, ordinances, regulations, and standards. Depending upon the extent of revisions necessary in reaction to comments received on the PMPD, the Committee may elect to publish a revised version. If so, this latter document triggers an additional 15 day public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

Throughout the licensing process, the members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Staff, and formal Intervenors function independently and with legal status equal to one another. An "ex-parte" rule prohibits parties from communicating on substantive matters with the decision-makers, their staffs, or assigned hearing officer unless these communications occur on the public record.

C. PROCEDURAL HISTORY

The Public Resources Code (§§ 25500 et seq.) and Commission regulations (20 Cal. Code of Regs., §§ 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.

In August, 1999, Duke proposed a single 500 MW power plant project at the existing MBPP site to take the place of Units 1 and 2, with Unit 3 and 4 continuing to operate. However, the City of Morro Bay sought the complete and early demolition of the existing power plant units as a condition of its support for the modernization Project. In response to these local concerns, Applicant withdrew its AFC and redesigned the proposal to reduce visual impacts, accelerate removal of the existing plant, and address various other local concerns.

On October 23, 2000, Duke filed a new AFC seeking approval from the Commission to construct and operate the proposed net 1200 megawatt (MW) natural-gas fired, combined cycle, combustion turbine Morro Bay Power Plant Project. On December 27, 2000, the Commission found the AFC to be data adequate, which began Staff's analysis of the Project.

The Committee scheduled its initial public event, an "Informational Hearing and Site Visit," by notice dated, January 31, 2001. This Notice was sent to all people known or expected to be interested in the proposed Project, including the owners of land adjacent to, or in the near vicinity of, the Morro Bay Power Plant; it was also published in a local general circulation newspaper.

The Committee conducted the Informational Hearing in Morro Bay on February 20, 2001. At this event, the Committee and other participants discussed the proposed Morro Bay Power Plant, described the Energy Commission's review process, and explained opportunities for public participation. The parties also toured the site of the Morro Bay Power Plant.

Over the course of the next several months, Commission staff held public events to assess the status of the Project, including submission of necessary information by Applicant. Staff held the first of its thirteen (13) public workshops on

February 21, and 22, 2001, a Data Request Workshop; April 5, 2001, a Data Response Workshop on Visual Resources; June 5, 6, 7, 12, 13, 14, and 21, 2001, Preliminary Staff Assessment (PSA) Workshops on technical areas such as Air Quality, Cultural Resources, Visual Resources, Traffic, Transmission Line Safety and Nuisance, Noise, Socioeconomics, Land Use, Soils and Water Resources, and Biological Resources. On March 20, and 21, 2002, Staff held a Biological Resources Workshop including Cooling Options, and on September 10, 2002, held a workshop on the Habitat Enhancement Program.

Staff prepared both a Preliminary and Final Staff Assessment, and conducted workshops in Morro Bay to discuss findings, proposed mitigation, and proposed compliance monitoring requirements. A total of nine workshops on the PSA were held in Morro Bay during June 2001. During approximately 45 hours of workshops the Applicant, Intervenors, agencies, the public, and Staff discussed the PSA and outstanding issues.

In addition to these and several other workshops, extensive coordination occurred with local, state, and federal agencies that have an interest in the Morro Bay Power Project such as the City of Morro Bay, the County of San Luis Obispo, the San Luis Obispo Air Pollution Control District, the California Coastal Commission, the Monterey Bay National Marine Sanctuary, the Regional Water Quality Control Board, the Native American Heritage Commission, Morro Bay Estuary Project, California State Parks, Department of Fish and Game, and the National Marine Fisheries Service, as well as numerous Intervenors and the interested residents of the community.

The Committee issued a Scheduling Order on April 2, 2001, and held an initial Status Conference on April 24, 2001. The Committee then issued a Revision to the Committee Scheduling Order on May 11, 2001, and held a second Committee Status Conference on August 16, 2001. A Status Conference provides a public forum allowing the Applicant, Commission staff, interested

parties, governmental agencies, and members of the public to indicate whether case development is progressing satisfactorily, and to bring potential schedule delays or other relevant matters to the Committee's attention.

The Committee then held a Prehearing Conference on November 29, 2001. The basic purposes of the Prehearing Conference are to assess the parties' readiness for Evidentiary Hearings, to clarify areas of agreement or dispute, to identify witnesses and exhibits, to determine upon which topics parties desire to cross-examine witnesses from other parties, and to discuss procedures which will assist the Committee in concluding this licensing process in as timely a manner as feasible.

The Committee scheduled and conducted its first Evidentiary Hearing in Morro Bay on December 17, 2001. A second set of Evidentiary Hearings occurred during January 29, 30, 31, 2002, and February 5, and 6, 2002. The Committee then conducted a third set of Evidentiary Hearings on March 12, 13, and 14, 2002. A Fourth set of Evidentiary Hearings took place on June 4 through 6, 2002 for Group IV topics, and final Evidentiary Hearings were held on November 5 and 6, 2002, to receive evidence on the Habitat Enhancement Plan (HEP).

At these publicly-noticed hearings all parties were afforded the opportunity to present evidence, cross-examine witnesses, and to rebut the testimony of other parties, thereby creating an evidentiary record which forms the basis for the Commission Decision. The hearings before the Committee also allowed all parties to argue their positions on disputed matters and provided a forum for the Committee to receive comments from the public and other governmental agencies. During this review process, the Committee issued nearly 25 Orders or Rulings, approximately 15 Notices, and held 17 hearings or conferences.

Formal Intervenors in this process include: California Unions for Reliable Energy (CURE); The Coastal Alliance on Plant Expansion (CAPE); Mr. Babak Naficy; Earth Justice Environmental Law Clinic at Stanford; Patti Dunton; and the City of

Morro Bay. Interested Agencies involved were the San Luis Obispo County Air Pollution Control District; the California Coastal Commission; the Monterey Bay National Marine Sanctuary; the Native American Heritage Commission; Morro Bay Estuary Project; the California State Parks; National Marine Fisheries Service; and, the California Department of Fish and Game.

After reviewing the evidentiary record, the Committee published its Presiding Member's Proposed Decision on April 30, 2003. The comment period on the PMPD will end on June 13, 2003.

The Committee will conduct a public conference on June 30, 2003, in Morro Bay, to receive oral comments on the PMPD. If there are no comments that would change the substantive findings and conclusions contained in the PMPD, the Commission will thereafter conduct a hearing and consider adoption of the PMPD along with any Errata (containing clarifications and corrections based on comments) at a regularly scheduled Business Meeting. If, on the other hand, the Committee determines that revisions must be made to the substantive findings and conclusions in the PMPD, the Committee will issue a Revised PMPD at least 15 days before the full Commission meets to consider adoption of a final Decision.

The Commission anticipates reaching its final Decision after the Central Coast Regional Water Quality Control Board issues a National Pollution Discharge Elimination System (NPDES) permit on October 24, 2003.

I. PROJECT DESCRIPTION AND OBJECTIVES[1]

Duke Energy Morro Bay LLC (Applicant) is seeking approval to construct and operate the Morro Bay Power Plant (Project) a 1200-megawatt (MW), natural gas-fired, combined-cycle power plant.[2] Located in the City of Morro Bay, in San Luis Obispo County, the Project will completely replace the existing generation units and increase the generation capacity of the existing plant by 198 MW. (Ex. 4.) Applicant is developing the Project to sell electricity in California's electricity market.

This section provides an overview of the proposed Project and its objectives as described by Applicant and clarified during the evidentiary hearings. This essentially includes the location of the Project, its major components, related linear systems, and the major electric generation systems.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project Location

The "modernization" Project is proposed to be located at the existing 107-acre Morro Bay Power Plant site that is owned and operated by Duke Energy. The Project site is located within the City of Morro Bay, San Luis Obispo County, near Morro Bay Harbor, bordered on the west by Embarcadero Road and on the east by Highway 1. See Figures 1 and 2 for the regional and local vicinity setting of the Project. Construction laydown and parking areas are proposed for both on-site and off-site locations. These are shown in Figure 3.

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[1] References to the reporter's transcripts (RT) of this proceeding appear throughout this Decision. These are abbreviated according to month, day, year, page and, if necessary, line reference. Thus, the transcript reference for page 10 of a December 17, 2001 hearing would be "12/17/01 RT 10"; reference to lines 7 through 9 of this page would be abbreviated as "12/17/01 RT 10:7-9."

[2] The generation capacity listed in the Application for Certification (AFC) and assumed in the Final Staff Assessment (FSA) is a nominal capacity. Actual capacity can vary depending on site conditions such as ambient air temperature. (12/17/01 RT 45-46.) Commission regulations specify that average temperature and humidity should be used in deriving a facility's capacity. (Cal. Code Regs., tit. 20 § 2003(b)(2)(A))

PROJECT DESCRIPTION - Figure 1
Regional Map
Source: Exhibit 4, p. 1-5

PROJECT DESCRIPTION - Figure 2
Site Location Map
Source: Exhibit 4, p. 1-9

PROJECT DESCRIPTION - Figure 3
Off-Site Construction Laydown and Parking Areas
Source: Exhibit 115 p. 3.6-12

Power Plant

The existing Morro Bay Power Plant is a viable operating power plant and an active participant in the regional western electricity market. It consists of four generating units totaling 1002 MW. Units 1 and 2 (326 MW) were installed during the 1950's and Units 3 and 4 (676 MW) were installed during the 1960's. The facility sells energy as well as ancillary services into the western market. Ancillary services include the provision of reserves to the grid (spinning, non-spinning, and replacement reserves) in addition to the provision of Automated Generating Control. During 2000, the facility produced 5.23 million megawatt-hours of electricity and a plant capacity factor of 59.7%. During 2001, Duke Energy estimates that the facility produced 4.25 million megawatt-hours of electricity for a plant capacity factor of 49.1%. (Ex. 117, p. 25.)

The proposed modernization Project will remove the existing, operating facility and replace it with two state-of-the-art combined-cycle units. Each new unit will be capable of producing 516 MW. The new units will consist of two gas-fired turbines and one steam turbine driven by the heat produced by the other two turbines. (See Figures 4 and 5 to compare the existing plant layout to that of the proposed Project.) Each new unit will have two 145-foot tall stacks compared with the existing plant's three 450-foot tall stacks. Figure 6 illustrates the relative size of the existing and the proposed stacks. (Ex. 115, 3-1.)

The new units are expected to be used for intermediate load operations. The units' duct-fired design enables approximately 84 MW of additional peak capacity per combined-cycle unit when required by the electrical system or market conditions.

This brings the total generating capacity of the new plant to 1200 MW. To control emissions of air pollutants, the MBPP's combined-cycle units will use the best available control technology (BACT) including the selective catalytic reduction (SCR) for control of nitrogen oxides (NOx) and an oxidation catalyst for control of

carbon monoxide. The SCR system consists of the reduction catalyst and an aqueous ammonia injection system. (*Ibid*.)

Linear Facilities

The electrical power generated by the Project will be delivered into the transmission grid from the high side of the electrical transformer at the plant to the PG&E 230-kV switchyard. Morro Bay is located in what is called the ZP26 zone of the California Independent System Operator (ISO) controlled grid. Depending on how energy is flowing within the larger Western Systems Coordinating Council (WSCC), energy from the facility can be marketed to virtually any point within the WSCC. The WSCC grid generally includes those states west of the Rocky Mountains, the Canadian provinces of British Columbia and Alberta, and the Baja peninsula of Mexico. (Ex. 117, p. 26.)

However, as a practical matter, Duke Energy sells the vast majority of the energy from the existing Morro Bay plant to customers within California. Depending on the availability of transportation through critical bottlenecks within the California transmission network, Morro Bay energy is frequently purchased by customers in northern California (Zone NP15) and southern California (Zone SP15). (Ex. 117, p. 26.)

The majority of energy from the facility is sold via bilateral contracts to utilities, municipal power authorities, and marketers of energy. Energy not pre-sold in bilateral markets is sold in day-ahead or real-time markets to these same entities, as well as to the California ISO. All sales of ancillary services are made to the California ISO. The electrical output generated by the existing facility also helps maintain safe and reliable levels of power generation for the surrounding area. The proposed Project will provide similar services to the grid. (Ex. 117, p. 26.)

PROJECT DESCRIPTION - Figure 4
Existing Power Plant Layout
Source: Exhibit 4, Figure 2-5, p. 2-11

PROJECT DESCRIPTION - Figure 5
Proposed Project Layout
Source: Exhibit 4, Figure 2-9, p. 2-31

PROJECT DESCRIPTION - Figure 6
Comparison of Building Size
Source: Exhibit 4, Figure 2-7, p. 2-17

Natural gas will be delivered from Pacific Gas and Electric Company (PG&E) through pipeline 306, which was built for existing units 1-4. Pipeline 306, which is 20 inches in diameter, runs south from the Kettleman Compressor Station to Morro Bay. No changes are proposed for this pipeline. Natural gas at Kettleman originates from the south with El Paso Natural Gas in Arizona and from the north with PG&E/Northwest in Oregon. The Project will require a new natural gas tie-in that is to be located onsite east of the existing natural gas regulating station and metering station. (Ex. 115, p. 3-2.)

The combined-cycle units are expected to use a maximum of 475 million gallons per day (gpd) of seawater for cooling and boiler makeup, The cooling water intake is proposed to continue at its existing location on Morro Bay although the intake building may be architecturally modified. After passing through the plant's cooling system, the cooling water is discharged to the Pacific Ocean through a canal outfall entering Estero Bay, north of Morro Rock. The Project's freshwater usage will be about 10,000 gpd for routine operation from its onsite wells. For short-term maintenance activities more than 80,000 gpd may be used. Wastewater streams consist of sanitary uses, process wash and stormwater. Some components of these streams will require treatment before disposal in the discharge outfall or local sewer system. (*Ibid*.)

The Project will continue to interconnect with the electrical grid at PG&E's existing 230-kV switchyard located on the eastern portion of the plant site. No new electric transmission lines are expected to be required.

Construction and Operation

Applicant estimates the cost of the Project to exceed $800 million. The Project will include the demolition of the on-site fuel oil tank farm, construction of the new combined-cycle power block, and demolition of the existing power plant complex. In its AFC, Duke proposed that the Project will proceed in three stages: Phase I -

demolition of the tank farm, which will take three months; Phase II - construction of the new power block, which will take 21 months; and Phase III - demolition of existing units 1-4 and their three 450 foot stacks, which will begin after commercial operation of the new units commences and is estimated to take no longer than 36 months. (Ex. 117, pp. 26-27.)

The construction work force necessary for the three construction phases is expected to be as follows: Phase I will require an average of 35 workers; Phase II will require an average of 300 workers during the day shift and up to 100 workers during the night shift with peaks of 700 workers (day) and 240 workers (night), respectively; and Phase III will require 100 workers during the peak months and 40 on average. Once the new units are on line, the operational staff required is expected to be about 40 employees. (Ex. 117, p. 27.)

Applicant proposes to construct temporary facilities to be used during construction including an employee footbridge over Willow Camp Creek as well as on-site staging and parking areas. In addition, Duke proposes a series of traffic, landscaping and aesthetic features, including bike paths, the installation of a permanent bridge across Morro Creek, and landscaping. (Ex. 117, p. 27.)

Project Objectives

In proposing the modernization Project, Duke identified a number of objectives, including the following:

- Develop a more efficient combined-cycle facility that can compete more effectively in the California and regional electricity market than the existing facility;
- Make use of existing infrastructure wherever possible and practical;
- Develop a project that is consistent with local plans;
- Avoid or minimize environmental impacts;

- Improve the environment including the visual setting; and
- Optimize the design to meet these requirements and feasibility from a business perspective. (Ex. 117, p. 36.)

CAPE's Position

CAPE argues that the Commission's review of the Project's description fails to meet the requirements of the California Environmental Quality Act (CEQA) for four reasons: 1) the FSA consideration of Project impacts amounts to improper "piecemealing" of environmental review, 2) the Applicant's filing and the FSA both lack a specific operating lifetime estimate for the Project; 3) the analysis provides no clear statement of Project objectives; and, 4) Applicant fails to account for potential unavailability of proposed construction laydown areas at Camp San Luis Obispo as a result of heightened security at the camp. As explained below, none of these arguments are persuasive.

Commission Discussion

CAPE's first argument is that the separation of the FSA into more than a single document constitutes "piecemealing" of the Project in violation of a number of cases following *Bozung v. Local Agency Formation Commission* 13 Cal.3d. 263 [118 Cal.Rptr. 249] (1975).[3] However, the "piecemealing" doctrine cited in this line of cases refers to the artificial division of the project itself, not the environmental documentation concerning the project.

1. Piecemealing

The term "piecemealing" refers to the separate consideration and separate approval of "pieces" of a project in such a way that the overall impacts of the entire project are never fully considered by the decision-maker. By contrast,

[3] See Opening Brief of Intervenor The Coastal Alliance on Plant Expansion Re Group I Topics, pp. 5-10.

publishing the Staff analysis or FSA, in two or more separate documents prior to an agency decision on the entire project that considers the all of the FSA sections does not piecemeal the approval. This latter practice is common at the Energy Commission and at other agencies, and is merely a matter of administrative convenience within the discretion of the agency. CAPE's argument that the FSA must be bound within a single cover rather than as two or more separate documents is without support in law anywhere, including in the cases CAPE cites in its brief.

Primarily, CAPE's analysis is incorrect because the "project" being analyzed is the Morro Bay Power Plant and not the FSA. CAPE incorrectly applies the CEQA guidelines to the FSA, instead of the actual Project. (CEQA Guideline § 15378(c).) The FSA is neither "the whole of an action, [having] the potential for resulting in either a direct physical change in the environment" nor is it "the activity which is being approved and subject to several discretionary approvals by government agencies." Instead, the Project is the power plant modernization proposal. As such, the prohibition on piecemealing applies to the power plant proposal, and not the FSA. Likewise, all of the cases cited by CAPE involve the piecemealing of a project and not the presentation of the EIR or comparable environmental review document.

Furthermore, it is important to point out that the publication of the FSA is not the end of the review process for CAPE. CAPE also has the right to file testimony, review other parties' testimony, present and cross-examine witnesses, and submit briefs to the Committee. Because CEC power plant certification is a CEQA-*equivalent* process, the law actually provides CAPE with greater opportunities to discuss its concerns than under a standard CEQA review.

In addition, CAPE's argument that Staff may not present the Project impacts in a compartmentalized manner as set forth in the FSA is mistaken. In fact, CEQA statutes and Guidelines themselves call for breaking up the Project discussion

into separate subtopics (for instance, traffic and transportation, land use, air quality, etc.). *See generally* CEQA Guidelines, Appendix G; CEQA Guidelines Section 15169(b); Public Resources Code sections 21000, 21001. This manner of "compartmentalization" is not only supported by the CEQA Guidelines, but is statutorily mandated.

CAPE also argues that Staff has not adequately considered the "interaction between each subject matter" and that "CEQA requires an assessment of all of the inter-actions between specific subject matter effects." (CAPE Opening Brief, at 8 and 10.) Yet CAPE makes no showing that within each topic area Staff failed to consider anything relevant to the analysis of that topic, including matters relevant to other topics as well.[4]

Finally, and most significantly, CAPE fails to note that no decision-maker will act upon the FSA, or upon other parts of the evidentiary record, until after considering all of it, as a whole. Intervenors and any members of the public have multiple opportunities to present comments to the Commission after release of all of the FSA and other evidence. They can make these comments prior to any decision by the Commission. Thus, if there are interactions between the topics that CAPE desires to call to the Commission's attention, CAPE will have ample opportunity to do so. The simple fact is that the Commission's certified regulatory program provides far more opportunity for public comment on Staff's environmental analysis, in its entirety and by topic, than is required by CEQA or is typically provided by other agencies carrying out a CEQA review process.

[4] The only topic area where there is a legally required interaction between topics is alternatives, where CEQA provides that the scope of the alternatives to be considered is defined by their potential to reduce or eliminate significant, adverse impacts in other topic areas. Staff conducted such an interdisciplinary analysis in its Alternatives section of the FSA. (Ex. 197, pp. 4-1 to 4-34.)

2. Project Operating Life

CAPE also asserts that the FSA is legally flawed because, in CAPE's view, Staff limited its analysis to an allegedly ambiguous or incorrect operating life of the Project. CAPE refers to cases holding that the lead agency erred in failing to consider environmental impacts beyond the proposed life of the project if: (1) applicant proposes a definite lifetime of the project; (2) credible and substantial evidence exists to indicate that applicant plans to operate the project past its proposed lifetime; and (3) evidence demonstrates that an impact will continue past the proposed life of the project that was not analyzed and/or mitigated that would change the scope or nature of the project. However, in this case, none of the three required elements of these court decisions are present. The evidence shows that Applicant has not proposed any limitation on the operating life of the Project, and that Staff has not limited its analysis of Project impacts based on any assumptions of a finite project life.

CAPE cites *Kings County Farm Bureau v. Hanford* (1990) 221 Cal.App.3d 692, 270 Cal.Rptr. 650. In that case, petitioners alleged that a project EIR analysis of the environmental impacts of a cogeneration plant erroneously assumed a 20-year lifetime rather than a 30-year project lifetime. Petitioners contended that as a result of this inadequate project description, the lead agency underestimated environmental impacts of the project by 50 percent. However, key provisions of that case establish the facts that: 1) the applicant proposed a finite life of the project of 20 years based upon the term of its power sales agreement; and 2) the agency limited its review of environmental impacts to the 20-year period. Neither of those facts is present in the Morro Bay case.

CAPE also cites *Laurel Heights Improvement Assn v. Regents of University of California* (1988) 47 Cal.3d 376, 253 Cal.Rptr. 426 which supports the three-prong determination noted above. The *Laurel Heights* case addressed the adequacy of an EIR prepared by a public university planning to relocate its

biomedical research facilities to a newly acquired building in a residential area. The court held that a lead agency must perform an environmental analysis of future expansion or operation if there is credible and substantial evidence that (1) it is a reasonably foreseeable consequence of the initial project and (2) the future expansion or operation will likely change the scope or nature of the initial project or its environmental effects. (*Id.* at 396-398.) The court stated that "Absent these two circumstances, the future expansion need not be considered in the EIR for the proposed project. Of course, if the future action is not considered at that time, it will have to be discussed in a subsequent EIR before the future action can be approved under CEQA." (*Id.* at 396.) As applied to the facts in the case, the court stated that sufficient evidence existed to demonstrate that future expansion and a general type of future use is reasonably foreseeable based on the following: (1) notice in the draft EIR that the project applicant plans to occupy the entire building once that space becomes available; and (2) EIR estimates that the number of faculty, staff and students occupying the building will be 460 until 1995 (i.e., the proposed project lifetime) and then 860 when the entire facility becomes available thereafter. Because substantial and credible evidence exists to prove the project would last past the proposed life of bioresearch facilities *and that such operation would impose qualitatively different impacts*, the court found the EIR to be inadequate because the lead agency failed to discuss the environmental impacts of the proposed project expansion. By contrast, in the case before us we see no assumption on the part of either Applicant or Staff that the Project will terminate after a specific time and no analysis of environmental impacts which relies upon a time-limited Project life.

Finally, CAPE cites *City of Santee v. County of San Diego* (1989) 21 Cal.App.3d 1438, 263 Cal.Rptr.340 which also demonstrates the validity of the three-pronged standard. The court in *City of Santee* examined petitioners' challenges to the adequacy of an environmental impact report prepared for the expansion of a temporary county jail. While the lead agency originally did not specify a time period for the project's operating, the agency subsequently recommended a

defined operating life of seven years during hearings. The court found that because sufficient evidence existed to demonstrate the anticipated expansion of the facility beyond the initial seven years, the lead agency was obligated to examine and discuss environmental impacts extending beyond the proposed life of the project.

CAPE offered no evidence to show that Applicant or Staff in this case has failed to meet the standard supported by the three court cases it cites. First, there is no showing that Duke has proposed any specific limit or operating life for the Project. On the contrary, the evidence demonstrates that the Project's operating life is uncertain and that Duke intends to operate the facility for the indefinite future. Applicant's witness Mr. Poquette testified that while the Project could be defined in terms using a definite time period such as 30 years, such a determination "in no way is intended to limit the ultimate life span of the facility." (Ex. 117, p. 4.) Mr. Poquette reiterated this point during the evidentiary hearing when he noted that any reference to a defined life of the Project "was in no way to intend that this plant has a finite life of 30 years or 25 years". (12/17/01 RT 50.) In fact, in response to CAPE's cross-examination, Mr. Poquette stated that the estimated lifetime of the Project is for an indefinite period (*Id*, RT 70.) and that actual capacity can vary depending on site conditions. (*Id*, RT 45.)

Second, there is no evidence that Staff limited its environmental analysis to a definite period of time. Although CAPE asked Staff's opinion as to how long individual Staff members *believed* the Project would operate, CAPE did not establish that Staff's environmental analysis was limited based on an assumed or stated Project life. Nor did CAPE demonstrate that Staff's conclusions would change if it analyzed the Project using a different operating life. In fact, when questioned by CAPE on this matter, Staff pointed out that there was no need to impose a termination date on the Commission's permit for the Project since the length of time the facility will operate does not change any of Staff's conclusions

regarding impacts. The following exchange between CAPE's attorney and Staff witness Steve Baker is illustrative of the Staff approach to the analysis.

> **CAPE:** But you assumed in your analysis a 30-year life, is that correct?
>
> **Staff:** Yes, but the conclusions reached in my efficiency testimony are not dependent upon the power plant being turned off after 30 years. (12/17/01 RT 95.)

We conclude that CAPE has (1) failed to provide any evidence that the Applicant proposes a definite lifetime for the Project, (2) failed to establish that Applicant plans to operate the Project past any definite proposed lifetime, and (3) has failed to provide evidence of impacts occurring past a proposed Project life where such impacts would change the Project's scope or which were not analyzed by Staff. The adequacy of the Project description does not suffer for its lack of a specific operating life for the Project.

3. Project Objectives

CAPE also claims that the Project Description section in the FSA does not include a clear statement of Project objectives. Applicant identified Project objectives in its testimony. (Ex. 117, p. 36; 12/17/01 RT 253-254.) Staff provided a brief discussion of the Project's purpose in its testimony on Project Description. (Ex. 115, pp. 3-1 to 3-3.) A more detailed list of project objectives appeared later in its testimony on Project Alternatives. (Ex 197, p. 4-2.) Staff states in its Reply Brief that it is more appropriate to include the more in-depth discussion of project objectives in the alternatives testimony since that is the topic under CEQA for which project objectives are most relevant. In support, Staff cites section 15124 of the CEQA Guidelines which states "[a] clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate…" [Cal. Code of Regs., tit. 14, § 15124(b)]. We find that the testimony of Staff and Applicant present a reasonable description of project objectives.

4. Security Concerns and Availability of Laydown Area

CAPE testified that Duke's ability to use Camp San Luis Obispo as its construction laydown area is jeopardized by the Camp's increased security measures taken as a result of the events of September 11, 2001. (Ex. 122.) However, Applicant testified that Duke personnel met with Camp representatives shortly after September 11th to update them about the Project and to explicitly confirm Duke's continued access to the Camp. (12/17/01 RT 251-53.) Camp officials assured Duke that there will be no conflict between Duke's proposed uses at the Camp and the Camp's heightened security measures (*Ibid*.).

CAPE offered no evidence to the contrary. On cross-examination, CAPE's witness Mr. McCurdy admitted that he based his concern entirely on what he had read in the newspaper regarding increased security at the Camp and that he had made no attempt to contact the Camp regarding its availability to Duke. (12/17/01 RT 386.) Thus, there is no basis in the record to support CAPE's stated concern that Duke may not be able to use the Camp as a laydown area.

FINDINGS AND CONCLUSIONS

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

1. The Project objective is to construct and operate a 1200-megawatt (MW), natural gas-fired, combined-cycle merchant power plant using existing infrastructure in the City of Morro Bay. The Project's duct-fired design enables generation of approximately 84 MW of peak capacity per unit to meet system and/or market conditions.

2. Additional Project objectives have been adequately identified in the evidentiary record.

3. As proposed by the Applicant, the Morro Bay Power Plant Project consists of the power generation equipment, minor transmission interconnection, water supply and waste discharge pipelines, natural gas interconnection, and related facilities.

4. The Project will be located at the site of the existing tank farm to meet local, community and Project objectives of reducing the industrial influence on the Embarcadero. The Project's reduced stack height and site location also meet local and Project objectives to reduce existing visual impacts.

5. The Applicant proposes to use once-through cooling water from the existing intake facility located at the shore of the Morro Bay Estuary.

6. The evidence of record contains a detailed analysis of the Project as proposed by Applicant.

7. Publication of the Final Staff Assessment in multiple segments does not constitute "piecemealing" of Project analysis in violation of California Environmental Quality Act requirements where the Commission considers the entire evidentiary record prior to issuing its decision on the Project.

8. Applicant has not identified and Staff analysis has not assumed a finite Project life which may limit or influence Staff's environmental analysis.

9. The record contains no substantial evidence that Applicant's proposed use of Camp San Luis Obispo as a construction laydown area will be limited due to security concerns.

We therefore conclude that the Morro Bay Power Plant Project is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren-Alquist and the California Environmental Quality Acts.

No Conditions of Certification are associated with this Topic.

II. 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 Morro Bay 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".

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.

Staff submitted testimony and subsequent errata setting forth certain general conditions of compliance for the Project. These conditions explain the duties and obligations of the Compliance Project Manager, Applicant and delegate agencies. (Ex. 115; Ex. 124.) These conditions also discuss requirements for maintaining and verifying the compliance record, state the procedures for handling disputes and post-certification changes and establish requirements for the facility closure plan. (Ex. 124, p. 5-1 through 5-20.) Staff's position is that the adoption of these conditions will ensure that the Project is constructed, operated and closed in conformity with applicable law. (*Ibid.*)

Applicant agreed with Staff's compliance findings and recommendations as set forth in Staff's errata with the exception of two proposed modifications. (Ex. 117, pp. 58 and 62.) Applicant asks the Committee to grant the first of these modifications so that Duke may submit certain plans by Project phase as opposed to submittal by certain dates unrelated to the relevant phase of Project construction. (12/17/01 RT 334, 337-338.) Duke argues that the reason for this modification is that the Conditions of Certification should reflect the various phases of the Project (i.e., tank farm demolition, site remediation, and construction of new facilities and demolition of the existing power plant). Specifically, many reporting and planning conditions or requirements that require various actions prior to "start of construction" should not be triggered by the start of tank demolition activity, but rather the start of construction of the combined-cycle facilities. Duke Energy recommends that conditions specifying that plans and reports typically submitted "prior to construction" should be restated to say "prior to construction of the combined-cycle facility." Both Applicant and Staff agreed that it would be preferable to deal with issues topic by topic. (12/17/01 RT 356-57.) The Committee finds that the adoption of this proposed change is appropriate. (Ex. 117, p. 58.) Accordingly, changes will be made to Conditions of Certification in the various topic areas to implement this modification.

Applicant's second modification requests that the Committee make clear that it does not intend to delegate Chief Building Official, (CBO) authority to the City of Morro Bay. (Ex. 117, p. 62; 12/17/01 RT 336.) Currently, the FSA leaves this option open to the compliance staff; specifically, the FSA states that: "In performing construction and operation monitoring of the project, the Energy Commission staff acts as, and has the authority of, the CBO. The Commission staff retains this authority when delegating to a local CBO". (Ex. 124, p. 5-16.) Thus, Staff always retains the ultimate CBO authority and nothing in the FSA requires any delegation. Duke argues that the Committee should make clear in this case that the CBO role will not be delegated to the City since it is an

important provision of the agreement between the City of Morro Bay and Duke Energy in the proposed agreement to lease (ATL). (Ex. 95.)

Staff disagrees with Applicant, asserting that the ATL is a commercial document that binds the City and Applicant, but the terms of which do not necessarily bind the Commission. Staff states that it is more appropriate to leave the selection of the CBO to the compliance staff, as done in other cases. The Staff witness made clear that in deciding whether to delegate CBO duties or not, Staff will give consideration to the wishes of the City of Morro Bay and the Applicant. (12/17/01 RT 355-356.)

We find for the Staff on this question. The private agreements between a local jurisdiction and a project applicant cannot control Commission jurisdiction or practices. However, the Commission strongly recommends that compliance staff give serious consideration to any reasonable request or negotiated agreement between the City and Duke on the matter of delegating CBO duties.

The City asserts that the Committee should include a Condition of Certification requiring Applicant to implement all the conditions of the private ATL between the Applicant and itself. (Ex. 95; 12/17/01 RT 270, 366-367.) Applicant and Staff disagree with the City's request. Applicant clarified that it does not object to the Committee incorporating some specific provisions of the ATL as Conditions of Certification, such as the provision which requires Applicant to secure a long-term lease for the outfall easement prior to construction. (12/17/01 RT 270.)

However, both Applicant and Staff argue that it is not appropriate for the Commission to assert jurisdiction over implementation of the entirety of a private land contract, such as the ATL, as a condition of the Commission's siting requirements. Staff correctly points out that there are a number of provisions in the ATL that are simply not jurisdictional to the CEC's license (12/17/01 RT 348-

349), and therefore not appropriate to include in the Conditions of Certification for the Project. (*Id, RT 354*.)

We agree and will not include as Conditions of Certification the terms of the entire agreement to lease between Duke Energy and the City of Morro Bay. However, those terms and conditions within the ATL which are appropriate Conditions of Certification and which lie within the Commission's power plant siting jurisdiction are included in this Decision.

Intervenor CAPE raises two compliance concerns: (1) whether the Committee should modify the proposed Conditions of Certification governing complaint procedures; and (2) whether the facility will be subject to terrorism based on the events of September 11, 2001.

CAPE proposed three changes to the Staff-proposed compliance certification conditions.[5] (12/17/01 RT 372.) The first is that the required notice regarding available complaint procedures be mailed to all residents of Morro Bay, not just those living within one mile of the Project, as the Commission typically requires and as Staff recommends. (12/17/01 RT 375.) The second proposed change is that Duke be required to respond to any complainant within 48 business hours. (*Ibid.*) The third change would require Duke to forward a copy of the complaint form to the complainant as confirmation that the complaint is being processed. (*Ibid*.)

Duke does not oppose CAPE's second and third recommended conditions. (12/17/01 RT 377.) Duke also agrees with the intent of CAPE's first suggested

[5] CAPE offered testimony from Mr. Stacy, a resident of Morro Bay. Mr. Stacy testified regarding damage to his property from rust particles he claims were released from the existing Duke facility and to Duke's alleged unresponsiveness in addressing his complaints. (Ex. 121; 12/17 RT 369-371.) Mr. Stacy's testimony did not establish that his complaints are relevant to the proposed Project. Furthermore, any potential dispute regarding Duke's historical response to complaints from the community is obviated by Applicant's agreement with CAPE's suggested compliance changes.

condition that it is appropriate to notify all Morro Bay residents, including those living further than one mile from the Project, about complaint procedures. However, Applicant argues that direct mail notice is an "extremely cumbersome" method given that there are more than 10,000 residents in the City. (Duke Opening Brief, Group I Issues, p. 1-14.) Instead, Duke recommends notifying members of the public through a combination of publication in the local newspapers, web postings, and announcements at public meetings.

The Commission finds CAPE's request for additional public notice to be reasonable in light of the construction impacts which the Project will have on the City over an approximately 5-year period. Therefore, we will require Applicant to give traditional direct-mail notice to addresses within one-mile of the Project . In addition, for the remainder of Morro Bay residents, Applicant may either provide direct-mail notice or arrange for an alternative form of notification approved in advance by the CPM. Such alternative shall include a combination of multiple publications in local newspapers, website postings, posted fliers, and announcements at public meetings.

The Staff is directed to draft amendments to the Compliance Conditions of Certification which reflect this requirement as well as the requirement for Applicant to respond to complaints within 48 business hours and to send a copy of the completed complaint form to the complainant as confirmation of receipt by Applicant.

To present their concerns about terrorist threats, CAPE offered the testimony of Mr. McCurdy, a resident of Morro Bay and retired newspaper reporter. (Ex. 122.) The testimony does not offer any specific proposed conditions or proposals for increased security. Mr. McCurdy merely appends to his testimony certain newspaper articles and a Statement of Policy from the Federal Energy Regulatory Commission (FERC) allegedly confirming the need for increased

security at power plants like the Morro Bay facility (FERC Statement of Policy, 96 FERC ¶ 61,299, Sept. 14, 2001).

However, CAPE's witness failed to provide any analysis or evidence that the proposed Project would be more subject to terrorism than the existing facility. Furthermore, the FERC Statement does not apply to electric generation facilities at all, and therefore is not relevant. CAPE also attaches four newspaper articles in support of its testimony. These articles discuss increased security measures adopted at the Diablo Canyon nuclear power plant in response to the events of September 11, 2001. Yet, the security issues posed by nuclear facilities are substantially different and of greater magnitude than for a natural gas fired facility such as the proposed Project. (12/17/01 RT 385-86.)

The CAPE witness is a retired newspaper reporter who does not claim expertise regarding terrorism. (Ex. 122; 12/17/01 RT 380.) In fact, on cross-examination, Mr. McCurdy could not name a single incident where terrorism had occurred at a gas-fired electric generation plant such as the Morro Bay facility. (12/17/01 RT 384-385.) CAPE offered no testimony to review the security measures at the existing or the proposed facility and did not present any specific claim that security is inadequate. CAPE's statements of concern regarding potential risks from terrorism are vague and speculative.

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. Because Project construction is divided into distinct phases, it is appropriate that Conditions of Certification in various topic areas reflect deadlines related to the appropriate construction phase rather than reference to the beginning of any on-site construction.

2. The Commission strongly recommends that in exercising its authority as Chief Building Official (CBO), compliance staff give serious consideration to any reasonable request or negotiated agreement between the City of Morro Bay and Duke Energy concerning the delegation of CBO authority.

3. We find that CAPE's three recommendations concerning complaint and response notification are adopted, provided that for City of Morro Bay residents located greater than one-mile distant from the Project, Applicant may *either* provide direct-mail notice of complaint procedures *or* may do so by using multiple publication methods which are designed to fully notify the citizens of Morro Bay and which are approved in advance by the CPM.

4. The evidentiary record contains no substantial evidence of an increased risk of terrorism associated with the proposed Project.

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

6. 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.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

To ensure consistency, continuity and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification:

SITE MOBILIZATION:

Post-certification moving of trailers and related equipment onto the site, usually accompanied by minor ground disturbance, grading for the trailers and limited vehicle parking, trenching for utilities, installing utilities, grading for an access corridor, and other related activities. Post-certification ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access and parking for the occupants. Site mobilization is for temporary facilities and is therefore not considered construction.

GROUND DISTURBANCE:

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

GRADING:

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

CONSTRUCTION:

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

a. The installation of environmental monitoring equipment.
b. A soil or geological investigation.
c. A topographical survey.
d. Any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility.
e. Any work to provide access to the site for any of the purposes specified in a., b., c., or d.

START OF COMMERCIAL OPERATION:

a. The project startup team has completed work.
b. The plant manager accepts control from the construction manager.
c. Expenses for the project are switched from construction to operation.
d. The facility has reached steady state with reliability at the rated capacity.

e. Financing accounting switches from construction (capital costs) to operations (Income-producing expenses) financing.

REVIEW AND APPROVAL:

The Commission's exclusive authority to review, approve, and monitor compliance of power plant projects as set forth in Section 25500 of the Public Resources Code. The Commission's "review and approval" of various aspects of a project is generally delegated to the Commission's Compliance Project Manager, ("CPM"), unless the Commission's decision provides otherwise.

REVIEW AND COMMENT:

The Commission Staff and applicants generally appreciate review and comment from other governmental entities on various aspects of an approved project, especially if those agencies would have jurisdiction over a project but for the Commission's exclusive jurisdiction under existing law. However, "review and comment" is not the same as the "review and approval" authority reserved exclusively for the Commission. The Commission's practices and history acknowledge the value of other agency review and comment; however review and comment must be timely. The reviewing agency has no power to delay or to effectively veto a project or any aspect of a project by delaying its review and comment. If other agencies are given a document for review and comment, their comments must be provided in a timely manner. Further, it is equally clear that the Commission is fully empowered by law to proceed without receiving review and comment from other agencies. Likewise, it is clear from existing law that the Commission is fully within its rights to reject, in whole or in part, the timely comments it receives from other agencies. The Commission has the final authority to review and approve the project or any aspect thereof. The review and comment afforded other agencies by the Commission in no way usurps or diminishes the Commission's authority for final review and approval.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

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

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

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a Condition of Certification requires CPM approval, it should be understood that the approval would involve all appropriate staff and management.

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

Pre-Construction and Pre-Operation Compliance Meeting

The CPM may schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's Conditions of Certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

Energy Commission Record

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and,
4. all petitions for project or condition changes and the resulting staff or Energy Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the Conditions of Certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the

Conditions of Certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

Access

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

Compliance Record

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

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

Compliance Verifications

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

Verification of compliance with the Conditions of Certification can be accomplished by:

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific Conditions of Certification;
2. appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of mitigation and/or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

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

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

All submittals shall be addressed as follows:

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

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

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the Conditions of Certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all compliance conditions in a spreadsheet format. The compliance matrix must identify:

1. the technical area,
2. the condition number,

3. a brief description of the verification action or submittal required by the condition,
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),
5. the expected or actual submittal date,
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable,
7. the compliance status for each condition (e.g., "not started", "in progress" or "completed date"), and

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

Pre-Construction Matrix

Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal. It will be in the same format as the compliance matrix referenced above.

Tasks Prior to Start of Construction

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that pre-construction activities that are initiated prior to certification are performed at the owner's own risk. Failure to allow specified lead-time may cause delays in start of construction.

Various lead times for verification submittals to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Monthly Compliance Report

The first Monthly Compliance Report is due the month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall

include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five (5) copies of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain at a minimum:

1. a summary of the current project construction schedule, 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 that have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to Conditions of Certification;
7. a listing of any filings with, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with Conditions of Certification;
9. a listing of the month's additions to the on-site compliance file;
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file; and
11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the 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;
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]; and
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 Unit 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 (1) 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 on the following page.

COMPLAINT REPORT/RESOLUTION FORM

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

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

FACILITY CLOSURE

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

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

PLANNED CLOSURE

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

UNEXPECTED TEMPORARY CLOSURE

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

UNEXPECTED PERMANENT CLOSURE

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To

ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve (12) months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;
2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

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

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

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

UNEXPECTED TEMPORARY CLOSURE

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

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

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

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

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

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

If the CPM determines that a temporary closure is likely to be permanent, or for a duration of more than twelve (12) months, a closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

UNEXPECTED PERMANENT CLOSURE

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

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

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

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

DELEGATE AGENCIES

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

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

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

ENFORCEMENT

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

Moreover, to ensure compliance with the terms and Conditions of Certification and applicable laws, ordinances, regulations, and standards, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by law or regulations.

INFORMAL DISPUTE RESOLUTION PROCEDURE

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

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et. seq., but is not intended to be a substitute for, or prerequisite to, it. This informal procedure may not be used to change the terms and Conditions of Certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and Conditions of Certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project

owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

Request for Informal Meeting

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

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and,
4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et. seq.

FORMAL DISPUTE RESOLUTION PROCEDURE-COMPLAINTS AND INVESTIGATIONS

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

The Commission Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements

of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

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

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to: 1) delete or change a Condition of Certification; 2) modify the project design or operational requirements; or 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 Unit in accordance with Title 20, California Code of Regulations, section 1209.

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

AMENDMENT

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

INSIGNIFICANT PROJECT CHANGE

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

VERIFICATION CHANGE

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

KEY EVENT LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Rough Grading	
Start Construction	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
SYNCHRONIZATION WITH GRID	
COMPLETE T/L CONSTRUCTION	
FUEL SUPPLY LINE ACTIVITIES	
Start Fuel Supply Line Construction	
COMPLETE FUEL SUPPLY LINE CONSTRUCTION	
WATER SUPPLY LINE ACTIVITIES	
START WATER SUPPLY LINE CONSTRUCTION	
COMPLETE WATER SUPPLY LINE CONSTRUCTION	

III. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the Morro Bay Power Plant Project consists of separate analyses that examine facility design, as well as the efficiency and reliability of the proposed power plant. These analyses include the onsite power generating equipment and the project-related linear facilities (electric transmission connection and short natural gas pipeline extension).

A. FACILITY DESIGN

The review of facility design covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design, construction, and operation. The purpose of the review is to determine whether the power plant and linear facilities have been described in sufficient detail to provide reasonable assurance that the Project can be designed and constructed in accordance with applicable laws, ordinances, regulations and standards (LORS), as well as in a manner that protects environmental quality and assures public health and safety. The analysis also considers whether special design features will be necessary to deal with unique site conditions that could impact public health and safety, the environment, or the operational reliability of the Project. Based on its review, the Commission establishes Conditions of Certification that will be used to monitor and ensure compliance with the intent of the LORS and any special design features.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed Project will be located at the existing Morro Bay Power Plant site near Morro Bay Harbor. It will be bordered on the west by Embarcadero Road and on the east by Highway 1. The Project will include two 600-megawatt, natural gas-fired, combined cycle combustion turbine facilities. Once the new facilities are constructed, the existing units 1, 2, 3, and 4, which employ 1950's -

and 1960's - era power generation technology, will be demolished. (Ex. 115, p. 4.1-2.)

The AFC describes the preliminary facility design for the Project. (Ex. 4, § 8.3 and Appendices 8-1 through 8-9; Ex. 117, p. 2 et seq.) Staff evaluated the preliminary Project design with respect to site preparation and development, and major Project structures, systems and equipment. (Ex. 115, pp. 4.1-2 through 4.1-3.)

Staff's site preparation and development analysis included an evaluation of the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access, as well as an assessment of the criteria for designing and constructing linear facilities, including a short natural gas pipeline extension and electric transmission connection. (Ex. 115, p. 4.1-2.) The Project will employ site preparation and development criteria consistent with accepted industry standards. (*Ibid*.) Based on its analysis, Staff concluded the Project, including linear facilities, will likely comply with all applicable site preparation LORS.

As part of its analysis of major structures, systems and equipment,[6] Staff examined civil, structural, mechanical and electrical design criteria. (Ex. 115, p. 4.1-3.) Condition **GEN-2** includes a list of the major structures and equipment for the Project. Staff concluded that the design criteria demonstrated the likelihood of compliance with applicable engineering LORS.

A short, high-pressure, natural gas pipeline will be constructed and modifications made to the existing natural gas primary regulating station and metering station. The new line will connect upstream of the existing primary gas regulator station

[6] Major structures, systems, and equipment including costly or difficult to replace structures and associated components or equipment that are necessary for power production or that are used for storage, containment or handling of hazardous or toxic materials.

at the Pacific Gas and Electric Company's site at the Morro Bay Power Plant. The existing and proposed lines will be operated and maintained in accordance with applicable federal and state regulations, which will help mitigate the impacts of pipeline rupture by ensuring proper operation and maintenance of these line segments. (Ex. 115, p. 4.1-3.)

The Project will be designed and constructed in conformance with the latest (1998) edition of the California Building Code (CBC) and other applicable codes and standards in effect at the time construction actually begins. (*Id*. at p. 4.1-3.) Condition **GEN-1** incorporates this requirement.

The 1998 CBC requires specific "lateral force" procedures for different types of structures to determine their seismic design. (Ex. 115, p. 4.1-3.) The power plant site and ancillary facility corridors are located in Seismic Zone 4, the zone of greatest seismic activity in the United States. (Ex. 115, p. 4.1-2.) To ensure that Project structures are analyzed using the appropriate lateral force procedure, Condition **STRUC-1** requires the Project owner to submit its proposed lateral force procedures to the Chief Building Official (CBO)[7] for review and approval prior to the start of construction. (*Id*. at p. 4.1-3.)

Duke will use a Project Quality Control Program to maximize confidence that the systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards

[7] The Energy Commission acts as the CBO for all facilities it certifies and is responsible for enforcing the California Building Code (CBC). It also has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify application of CBC provisions. The Commission's design review and construction inspection process has been developed to conform to CBC requirements and ensure that all facility design Conditions of Certification are met. The Conditions of Certification specify the roles, qualifications, and responsibilities of engineering personnel who will oversee project design and construction. (See Conditions of Certification GEN-1 through GEN-9.) These Conditions require the approval of the CBO after appropriate inspections by qualified engineers. No element of construction may proceed without approval of the CBO. The Commission may appoint experts to carry out the design review and construction inspections, and to act as a delegate CBO. (Ex. 115, pp. 4.1-4 through 4.1-5.)

appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. The Staff Compliance Unit will implement the Quality Assurance/Quality Control (QA/QC) program to ensure that the Project is actually designed, produced, fabricated and installed as contemplated. (Ex. 4, §§ 8.5.2.2.5, 8.5.2.2.6; Ex. 115, p. 4.1-3.)

The removal of a facility from service (decommissioning) as a result of the Project reaching the end of its useful life may range from "mothballing" to removal of all equipment and appurtenant facilities and restoration of the site. (Ex.115, p. 4.1-5.) The **General Conditions** of the Compliance Plan (discussed earlier in this Decision) ensure these measures will be included in the Facility Closure Plan.

After reviewing Applicant's design proposals for the Project's structural features, site preparation, major structures and equipment, mechanical systems electrical designs and ancillary facilities, Staff concluded that, with the Conditions of Certification, the Project design will meet all LORS and will impose no significant impacts on the environment. (Ex. 115, p. 4.1-6.)

Intervenor Coastal Alliance on Plant Expansion (CAPE) contends recirculation of a Supplemental Staff Assessment is required because the Final Staff Assessment fails to take into account new information on the increased risk of terrorism. (Opening brief, pp 36-41.). However, CAPE failed to provide expert testimony or persuasive evidentiary support for its contention that the proposed Project will be subject to increased risk from terrorist attacks[8]. CAPE's contention is therefore rejected.

[8] CAPE primarily relies on the testimony of Jack McCurdy, a retired newspaper reporter, who expressed concern regarding the increased threat of terrorism in light of the events of September 11, newspaper articles regarding increased security measures implemented at Diablo Canyon, a nuclear power plant, and a general policy statement from the Federal Energy Regulatory Commission which alludes to the fact there may be a need to take steps to further safeguard our energy infrastructure.

FINDINGS AND CONCLUSIONS

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

1. The Morro Bay Power Plant Project is currently in the 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 portions 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 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 facility closure.

We therefore conclude that, with the implementation of the Conditions of Certification listed below, the Morro Bay Power Plant Project can be designed and constructed in conformance with applicable laws.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the Project in accordance with the 1998 California Building Code (CBC) and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) All transmission facilities (lines, switchyards, switching stations and substations) are covered by Conditions contained in the **Transmission System Engineering** section of this Decision.

Protocol: In the event that the initial engineering designs are submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be replaced with the applicable successor

provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 - Certificate of Occupancy].

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

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

FACILITY DESIGN Table 1
Major Structures and Equipment List

Equipment/System	**Quantity (Plant)**
Combustion Turbine Generator Foundation and Connections	4
Heat Recovery Steam Generator Structure, Foundation and Connections	4
Steam Turbine Generator Foundation and Connections	2
Auxiliary Transformer Foundation and Connections	6
CT Inlet Air Plenum Structure, Foundation and Connections	4
HRSG Exhaust Stack, Foundation and Connections	4
Isolated Phase Bus Duct	4
HRSG Transition Duct from CTG--Structure	4
Electrical/Control Center	4
Buildings and Building Foundations and Connections (e.g., Gas Compressor Building, Control Room, Motor Controls)	2
Condenser Structure, Foundation and Connections	2
Feed Water Pump Foundation and Connections	8
Condensate Pump Foundation and Connections	4
Air Compressor Foundation and Connections	2
CT Static Starter Skid Foundation and Connections	4
CT Mechanical Accessory Compartment Foundation and Connections	4
Switchgear Equipment Building Structure, Foundation and Connections	4
CT Generator Step-up Transformer Foundation and Connections	4
ST Generator Step-up Transformer Foundation and Connections	2
Circulating Water Pump Foundation and Connections	8
Fuel Gas Filter/Separator Foundation and Connections	4
ST Lube Oil Package Foundation and Connections	2
Air Receiver Foundation and Connections	2
Ammonia Tank Foundation and Connections	2
Ammonia Injection Blower Foundation and Connections	8
Demineralized Water Package Foundation and Connections	1
Demineralized Water Pump Foundation and Connections	2
Demineralized Water Tank Foundation	1
Fuel Gas Compressor	2

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 1998 CBC [Chapter 1, Section 107 and Table

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

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

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

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

The RE shall:

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

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

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

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

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

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

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval the name, qualifications, and registration number of the RE and any other delegated engineers assigned to the Project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five (5)days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five (5) 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 (5) days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the Project: a) a civil engineer; b) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; c) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; d) a mechanical engineer; and e) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations and substations) are covered by Conditions contained in the **Transmission System Engineering** section of this Decision.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the Project (e.g., proposed earthwork, civil

structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

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

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

A: The civil engineer shall:

1. Design, or be responsible for design, stamp and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

2. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

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

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

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

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

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

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

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

C: The design engineer shall:

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

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

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

4. Evaluate and recommend necessary changes in design; and

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

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

E: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

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

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

to the Project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five (5) days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five (5) 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 (5) days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the Project qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17 [Section 1701, Special Inspections, Section 1701.5, Type of Work (requiring special inspection), and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are covered by Conditions contained in the **Transmission System Engineering** section of this Decision.

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction then, if uncorrected, to the CBO and the CPM for corrective action; 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 (5) 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 (5) 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 transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project owner shall advise the CPM, within five (5) days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

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

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

GEN-9 The project owner shall file a closure/decommissioning plan with San Luis Obispo County and the City of Morro Bay for review and comment, and the CPM for review and approval, at least 12 months (or other time mutually agreed to by the project owner and the CPM) 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 MBPP 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 (or other period of time mutually agreed to by the project owner and the CPM) prior to closure or decommissioning activities, the project owner shall file a copy of the closure/decommissioning plan with San Luis Obispo County and the City of Morro Bay for review and comment, 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 (or a lesser number of days mutually agreed to by the project owner and the CBO), the project owner shall submit the documents described above to the CBO for review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

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

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

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

If in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. 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 (5) days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action. Within five (5) days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs for the reporting month shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy].

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in Table 1 of Condition of Certification **GEN-2**, above, the project owner shall submit to the CBO for review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force

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

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

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

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 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 of any structure or component listed in Table 1 of Condition of Certification.

GEN-2, above the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications, and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the 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 structural activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section 1701.5, Type of Work (requiring special inspection), Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five (5) days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five (5) days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five (5) days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

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

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC.

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

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

MECH-1 Prior to the start of any increment of major piping construction, the project owner shall submit, for CBO review and approval, the proposed final design, specifications and calculations for each plant major piping system. (Major piping is defined here as piping other than domestic water, plumbing and 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. Upon completion of construction of any such major 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].

The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when the proposed final design, specifications, and calculations for all of the major piping systems subject to the CBO review and approval have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards [Section 106.3.4, Architect or Engineer of Record], including but not limited to:

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of major piping 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 major piping systems. 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].

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

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

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

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

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

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design, specifications and calculations 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: 1998 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

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, Part 5 (the California Plumbing Code); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Part 6 (the California Energy Code).

The final design, 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 applicable LORS.

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

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 1998, Section 106.3.2, Submittal

documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations, and substations) are covered by Conditions contained in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

A. Final plant design plans to include:

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

B. Final plant calculations to establish:

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

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

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

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

B. POWER PLANT EFFICIENCY

The California Environmental Quality Act and its implementing regulations require the Commission to consider a proposed power plant's energy requirement and energy use efficiency; its effects on local and regional energy supplies and resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and whether feasible alternatives exist that could reduce a wasteful, inefficient, and unnecessary consumption of energy. (Pub. Resources Code § 21002.1; 14 Cal. Code of Regs., Appendix F.) In this section we consider whether the Project's consumption of energy, in the form of a non-renewable fuel such as natural gas, will result in significant adverse environmental impacts on energy resources. This section reviews the efficiency of project design and identifies measures that prevent wasteful, inefficient, or unnecessary energy consumption.

SUMMARY AND DISCUSSION OF THE EVIDENCE

A project causes significant environmental impacts if it uses large amounts of energy in a wasteful, inefficient, or unnecessary manner. [(Cal. Code of Regs., tit. 14, § 15126.4(a)(1).] In accordance with CEQA Guidelines, Staff assessed whether the Project's use of natural gas would result in 1) adverse effects on local and regional energy supplies and resources; 2) a requirement for additional energy supply capacity; 3) noncompliance with existing energy standards; or 4) the wasteful, inefficient, and unnecessary consumption of fuel or energy.[9] (Ex. 115, p. 4.3-3.)

[9] See, CEQA Guidelines, 14 California Code of Regulations, Section 15000 et seq., Appendix F.

1. Potential Adverse Effects on Energy Supplies and Resources

The Project will burn natural gas at a nominal rate up to 185 billion Btu per day lower heating value (LHV). (Ex. 115, p. 4.3-3; Ex. 4, Appendix 8-1.) According to Staff, this is a substantial rate of energy consumption that may impact energy supplies or resources. (Ex. 115, p. 4.3-3.) Under expected Project operating conditions, electricity will be generated at a full-load efficiency of approximately 53 percent LHV compared to the average fuel efficiency of a typical utility company baseload power plant, which is approximately 35 percent. (*Ibid*.)

Gas for the project will be drawn from the existing PG&E gas transmission pipeline 306 from Kettleman Compressor Station, located approximately 70 miles from the Project. The PG&E gas supply infrastructure is extensive and offers access to vast reserves of gas from California, the North and the Southwest. These resources represent far more gas availability than required for the project. Therefore, the project will not cause a significant increase in demand for natural gas in California. (*Ibid*.)

2. Need for Additional Energy Supplies or Capacity

The gas supply system in California is vast and well established, with numerous gas pipeline companies competing to provide a means of transporting gas throughout the State. Thus, there is no likelihood that the project will require development of new energy supplies or capacity. (Ex. 115, p. 4.3-3.)

3. Compliance with Energy Standards

No standards apply to the efficiency of the Morro Bay Modernization Project or other non-cogeneration projects. (*Ibid*; See, Public Resources Code, section 25134.)

4. Alternatives to Wasteful or Inefficient Energy Consumption

Applicant provided information on alternative generating technologies, which was reviewed by Staff. (Ex. 4, §§ 5.9, 5.9.1, 5.9.2; Ex. 115, p. 4.3-5; see the **Alternatives** section of this Decision.) Given the Project objective, location, and air pollution control requirements, Staff concluded that only natural gas-burning technologies are feasible. (Ex. 115, p. 4.3-5.)

Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by selection of equipment to generate power. (Ex. 115, p. 4.3-4.) The Project will replace the existing four Rankin cycle units (placed on line between 1955 and 1963), which have a total nominal capacity of 1056.2 megawatts (MW), with two new 600-MW, combined-cycle units with a total nominal capacity of 1200 MW. Each new unit will consist of two gas-fired combustion turbines (CTs) and one steam turbine (ST) driven by the heat recovered from exhaust of the CTs in two triple-pressure heat recovery steam generators (HRSGs) with duct firing capability. (Ex. 4, §§ 1.1, 1.2, Appendix 8-1; Ex. 115, p. 4.3-2.) These new units will include a 100 percent steam bypass, which will facilitate a more rapid start up of the gas turbines, thus reducing air emissions. The steam bypass will also facilitate a temporary continuance of power generation by the combustion turbines in the event of a trip of the steam turbine, thereby improving plant reliability. (Ex. 117, p. 72.)

The Project will use fuel preheating and a new multiple pump system for circulating cooling water that operates on load requirements, which will enhance the efficiency of the Project. (Ex. 4, § 1.2, Appendix 8-1; Ex. 115, p. 4.3-4.) The Project's two-train CT/HRSG configuration will allow for high efficiency during unit turndown because one CT can be shut down at 50 percent load, leaving one fully loaded, efficiently operating CT. (Ex. 115, p. 4.3-4.)

The Project will employ two General Electric model PG7241 7FA gas turbines (without inlet air coolers). The 7FA gas turbine is one of the most modern and fuel-efficient electric generating systems available today.[10] (Ex. 4, §§ 1.1.1, 2.1, 2.2.3, 2.2.5.1.2, 6.6 and Figures 2-14, 2-15.) Although a number of alternate technologies may have slightly higher efficiencies, Staff concluded the combined-cycle technology using F-class CTs is the most efficient technology for large power plants wishing to compete on the spot market. Staff noted that the other technologies were either not commercially proven, not available at a large enough scale, or were much more expensive. (Ex. 115, p. 4.3-5.)

a. Duct Firing

Staff testified that the newest modern power plants have achieved high fuel efficiency and unprecedented emissions control, but at the cost of operating flexibility. This is because the high levels of efficiency and pollution control are only achieved at a single power level, typically that of full load. Any attempt to reduce power causes a drop in fuel efficiency and an increase in emissions, as well as increasing the risk of damage to the generator. By adding a duct burner to a generator unit, the plant operator and the ISO gain operating flexibility which can be varied on a moment-by-moment basis. Duct firing, however, lowers overall plant efficiency. (Ex. 124, Baker, pp. 2-3.)

The Project will include HRSG duct burners, partially to replace heat to the ST cycle during high ambient temperatures when CT capacity drops, and partially as added power. Additional steam turbine capacity of about 84 MW per unit can be

[10] The gas turbines will be equipped with dry low-NOx combustors and the HRSGs will incorporate selective catalytic reduction (SCR) to control air emissions.

obtained by duct firing in the HRSG at a lower efficiency. (Ex. 115, p. 4.3-2.)[11] Duct firing also provides a number of additional operating benefits, such as balancing and optimizing the operation of the ST cycle, thus permitting greater operating flexibility. Although inclusion of duct burners is less efficient than overall operation of the combined cycle technology, Staff concluded it provides additional benefit for capacity and is more efficient than other technology for providing energy during peak conditions. (Ex. 115, pp. 4.3-4 through 4.3-5; Ex. 124.)

Intervenor Coastal Alliance on Plant Expansion (CAPE) argues Staff's efficiency analysis is inadequate because it fails to consider all feasible mitigation measures to reduce inefficient use of fuel by the project, assumes there is an ongoing unmet peak energy demand and, other than fuel efficiency, fails to consider other significant adverse environmental impacts that could result from duct burning. (Opening brief, pp. 32-36.) CAPE's arguments are not persuasive.

Commission Discussion

CAPE would mitigate the efficiency loss by simply prohibiting Applicant from installing duct burners. However, this would eliminate the Project's operating flexibility which comes with duct firing and which is valuable to the operating system of the state. Regarding the relative efficiency of duct firing versus base load operations, CAPE makes an inappropriate comparison between baseload efficiency and peaking efficiency. As Staff testified, duct firing provides the electric system with peaking capacity, which is necessary to keep the electric grid stable. (12/17/01 RT 90 et. seq.; Ex. 124.) Thus, comparing duct-firing efficiency to baseload efficiency is both improper and irrelevant. The appropriate and

[11] Each unit of the MBPP is capable of producing 516 MW on an average day with no duct burning; with duct burners at full power, each unit is capable of producing 600 MW. Net fuel efficiency without the burners is 55 percent LHV. Efficiency with the duct burners is 52.8 percent LHV, representing a drop in fuel efficiency during duct firing of 4 percentage points. (Ex. 124, p. 3.)

relevant measure is to compare duct firing to other methods of providing the system with peaking capacity. Thus, the alternative to employing duct firing is an increased need to employ several small peaker plants. (Ex. 124, p. 3; Ex. 117, p. 73.)

By that measure, the evidence shows that the Project will be able to provide power at least as efficiently as any other source of peaking power.[12] (12/17/01 RT 111; Ex. 117, p. 73; Ex. 115, pp. 4.3-4 through 5.) The inclusion of duct firing provides additional benefits for capacity and it is more efficient than other technology for providing energy during peak conditions. (12/17/01 RT 98; Ex. 117, p. 73; Ex. 115, pp. 4.3-4 through -5.) Staff also testified that adding duct burning to plants such as the Project helps to ensure that the system is balanced and viable. (12/17/01 RT 99-101.) This is because the inclusion of duct burning provides the added benefit of providing flexibility to the dispatcher. (12/17/01 RT 99-101.)

Under the "no project" alternative analysis, we examine the environmental effect of not building the Project at all. In the case of fuel efficiency, the proposed Project will generate electricity using approximately 30% less natural gas per unit of generation. This is illustrated by comparing the heat rate of the existing Morro Bay units at around 10,000 MMBTU per kilowatt hour (kWh), to the heat rate of the proposed Project at 6,865 MMBTU per kWh for base load operations. For peak firing conditions, the heat rate of the new units would go to 7,200 MMBTU per kWh. (Ex. 117, p. 28.) Thus, even in a peaking mode with duct burners fired, the new facility would be more fuel-efficient than the existing plant. As noted above, replacing just the Project's peaking capacity with separate peaking plants does not achieve greater energy efficiency.

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[12] Staff witness Baker compared the Project, operating with duct firing at 52.8 percent Lower Heat Value (LHV) with equivalent generation from modern peaker plants having a fuel efficiency of 52.4 LHV. (Ex. 124, Baker, p. 4.)

Neither CAPE, nor any other party offered evidence that the proposed Project will result in an inefficient use of fuel.

FINDINGS AND CONCLUSIONS

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

1. The Morro Bay Power Plant Project will not create a significant increase in demand for natural gas in California.

2. The Morro Bay Power Plant Project will not require the development of any new fuel supplies or resources since natural gas resources exceed the fuel requirements of the Project.

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

4. The Project will employ two combined-cycle trains, each composed of two General Electric model PG7241 7FA gas turbines, two triple-pressure HRSGs with duct firing capacity, and a single steam turbine, totaling approximately 516 net megawatts.

5. Additional steam turbine capacity of about 84 MW per unit can be obtained by duct firing in the HRSG at a lower efficiency.

6. The appropriate and relevant efficiency measure is to compare duct firing to other methods of providing the system with peaking capacity.

7. The Project's fuel efficiency using duct firing compares favorably with alternative means of producing peaking power.

8. Duct firing provides the electrical system with flexible peaking capacity which is necessary to keep the electric grid stable.

9. No energy standards apply to the Project.

The Commission therefore concludes that the Morro Bay Power Plant Project will not cause any significant direct or indirect adverse impacts upon energy resources. No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

The Warren-Alquist Act requires the Commission to examine the safety and reliability of the proposed power plant, including provisions for emergency operations and shutdowns. [Pub. Resources Code, § 25520(b)]. There are presently 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 to ensure safe and reliable operation. [Cal. Code of Regs., tit. 20, § 1752(c)(2).] In order to make this determination, the Commission evaluates 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 on that system, it is presumed the Project will not degrade system reliability.

In California's newly restructured competitive electric power industry, the California Independent System Operator (Cal-ISO) has the primary responsibility for maintaining system reliability. To provide an adequate supply of reliable power, Cal-ISO has imposed certain requirements on power plants selling ancillary services and holding reliability must-run contracts, such as: 1) filing periodic reports on reliability; 2) reporting all outages and their causes; and 3) scheduling all planned maintenance outages with the Cal-ISO. The Cal-ISO's mechanisms to ensure adequate power plant reliability rest on the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades.[13] Therefore, in the absence of clear guidelines on reliability standards, the

[13] In the regulated monopoly electric industry of past decades, the utility companies assured overall system reliability, in part, by maintaining a 7 to 10 percent "reserve margin" in the form of standby power plants to quickly handle unexpected outages of generating or transmission facilities. This margin proved adequate because of the reliability of the power plants that constituted the generation system.

Commission believes that power plant owners should continue to maintain the same levels of reliability that the power industry has achieved in recent years.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. A reliable power plant is one that is available when called upon to operate. According to Staff, acceptable reliability is achieved by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. If these elements of a project are consistent with industry norms, a power plant will be found to be as reliable as other power plants. Where a project exhibits reliability at least equal to that of other power plants on that system, it is presumed the project will not degrade system reliability. (Ex. 115, p. 4.4-3.)

Applicant proposes to modernize the existing Morro Bay Power Plant with a new nominal 1200-megawatt, combined-cycle generating facility. The Morro Bay Power Plant Project will sell power on the spot market. The sale of ancillary services is also possible since the Project is well located to provide reactive power support to the local transmission system. (Ex. 4, §§ 1.1, 1.2, 2.1 and 2.1.1.4.) Staff examined the Project's design criteria to determine whether it will be built in accordance with typical power industry norms for reliable electricity generation.

1. Equipment Availability

The Project will ensure equipment availability by use of quality assurance/quality control programs (QA/QC) during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems. (Ex. 4, § 8.5.2.2.5.)

The QA/QC program for the Project is typical of the power industry. Equipment and supplies will be purchased from qualified suppliers that employ an approved QA program. (*Ibid.*) Staff expects implementation of this program to yield typical reliability of design and construction. Implementation of the program will be monitored by appropriate Conditions of Certification, which are included in the **Facility Design** section of this Decision.

2. Plant Maintainability

The evidentiary record indicates the Project design includes sufficient redundancy of equipment and systems for the combined cycle to ensure continued operation in the event of equipment failure. (Ex. 4, §§ 8.3.4, 8.5.2.2.2; Ex. 115, pp. 4.4-3 through 4.4-4.) The Project's two trains of combined-cycle units (gas turbine generators, HRSGs) provide inherent reliability. (Ex. 117, p. 26.) Failure of a non-redundant component of one power train should not cause any other train to fail, thus allowing the plant to continue to generate, although at reduced output. This ability to continue operation even with equipment failure demonstrates adequate equipment redundancy to meet typical industry reliability standards. (Ex. *Id*.) Project maintenance will be typical of the industry. (Ex. 4, §§ 8.5.2, 8.5.2.1.

3. Fuel and Water Availability

Reasonable long-term availability of fuel and water is necessary to ensure Project reliability. The Project will burn natural gas supplied by the existing PG&E interstate pipeline system via PG&E's Line 306, which connects to the Kettleman Compressor Station, approximately 70 miles from the Project. This system offers access to far more gas than the plant will require for operation. (Ex. 4, §§ 2.2.3.12, 2.2.8, 8.3.1, 8.5.1, 8.5.1.1 and 8.5.1.2.) Both Staff and Applicant have determined that the Project will have adequate natural gas supplies and pipeline capacity. (Ex. 115, p. 4.4-5.)

The Project will obtain water for cooling and other plant uses from the existing power plant's seawater intake and discharge system. Water from on-site wells will be used only for maintenance, fire protection, landscaping and potable water. (Ex. 4, §§ 2.1.1.8, 2.2.3.6, 2.2.3.7 and 6.5.) The Project will reduce maximum requirements for seawater cooling from 464,000 gallons per minute (gpm) for the existing plant, to 330,000 gpm for the Project, and will further reduce cooling water intake through use of a new efficient multiple-pump system that operates on load requirements. (Ex. 4, §§ i.2, 2.1.1.9, 2.2.3.12, 6.5, Table 6.5-1, 8.3.1.1 and 8.3.2.) Staff has determined these sources will yield a sufficiently reliable supply of both seawater cooling and fresh water. (Ex. 115, p. 4.4-5.) (For further discussion of water supply see the **Soil and Water Resources** section of this Decision.)

4. Natural Hazards

Natural forces can threaten the reliable operation of a power plant. Seismic shaking (earthquake) and tsunamis (tidal waves) present credible threats to reliable operation of this project. (Ex. 115, p. 4.4-5; see also the **Geology and Paleontology** section of this Decision.)

The Project site is located in Seismic Zone 4, where several active earthquake faults are found. The site itself is approximately 5 miles from a Type B seismic source; however, there are no active earthquake faults near the site. Nevertheless, PG&E Line 306, which will supply gas to the Project, crosses the San Andreas Fault near the middle of its approximately 70 mile length. (Ex. 4, §§ 2.2.3.1.11, 6.3.1.5.1, 6.3.1.5.2, 7.2.1.2.2, 8.2.3 and Appendices 3.1.4 and 8-4) The Morro Bay Power Plant Project will be designed and constructed to comply with current applicable LORS for seismic design, thus representing a reliability upgrade compared with older power plants. By virtue of being built to the latest seismic design criteria, this project will likely perform at least as well, and

perhaps better than, existing plants in the electric power system. Conditions of Certification contained in the **Facility Design** portion of this Decision ensure that the Project will conform with seismic design LORS. In light of the historical performance of California power plants and the electrical system in seismic events, the evidence indicates that there is no special concern with power plant functional reliability due to seismic events.

Although tsunamis occurred in the Morro Bay area in 1878, 1953, 1960 and 1964, damaging piers, wharves and buoys in Morro Bay Harbor, no flooding or damage has occurred at the existing Morro Bay Power Plant due to earthquake-induced tsunamis. Morro Rock, the narrow harbor entrance and the existing sand spit minimize any tsunami danger to the proposed Project. (Ex. 4, § 6.3.1.5.3.) In a worst case tsunami scenario, a temporary evacuation of the Project might be necessary, but no significant damage to the power plant would be expected. Therefore tsunamis do not pose a significant threat to the Project. (Ex. 115, p. 4.4-6 see also the **Geology and Paleontology** section of this Decision.)

5. Availability Factors

The North American Electric Reliability Council (NERC) compiles industry statistics for power plant availability. NERC's statistics show an availability factor of 90.87 percent for all combined-cycle plants. (Ex. 115, p. 4.4-6.) Applicant predicts the project will have an annual availability greater than 90 percent. (Ex. 4, § 2.2.3.5.) Staff concluded Applicant's estimate of reliability was reasonable when compared to the NERC figure for similar plants throughout North America. Staff's conclusion is buttressed by the fact the Project will employ four parallel gas turbine generating trains, thus allowing maintenance to occur during periods of reduced operating demand when full output is not required. The Project's stated procedures for assuring design, procurement, and construction of a reliable power plant are also consistent with industry norms; thus, the evidence of

record establishes that the Project will be an adequately reliable facility. (Ex. 115, pp. 4.4-6 through 4.4-7.)

FINDINGS AND CONCLUSIONS

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

1. The proposed Morro Bay Power Plant Project will ensure equipment availability by implementing quality assurance/quality control programs and by providing adequate redundancy of auxiliary equipment to minimize unplanned off-line events.

2. The Project's design, incorporating four parallel trains of gas turbine generators, 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. Seismic events, tsunamis, and other natural hazards are not likely to adversely affect the Project's reliability.

6. The Project's estimated 90 percent availability factor is consistent with industry norms for power plant reliability.

7. The Project will be built and operated in a manner consistent with industry norms for reliable operation. Therefore, the Project will not degrade the overall reliability of the electrical system.

The Commission, therefore, concludes that the Project will be constructed and operated in accordance with typical power industry norms for reliable electricity generation. No Conditions of Certification are required for this topic. To ensure implementation of the QA/QC programs described above, appropriate Conditions of Certification are included in the **Facility Design** portion of this Decision.

D. TRANSMISSION SYSTEM ENGINEERING

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.) However, the Morro Bay Power Plant Project does not involve the construction of any new transmission facilities. (12/17/01 RT 151; Ex. 117.) Thus, while the Commission would typically review a project's transmission line to ensure that it is constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable LORS, the scope of review is more limited in this case. Yet, while the physical transmission facilities of the Project will not change existing conditions, the Commission must still review the impacts on the existing transmission grid of increasing power deliveries by 200 megawatts from the proposed Project.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Description of Transmission Facilities.

(Ex. 117, pp. 74-79.) Applicant's testimony described the existing transmission system facilities that export power from the existing Morro Bay plant. (12/17/01 RT 151-152.) Applicant stated that the proposed Project will add approximately 200 megawatts to the existing system. (Id, p. 152.) To examine the effect of this slight increase in power, PG&E performed a System Impact/Facilities Study (SI/FS) which was subsequently approved by the California Independent System Operator (Cal-ISO). This study identified two transmission facilities that could possibly be affected by the additional generation. There could be a normal and emergency overload of the Morro Bay-Templeton 230-kV line (in the event of the loss of the Morro Bay-Gates 230-kV line) and there could be a possible emergency overload of the San Luis Obispo-Atascadero 70-kV line (in the event of the loss of the Morro Bay-Templeton 230-kV line). (Ex. 117, p. 74.)

2. Applicant's Testimony

Applicant's witness described PG&E's SI/FS as providing three equivalent alternatives for addressing the overload conditions. These include: 1) reconductoring; 2) re-rating the transmission lines; and, 3) reduction of generation from the Project. PG&E allows the Project proponent to select among the acceptable alternatives. Duke selected the alternative of two minor upgrades: 1) re-rating the Morro Bay Templeton 230-kV line to 4 feet-per-second (fps) wind speed[14] from an existing 2 fps rating along with provision of a Special Protection Scheme (SPS), if necessary and, 2) Duke's participation in Congestion Management and an SPS to protect the San Luis Obispo-Atascadero 70-kV line from overloading. These measures were judged acceptable and were approved by PG&E and the Cal-ISO. (Ex. 117, p. 74; 12/17/02 RT 157.)

Applicant also explained how PG&E decides to re-rate a transmission line and the fact that the existing ratings of the PG&E lines tend to be approximately 35-40 percent more conservative than those of Southern California Edison (SCE) and San Diego Gas and Electric (SDE&E) (12/17/01 RT 156.) As a result, even after the re-rating, the Morro Bay lines in question will carry a more conservative rating than those owned by utilities in other parts of the state. (*Ibid*.) He added that this type of re-rating has been done successfully on other power plant projects and is not unique to the proposed Project. (*Id*., p. 157, 183.)

2. Staff Testimony

The Staff testimony reviewed Applicant's AFC submittals, PG&E's Final SI/FS, and the Cal-ISO's analysis of the PG&E study. Staff concluded that while the additional 200 megawatts from the Project could result in the identified overloads, these stresses would likely be fully mitigated by the proposed re-rating and SPS approach selected by the Applicant. With adoption of the proposed Conditions of

[14] The existing rating on the line on the line is 2 fps wind speed.

Certification, Staff determined that the power plant and switchyard will comply with grid planning criteria of the National Electric Reliability Council (NERC), Western States Coordinating Council (WSCC) and the Cal-ISO, as well as with all other applicable LORS governing transmission engineering. Staff also found that Applicant's proposed transmission interconnection is adequate to connect the Project with the existing switchyard. (Ex. 115, p. 4.5-10.)

During direct examination the Staff witness pointed out that even if, hypothetically, re-rating is judged not to be a feasible mitigation step, Condition of Certification TSE-5(g) requires Applicant to submit a re-rating study and to analyze and report on other alternatives. (12/17/01 RT 193-194.) During cross-examination, Cal-ISO's witness identified that, while the ISO does not have a particular preference among overload mitigation measures, the ISO favors the cheapest measure, which is re-rating. (*Id*. p. 197.) Staff noted that any re-rated line used for the Project would be inspected and maintained pursuant to existing transmission line requirements[15]. (*Id*. p. 199.)

3. CAPE Testimony

CAPE testified that the experts at PG&E, the ISO, the Staff, and Duke are wrong as to the acceptability of re-rating. CAPE asserted that re-rating is not an appropriate step of addressing the possible Project overloads based upon four claims: (1) PG&E only utilizes re-rating during emergency conditions and winter months; (2) re-rating will increase fire hazards during summer months; (3) re-rating will remove safety factors designed into the line; and (4) Duke has refused to consider the recommended mitigation suggested by the California ISO. In addition, CAPE argues in its brief that Staff (1) is permitting Duke to select a mitigation alternative without any real consideration of other feasible mitigation measures that may be more effective and, (2) has inappropriately deferred final

[15] A California Public Utilities Commission General Order (GO-95) sets maintenance and safety standards for transmission lines.

determination of the appropriate mitigation alternative, in violation of CEQA requirements.

No public comment was offered on this topic. (12/17/02 RT 237-238.)

Commission Discussion

In assessing this matter, the Commission has before it a great deal of expertise in the field of transmission system engineering. Both Applicant's and Staff's witnesses are electrical engineers with advanced degrees and decades of experience with transmission system engineering issues. Their testimony is supported as well by studies carried out by PG&E and the Cal-ISO.

Upon the completion of the Morro Bay Power Plant, more power will flow out of the facility along the existing 230-kV transmission lines. As a result of this increase in the export of energy, system lines may experience minor overloads under normal and emergency conditions. To address these overloads, as part of PG&E's interconnection study, PG&E has offered Duke a choice among alternative methods of accommodating these potential minor overload conditions. The methods are reconductoring, re-rating and in some cases reduction in generation. PG&E has indicated—and the California ISO has affirmed—that any of these are acceptable alternatives. (12/17/01 RT 167, 203-204.) For normal operation Applicant elected the re-rating alternative and, for certain emergency conditions, Duke also accepted a remedial action scheme[16]. Staff independently confirmed that these alternatives are a reasonable means of mitigating the transmission impacts. (Ex. 115, pp. 4.5-6, -7, -13.)

[16] Remedial Action Schemes (RAS) are also known as Special Protection Schemes (SPS). The two are one and the same. (12/17/01 RT 174-175.)

Applicant's witnesses testified and Staff independently confirmed that the re-rating of the transmission lines and generation reduction in specified emergencies are acceptable methods of mitigating for the relatively small power flow increases from the Project. These witnesses noted that there is nothing unusual about the re-rating proposed here. In fact, the re-rating of PG&E's lines would bring the ratings for the lines in question closer to, but still more conservative than, the ratings that have been used for years by SCE and SDG&E. (12/17/01 RT 156.)[17] The witnesses also noted that the re-rating of PG&E lines is not unique to this Project and has been successfully implemented in several other projects, such as the Moss Landing Power Plant. The interconnection study conducted by PG&E and the related Cal-ISO preliminary approval letter both found that either re-rating *or* reconductoring of the line are acceptable measures to address potential minor overloads under normal peak load conditions. (*Id*, p. 164-165; Exs. 46 and 48.)

CAPE takes the position that the selected mitigation of re-rating is not adequate and offers four reasons in support of that position. However, while CAPE's witness has 40 years experience in the electrical industry, he is not an engineer and has never been responsible for determining the requirements of interconnecting new generation or for the dispatch or operation of generation for the avoidance of congestion. (12/17/01 RT 207, 227, 230.)

CAPE's witness first claims that PG&E only uses re-rating during emergency conditions and winter months. (Ex. 123, ¶ 2.) Yet PG&E's own interconnection study for this Project offers a permanent, year-round re-rating as an acceptable solution for Project-related overloads. (Ex. 46.) Obviously, PG&E would not have reported re-rating as one of its acceptable alternatives if CAPE's view was correct. Applicant's witness also testified that PG&E uses re-ratings for both

[17] This is because SCE and SDG&E rate their lines approximately 35 to 40 percent higher than PG&E.

summer and winter for normal and emergency overload conditions. (*Id*, pp. 159-161.) CAPE is clearly wrong on this matter.

CAPE's fire hazard concern is also without support. (Ex. 123, ¶ 5.) Witnesses for both Applicant and Staff explained that these re-ratings will not increase fire hazard conditions. (12/17/01 RT 160-161, 182-183, 199; Ex. 115, p. 3.7-7.) Both noted that the procedures in place—such as using field patrols for determining clearance, employing infrared inspections of the lines, tree trimming and examining tree conditions to determine appropriate safety conditions—ensure that there are no hazards from summer re-rating. (*Id*, p. 161-162, 164-165.) Known as GO 95, these measures are required of PG&E by the CPUC as part of the long-established regulatory scheme for transmission line management by public utilities. (Ex. 115, p. 4.5-1.) Furthermore, CAPE admits that distribution lines, and not the type of transmission lines at issue here, are responsible for over 90% of the fires upon which CAPE bases its objection. (*Id*, p. 232.) CAPE has not offered persuasive evidence that the proposed Project and its line re-rating will create additional fire hazards.

CAPE's assertion concerning the removal of safety factors is equally without merit, as the safety factors will be reviewed before any lines are allowed to be re-rated and therefore would be considered safe. (12/17/01 RT 162-163, 199; Ex. 115, p. 3.7-7.) The record is clear that re-rating is a practicable and feasible mitigation measure for this Project. (*Id,* p. 193; Ex. 115, p. 3.7-7.)

Nor do we accept CAPE's assertion that Duke has refused to consider a recommendation of the California ISO allowing the ISO to directly control plant output. (Ex. 123, ¶ 8.) The ISO did not recommend a type of mitigation that would allow it to control the load from the plant along these transmission lines. (12/17/01 RT 168; Ex. 48.) Furthermore, the evidence establishes that Duke has considered all the alternatives offered by PG&E and the ISO, including a remedial action scheme alternative as suggested by the ISO. In fact, Duke will

be implementing such a scheme for the San Luis Obispo/Atascadero 70-kV subtransmission system. (*Id,* p. 168-169, 183-184.)

In addition, CAPE claims that the Commission cannot act until final studies regarding re-rating are completed. (Ex. 123 p. 3.) Yet, all expert testimony supports the feasibility of the re-rating plan and Commission experience on similar PG&E transmission lines confirms the feasibility of re-rating. Duke's witness testified that after re-rating, the lines will still be rated more conservatively than will those of other utilities. (12/17/01 RT 156.) In addition, in the unlikely event that later studies find re-rating to be unacceptable, Applicant would be required to report to the Commission and to select from other acceptable alternatives listed in PG&E's System Impact/Facilities Study.

The remaining alternatives are either reconductoring or implementation of an SPS. (Ex. 120, p. 6.) Condition of Certification **TSE-5** and **TSE-6** require Applicant to report alternative proposals along with environmental and engineering information to the Commission for review and approval prior to starting construction of changed equipment for substation configurations. (Ex. 115, pp. 4.5-13 to 4.5-14.) This approach is acceptable under both CEQA and the Warren-Alquist Act and ensures that even unlikely alternatives will be fully examined prior to implementation. The acceptability of this approach is discussed in *Sacramento Old City Association v. City of Sacramento* (1991) 229 Cal. App.3rd 1001, 280 Cal.Rptr 478. We believe that the approach called for in this Decision actually provides far more certainty than does the approach found acceptable in the *Sacramento Old City Association* case.

CAPE has failed to persuade us that Applicant's selected mitigation for overloads related to the Project are unsafe or infeasible.

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 Final System Impact/Facilities Study, which analyzed the potential reliability and congestion impacts likely to occur when the Morro Bay Power Plant Project interconnects to the grid.

3. Because the proposed Project will cause more power to flow out of the facility along the existing 230-kV transmission lines, these transmission lines may experience minor overloads under normal and emergency conditions.

4. Electrical transmission experts at PG&E, the California Independent System Operator, and the Commission staff have separately confirmed that line re-rating, implementation of a Special Protection Scheme and reconductoring are all acceptable alternatives to mitigate Project-related overloads.

5. Applicant has selected the re-rating alternative for normal operation and for certain emergency conditions a Special Protection Scheme.

6. The Commission has certified transmission line re-rating as an acceptable mitigation measure in previous cases.

7. The California Independent System Operator has determined that interconnecting the Morro Bay Power Plant Project with the electrical grid will not create adverse impacts to the reliability of the electrical system.

8. The California Independent System Operator has determined that interconnecting the Morro Bay Power Plant Project with mitigation measures is not likely to require the construction of significant additional transmission facilities downstream of the Morro Bay Switchyard.

9. Prior to the construction of transmission facilities the Morro Bay Power Plant Project will provide a detailed facilities study which includes a description of applicable Special Prevention Scheme sequencing and line re-rating for the Project.

10. The determinations of the California Independent System Operator are based on its review of the Final System Impact/Facilities Study and other referenced analysis performed by the California Independent System Operator and by Pacific Gas and Electric Company.

11. A final Detailed Facilities Study is forthcoming and the expert testimony of record establishes that this document is not expected to alter conclusions reached by PG&E, the California Independent System Operator and Commission staff concerning the acceptability of interconnecting the Morro Bay Power Plant Project at the Morro Bay Switchyard.

12. The transmission outlet for the Morro Bay Power Plant Project is deemed safe and acceptable.

13. 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.

14. Technical studies by Commission staff indicate no significant cumulative impacts due to the Morro Bay Power Plant Project 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.

15. 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 and will pose no significant risk to public health and safety.

16. The Conditions of Certification below ensure that the transmission related aspects of the Morro Bay 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 Morro Bay 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 furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of power plant switchyard or transmission construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in **Table 2: Major Equipment List** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 2: Major Equipment List
Breakers
Step-up transformer
Switchyard
Busses
Surge Arrestors
Disconnects
Take off facilities
Electrical Control Building
Switchyard control building
Transmission Pole/Tower

TSE-2 Prior to the start of rough grading, the project owner shall assign an electrical engineer and at least one of each of the following to the project: a) a civil engineer; b) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; c) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; and d) a mechanical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.]

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

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

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

The electrical engineer shall:

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five (5) days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five (5) days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

TSE-3 The project owner shall keep the CBO informed regarding the status of engineering design and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM to be included in response to **TSE-3**. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five (5) days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

TSE-4 For the power plant switchyard, outlet line and termination, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one (1) year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

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

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

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

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

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

c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.

d) Termination facilities shall comply with CPUC Rule 21 and applicable PG&E interconnection standards.

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

f) The project owner shall mitigate the overload of the Morro Bay - Templeton line by ensuring that the evaluation and implementation of "re-rating" the subject line conductors is completed. PG&E and the Cal-ISO subject to applicable tariffs shall determine the acceptability of re-rating.

g) The project owner shall provide:
   i) A description of facility upgrades, operational mitigation measures, and/or Remedial Action Scheme (RAS) sequencing and timing if applicable,
   ii) Executed Generator Special Facilities Agreement;
   iii) Verification of Cal-ISO Notice of Synchronization; and
   iv) A report, analysis and proposal for alternative reliability criteria mitigation providing the results of the applicant's proposed "re-rating" of approximately 15 miles of the Morro Bay-Templeton 230 kV line. This analysis shall provide the results, including study conditions, of PG&E's engineering assessment of the feasibility of re-rating the subject line and the results of the PG&E summer 2002 tests of the line in the applicable setting.

Verification 1): At least 60 days prior to the start of construction of transmission facilities, the project owner shall submit to the CBO for approval:

a) Design drawings, specifications, and calculations conforming with CPUC General Order 95 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions,"[18] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards, and related industry standards.

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

Verification 2): At least 60 days prior to the start of construction of transmission facilities including the power plant switchyard, the project owner shall submit to the CPM for approval:

a) The above items for approval, **TSE-5** g) i, ii, iii, and iv.

TSE-6 The project owner shall inform the CPM and CBO of any impending changes that may not conform to the requirements of **TSE-5** a) through g), and have not received CPM and CBO approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

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

TSE-7 The applicant shall provide the following Notice to the California Independent System Operator (Cal-ISO) prior to synchronizing the facility with the California Transmission System:

1. At least one (1) week prior to synchronizing the facility with the grid for testing, provide the Cal-ISO a letter stating the proposed date of synchronization; and

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

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

Verification: The applicant shall provide copies of the Cal-ISO letter to the CPM when it is sent to the Cal-ISO one (1) week prior to initial synchronization with the grid. A report of conversation with the Cal-ISO shall be provided electronically to the CPM one (1) day before synchronizing the facility with the California transmission system for the first time.

TSE-8 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO, in writing, within 10 days of discovering such no non-conformance and describe the corrective actions to be taken.

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

a) "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", CPUC GO-21, and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

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

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

E. TRANSMISSION LINE SAFETY AND NUISANCE

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Description of Transmission Line

Energy from the Morro Bay Power Plant Project will be delivered to the PG&E 230-kV transmission grid through the same PG&E-owned Morro Bay Switchyard and 230-kV lines currently used for the existing Morro Bay Power Plant. The line is proposed for use at the existing voltage and without structural modifications. The only change to the system will be the increased electricity flow from the additional generation from the proposed modernization. Since magnetic fields are produced during current flow, this added energy will increase the intensity of magnetic fields in the existing system.

Power from the modernized plant will be transmitted through five existing PG&E system 115-Kv and 230-Kv transmission lines. These lines pass near residential areas and also extend through farmland and open space. The lines are typically supported by 100 to 150 foot high towers. The lengths of the lines from the PG&E Morro Bay Switchyard to the regional substations range from approximately 14 miles to 80 miles in length. (Ex. 115, pp. 3.7-6, 3.7-7.)

2. Potential Impacts

The possibility of health effects from exposure to electric and magnetic fields (EMF) has increased public fears about living near high-voltage lines. (Ex. 115, p. 3.7-4.) The available data evaluated by the California Public Utilities Commission (CPUC) and other regulatory agencies do not definitively establish that EMF poses a significant health risk nor prove the absence of health hazards. (*Ibid*.) In light of the present uncertainty regarding EMF exposure, the CPUC has implemented policies to ensure that transmission lines are designed to minimize EMF without impacting transmission efficiency. (Ex. 115, p. 3.7-5.)[19] Under CPUC policy, the regulated utilities have adopted EMF-reducing design criteria to limit EMF levels for new and upgraded transmission facilities to levels no greater than those of existing transmission lines.[20] (*Ibid*.) Condition **TLSN-1** permits Staff to verify implementation of the necessary EMF-reduction measures. (Ex. 115, p. 3.7-5.)

The existing Morro Bay Power Plant's related transmission system, which will also be used after the modernization, was designed by PG&E according to PG&E guidelines bearing on aviation, safety, fire hazards, and hazardous shocks. Staff therefore considers these lines safe with regard to these potential impacts. (Ex. 115, p. 3.7-7.)

Staff testified that the potential for electric field-related audible noise, nuisance shocks and interference with radio frequency communication depends on electric field strengths, which in turn depend on line voltage. No significant change in voltage of the existing lines will result from the modernization project, and the existing lines were designed and are presently maintained by PG&E according to

[19] Although several states regulate EMF levels for new transmission lines, California has not specified a maximum EMF limit.

[20] The CPUC has determined that only no-cost or low-cost EMF-reducing measures for new or upgraded transmission facilities are presently justified in any effort to reduce EMF fields beyond existing levels. (CPUC Decision No. 93-11-013.)

PG&E requirements bearing on these electric fields. Staff therefore considered the proposed use of these lines for the Morro Bay Modernization Project as appropriate with regard to perceivable electric field effects. (Ex. 115, p. 3.7-8.)

Applicant calculated the maximum EMF strengths possible along the routes of the lines that will be affected by the increased power generation. (Ex. 4, p. 6.18-10.)[21] The calculations compared existing and post-modification field strengths and revealed that Project modernization will not significantly increase the intensity of the electric or magnetic fields along these routes. The maximum calculated values for the post-modification period are within the range associated with similar PG&E lines of similar voltage and current-carrying capacity, and are within the average range established for transmission line right-of-way in states that regulate EMF exposure. (Ex. 115, p. 3.7-8.)

Regarding potential cumulative impacts, Staff found that Applicant's calculations of EMF strengths reflected the interactive impacts of all lines along the route of the proposed delivery system. (*Ibid*.) Since no separate transmission system is proposed in connection with the Morro Bay Modernization Project, Staff concluded the calculated field values reflected all system exposures of a cumulative nature. *(Ibid.)*

3. Intervenors

Intervenor CAPE contends recirculation of a Supplemental Staff Assessment is required because the Final Staff Assessment fails to take into account new information on the increased risk of terrorism. (Opening brief, pp 36-41.) However, CAPE failed to provide expert testimony or persuasive evidentiary support for its contention that the proposed Project will be subject to increased risk from terrorist attacks. CAPE's contention is therefore rejected.

[21] Although the electric fields from existing lines would be unchanged after the proposed modernization, ground-level intensities could change at specific locations from the interactive effects of these project related fields and fields from nearby lines. (Ex. 115, p. 3.7-8.)

CAPE also argues Staff failed to adequately address the issue of fire hazards from downed lines, and that Staff's conclusions with respect to transmission line safety are inadequate under CEQA. (Opening brief, pp 41-43.) These contentions are similarly unpersuasive. As noted by Staff, transmission lines must be maintained in compliance with CPUC General Order 95 and Title 14 section 1250 of the California Code of Regulations, which specify utility related measures designed to prevent fires. (Ex. 115, p. 3.7-4.) PG&E currently owns and maintains the transmission lines that will provide power to the modernization Project, and is therefore subject to these requirements. CAPE speculates that PG&E may not fulfill its legal obligations because it has filed bankruptcy, and therefore assumes Staff's conclusions are inadequate without further investigation. Such speculation cannot refute the evidence provided by Staff's experts that the current requirements that are in place are adequate to ensure transmission line safety.

FINDINGS AND CONCLUSIONS

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

1. Energy from the Morro Bay Power Plant Project will be delivered to the Pacific Gas & Electric (PG&E) 230-kV transmission grid through the same PG&E owned Morro Bay Switchyard and 230-kV lines currently used for the existing Morro Bay Power Plant. The line is proposed for use at the existing voltage and without structural modifications.

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 Project's 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 health impacts.

4. The estimated electric and magnetic field (EMF) exposures from the transmission line are consistent with field levels associated with similar

lines in the PG&E service area, and are also consistent with field levels established by states with regulatory limits for such fields.

5. The Project transmission line will not create unacceptable interference with aviation safety or radio frequency; nor will it create a significant shock hazard to humans.

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

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

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

CONDITION OF CERTIFICATION

TLSN-1 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields at the points along the routes for which the applicant provided estimates. The pre-construction measurements may be made at any time before operations, but the post-modernization measurements shall be made no later that 60 days after the start of operations. .

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CEC Compliance Manager 60 days after the post-modernization measurements are completed.

IV. PUBLIC HEALTH AND SAFETY

Operation of the modernized Morro Bay Power Plant will create combustion products and use certain hazardous materials that could expose the general public and workers at the facility to potential health effects. The following sections summarize the regulatory programs, standards, protocols, and analyses that address these issues.[22]

A. AIR QUALITY and PUBLIC HEALTH[23]

This section addresses the potential air quality impacts resulting from emissions of criteria and noncriteria air pollutants created by the construction and operation of the proposed Morro Bay Power Plant Project and by the demolition of the existing facility. It also examines the effects such emissions may have upon public health.

Criteria air pollutants are those for which a state or federal standard have been established. They include nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3) and its precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOC), and particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$) and their precursors (NO_x, VOC, and SO_x.)

[22] This Decision also addresses potential public health concerns in other sections. The accidental release of hazardous materials is discussed in **Hazardous Materials Management** and **Worker Safety and Fire Protection.** Electromagnetic fields are discussed in the section on **Transmission Line Safety and Nuisance.** Hazardous and non-hazardous wastes are described in **Waste Management.**

[23] While the topics of Air Quality and Public Health were addressed in separate sections of the Staff FSA and in Applicant's filed testimony, other parties filed combined testimony on both topics. At the evidentiary hearings all parties chose to present their witnesses on both topics as a combined panel. Because the two subjects are so interrelated, and to facilitate our discussion, we address both subjects together.

Noncriteria pollutants are those for which no air quality standards have been established. In the absence of standards, a process known as health risk assessment (HRA) 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.

During its review process the Commission examined:

- Whether the Project is likely to conform with applicable federal, state, and San Luis Obispo County Air Pollution Control District (Air District or SLOAPCD) air quality laws, regulations and standards

- Whether the Project is likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, and

- Whether the mitigation proposed for the Project is adequate to reduce potential impacts to an insignificant level.

- Whether the Project is likely to have a significant impact on public health.

SUMMARY OF THE EVIDENCE

Both the United States Environmental Protection Agency (USEPA) and the California Air Resources board (CARB) have established allowable maximum ambient concentrations for the criteria pollutants listed above. The California standards are typically more stringent than the federal standards. Federal and state ambient air quality standards are shown in AIR QUALITY Table 1.

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 $\mu g/m^3$)	0.09 ppm (180 $\mu g/m^3$)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	---
	1 Hour	---	0.25 ppm (470 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual Average	80 $\mu g/m^3$ (0.03 ppm)	---
	24 Hour	365 $\mu g/m^3$ (0.14 ppm)	0.04 ppm (105 $\mu g/m^3$)
	3 Hour	1300 $\mu g/m^3$ (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 $\mu g/m^3$)
Particulate Matter (PM_{10})	Annual Geometric Mean	---	30 $\mu g/m^3$
	24 Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	---
Particulate Matter ($PM_{2.5}$) (Not in effect yet)	Annual Arithmetic Mean	15$\mu g/m^3$ 3-year average	
	24 Hour	65$\mu g/m^3$ 3-year average of 98th percentile	
Sulfates (SO_4)	24 Hour	---	25 $\mu g/m^3$
Lead	30 Day Average	---	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	---
Hydrogen Sulfide (H_2S)	1 Hour	---	0.03 ppm (42$\mu g/m^3$)
Vinyl Chloride (chloroethene)	24 Hour	---	0.010 ppm (26 $\mu g/m^3$)
Visibility Reducing Particulates	1 Observation	---	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: Exhibit 115, p. 3.1-6

1. Existing Ambient Air Quality

During the winter, winds from the east are more frequent, resulting from land temperatures being cooler than ocean temperatures. Annual wind roses can be found in the Application for Certification. (Ex. 4, pp 6.2-87 through 103.)

Temperatures at the site are moderated by the proximity of the ocean. In the summer, daily temperature ranges between the low 50s to mid 70s degrees Fahrenheit. In the winter, the average low temperature is about 42 and the average high is 60 degrees Fahrenheit. (Ex. 115, p. 3.1-4.)

Along with the winds, another climatic factor is atmospheric stability and mixing height. Atmospheric stability is an indicator of the air turbulence and mixing. During the daylight hours of the summer when the earth is heated and air rises, there is more turbulence, more mixing and thus less stability. During these conditions, there is more air pollutant dispersion and, therefore, usually fewer air quality impacts from a single air pollution source. During the winter months between storms, very stable atmospheric conditions can occur, resulting in very little mixing. Under these conditions, little air pollutant dispersion occurs, and consequently higher air quality impacts can result from stationary and mobile source emissions. Mixing heights are generally lower during the winter, along with lower mean wind speeds and less vertical mixing. (*Ibid*.)

As indicated in **AIR QUALITY Table 1**, the averaging times for the various air quality standards (the duration over which they are measured) range from one hour to an annual average. The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per volume of air, in milligrams or micrograms of pollutant in a cubic meter of air (mg/m^3 and $\mu g/m^3$).

In general, an area is designated as attainment for a specific pollutant if the measured concentrations of that air contaminant do not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that

standard is violated. Where not enough ambient data are available to support a designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of an air district is usually evaluated to determine the attainment status. (*Ibid*.)

The Air District collects ambient air quality data at monitoring sites throughout the air basin. The data is used to determine attainment status and define air quality trends. Ambient air quality data for all criteria pollutants (except particulate sulfates) are monitored by the Air District.[24] The Air District monitors ozone and PM_{10} in Morro Bay. Other pollutants are monitored in San Luis Obispo and in Grover City. (Ex. 134, p. 121.) This area is designated attainment for the state's CO, NO_2, SO_2, and SO_4 standards, and attainment for all federal air quality standards. The area is also designated attainment for the federal ozone and PM_{10} standards and non-attainment for ozone and PM_{10} state standards. (Ex. 115 p. 31-5.)

The air quality setting presented in the AFC is based on air monitoring data for the ten-year period from 1990 through 1999. (Ex. 4 pp. 6.2-15 to 6.2-22.) Ambient air quality data from the most recent three-year period for which data was available (1997-1999) were used to determine the existing ambient air quality for purposes of evaluating whether the Project would cause or contribue to violations of state or federal ambient air quality standards. (Ex. 4, p. 6.2-59; Ex. 134, p. 130.)

[24] Due to extremely low levels of particulate sulfate in the region, this pollutant has not been monitored by the Air District since 1988.

Criteria pollutants for which federal and state standards exist include: O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Ozone is formed as a result of complex reactions between VOCs and NO_x in the presence of sunlight. Naturally, this occurs most often during summer months. Ozone levels in Morro Bay have been relatively constant over the least ten-years, staying within federal and state standards on all but three days. (Ex. 134, p. 121.)

CO occurs with inefficient combustion such as from motor vehicles and other mobile sources. Wood burning stoves and fire places can be measureable contributors as well. Peak CO levels usually occur during winter months. However, there have been no CO violations of state or federal standards measured in the Project area for more than 10 years. (*Ibid*.)

NO_2 is formed primarily from reactions between nitric oxides and oxygen or ozone. Nitric oxide is formed during high-temperuature combustion. While less harmful than nitrogen dioxide, nitric oxide can convert to nitrogen dioxide in the atmoshere within hours or minutes, if conditions allow. There have been no violations of state or federal nitrogen dioxide standards measured in the Project area during the last ten-years. (*Ibid*.)

SO_2 is produced when any sulfur-containing fuel is burned and is emitted by chemical plants that refine sulfur compounds. Natural gas contains negligible amounts of sulfur. SO_2 levels in the area have been below federal and state standards for more than ten-years. (*Ibid*.)

Particulate sulfates occur with additional oxidation of SO_2 in the atmoshere. Sulfate levels have been well below state standards for more than ten-years and there are no federal standards for sulfates. (*Ibid*.)

PM_{10} has various sources, including wind-blown fugitive dust; particles from combustion sources; organic, sulfate, and nitrate aerosols formed from gaseous

pollutants, as well as natural aerosols such as salts from sea spray. PM_{10} levels have been measured in the Project area for more than ten-years. Four violations of state standards have occured during that period, but only one within the last seven years. According to the District, the violation was due to a fire in the area. (*Ibid*; Ex. 115, p. 3.1-8.) The witness for the Air District testified that when Morro Bay has elevated PM_{10} levels, the same high levels are seen in the rest of the Air District. He added that the historical trend of PM_{10} levels in Morro Bay is downward. (2/6/02 RT 60-61.)

$PM_{2.5}$ is caused by the same sources as PM_{10}, but with different relative contributions. The location nearest Morro Bay where $PM_{2.5}$ test data is available is Taft, in Kern County. However, air quality in Taft is heavily influenced by pollutant transport from northern San Joaquin Valley and from local oil production and power plants in the Taft area. Yet, no violations of $PM_{2.5}$ have been recorded in Taft since 1994. Based on historical data, $PM_{2.5}$ levels in Morro Bay will likely be lower. In fact, the witness from the Air District testified that Morro Bay exhibits the cleanest air quality of any of the monitoring stations in the Air District. (2/6/02 RT 60-61.) Air Pollution Control Officer Gary Willey testified that if more restrictive proposed federal standards for $PM_{2.5}$ are put into effect, the San Luis Obispo County area is still expected to be attainment for the federal $PM_{2.5}$ standard. (Ex. 115, p. 3.1-7; 2/6/02 RT 59.)

2. Best Available Control Technology

Applicant's witness testified that in performing its analysis, it had to ensure that the Project would be safe at both the local and the regional level. The first step, according to Duke's witness, was to apply the best available control technology (BACT). Applicant proposed to do this by designing the Project to burn natural gas and to use advanced combustors to minimize pollution formation. The Project will apply selective catalytic reduction (SCR) and oxidation catalytic systems to control emissions. The Duke witness stated that this combination of

technologies represents BACT for the Project and is acceptable as such to both the Air District and the CEC staff. (2/5/02 RT 158; Ex. 115, p. 3.1-24.)

AIR QUALITY Table 2
South Central Coast
24-hour PM_{10} Ambient Air Quality (mg/m3)

Monitoring Station	Standard	1993	1994	1995	1996	1997	1998	1999	2000
Morro Bay	Highest 24-hour measurements	64	48	40	42	57	33	39	47
	# of days above	2	0	0	0	1	0	0	0
San Luis Obispo	Highest 24-hour measurements	57	37	51	39	55	32	42	44
	# of days above	1	0	1	0	2	0	0	0
Atascadero –Lewis Ave	Highest 24-hour measurements	78	44	52	39	55	47	43	67
	# of days above	5	0	3	0	1	0	0	2

- PM_{10} measurements only occur every 6 days, so the actual number of days that violate the standard can be 6 times greater than the number shown here.
- CAAQS is 50 (µg/m3)

Sources: CARB & SLOAPCD, Exhibit 115, p. 3.1-8.

3. Modeling

Applicant used the SCREEN model to select the worst-case turbine configuration that would produce the highest emission impacts. The SCREEN model, which is approved by USEPA, is designed to provide conservative estimates of emission impacts and, according to Duke's witness, it is deliberately intended to overstate Project impacts. (2/6/02 RT 159.) Based on the results of the SCREEN model, the Applicant modeled the Project's four gas turbines and HRSGs configuration, using the USEPA-approved Industrial Source Complex (ISC) model for more refined modeling analysis. Applicant also has used the ISC model to estimate the impact from the construction and demolition activities. (Ex. 115, p. 3.1-12.)

According to Applicant's witness, Duke's analysis assumed worst-case operating conditions, added to worst-case emission rates, combined with worst-case weather conditions. The Duke witness stressed his confidence that modeled

Project impacts substantially overstate what actual impacts will be from the Project. (2/6/02 RT 160.)

The modeling expert for the Staff agreed that the model contains multiple levels of conservatism and that the modeled emissions for the Project "are much higher" than what actual operating averages would be. (2/6/02 RT 65-6:4.) The Staff modeling witness reviewed the various conservatisms as well as the various worst-case assumptions which went into his independent modeling of Project impacts. (2/6/02 63-71.) He acknowledged validation studies which compared the results of using the ISC-ST model against actual measured conditions. The vast majority of such studies show that the model may over predict impacts by a factor of 8, but by at least a factor of 2. (2/6/02 RT 5, 70-71.) He concluded that the modeling is so conservative that it does not reflect the likely impact of the Project on the Morro Bay community. (2/6/02 RT 71-72.) Furthermore, even with all the conservative assumptions contained in the modeling, both the Duke witness and the Air District's engineer testified that the increased levels in *modeled* PM_{10} emissions at the proposed plant compared to *measured* PM_{10} levels at the existing plant could not be picked up by the most sensitive air quality monitor.[25] (2/5/02 RT 221; 3/12/02 RT 50.)

No other party offered evidence based on independent modeling of Project impacts. However, CAPE applied its own methodology to the modeling data and concluded that the modeled worst-case impacts should be assumed to occur on every day of the year at every location in the City of Morro Bay. (Ex. 139, Declaration of Hartman.) Thus, CAPE determined the modeled location for the second highest PM_{10} concentration in the City of Morro Bay and applied the

[25] In response to a hypothetical question from CAPE's attorney, Duke's air quality witness said if all Morro Bay particulates from sea salt, cars, and homes were eliminated, then a sensitive monitor could measure worst-case plant emissions under worst-case weather conditions. (2/6/02 RT 221-222.)

concentration level at that single location to all points in the City at all times. Duke and the Staff disputed CAPE's approach.[26] (2/5/02 RT 194.)

4. Determination of Compliance

In lieu of issuing a construction permit to the Applicant for the Project, the Air District involved in any case before the Commission prepares and presents to the Commission a Preliminary Determination of Compliance (PDOC) and later a Final Determination of Compliance (FDOC). The FDOC evaluates whether and under what conditions the proposed Project will comply with the Air District's applicable rules and regulations. Commission staff coordinates its own air quality analysis with that of the Air District staff, reviews and comments on the PDOC to identify any issues of concern, and incorporates the FDOC into the recommended Conditions of Certification in Staff's Final Staff Assessment.

At the evidentiary hearings, the Air District's representative, Gary Willey, presented the FDOC and explained the analysis he conducted on behalf of the Air District. (Ex. 115, pp. 3.1-53, et. seq.) The witness reviewed the process he carried out in reviewing the Project, its air pollution control technologies, its emission levels, and the adequacy of the offsets proposed by Duke. Following these steps, the Air District issued a PDOC and made it available for comment. Comments were provided by the USEPA, the Commission staff, Applicant and members of the public. After considering the comments, the Air District issued the FDOC.[27] (2/6/02 RT 57-58.)

In the FDOC the Air District found that proposed offsets meet all legal requirements and that the plant will not contribute to violations of any air quality

[26] Applicant prepared ambient air quality monitoring analysis in accordance with a protocol which was reviewed and approved by both the San Luis Obispo APCD and the CEC Staff. (Ex. 134, p. 128.)

[27] Among the comments received and considered by the Air District on its Preliminary DOC was the 75-page set of comments submitted by CAPE representatives, Bonita Churney and Pamela Soderbeck, on June 13, 2001. (Ex. 115, FDOC, App. C.) The Air District's response to CAPE's comments are contained in Appendix B of the FDOC.

standards. The Air District found that the Project will meet all local, state, and federal regulations related to air quality. (*Ibid.)*

5. Construction Impacts

The Applicant estimated the impacts of construction-related emissions using the ISC model and based on the potential highest emission rates. These were compared with state and federal air quality standards. The annual impacts are based on the annual average for all modeled pollutants. AIR QUALITY Table 3 provides a summary of the revised modeling analysis of the maximum estimated impacts. The modeling results indicate that the construction-related emissions under the Applicant's worst-case conditions would not cause any new violations of most state or federal standards. However, modeling shows an impact of the daily and annual PM_{10} emissions during construction which will violate the standards. (Ex. 115, p. 3.1-12.) The modeled construction violations for PM_{10} are a contribution to the existing violation of the state 24-hour average PM_{10} standard and a predicted violation of the state annual average PM_{10} standard. Based on modeling, the area of violation is close to the Project site, most likely within the existing PG&E transmission switchyard. However, no new violations of the state PM_{10} standard are predicted at residential locations in Morro Bay. (Ex. 134, p. 123; Ex. 115, p. 3.1-13.)

In its testimony analyzing air quality construction impacts, Staff emphasizes that the modeled violations are temporary impacts that would only occur during the construction phase of the Project. Staff reports that the majority of the PM_{10} impacts (over 90 percent) from construction activities are from fugitive dust and 10 percent are from construction equipment exhaust. According to the Staff witness, the modeling analysis also shows the maximum modeled PM_{10} impacts located in residential areas are much lower than the maximum Project impact (see AIR QUALITY Table 3 – residential receptors). While Table 3 shows the maximum impact in residential areas exceeds the state *24-hour* standard, this violation occurs only when the maximum existing background concentration is

included. The state *annual* PM_{10} standard is not exceeded in residential areas even when background levels are included. Staff recommended steps to mitigate particulate emissions during construction (Conditions of Certification AQ-C1 and AQ-C2) and both the Staff and the Air District recommended short-term monitoring of NO_2 and PM_{10} during construction (Condition AQ-C3). (Ex. 115, p. 3.1-13)

While Duke filed testimony opposing Condition AQ-C3 noted above, at the evidentiary hearing Applicant proposed a modified version of the monitoring Condition. Specifically, Applicant recommended meeting the proposed monitoring requirement by using a mobile monitor that would then become one of the permanent monitors required by Condition of Certification AQ-7 (2/6/02 RT 88.) The Air District representative and the Staff concurred with Applicant's recommended change. (*Ibid*.; Staff Op. Br. on Group. III Topics, p. 2.)

AIR QUALITY Table 3
Maximum Estimated Construction-Related Incremental Impacts

Pollutant	Averaging Time	Facility Maximum Impact ($\mu g/m^3$)	Maximum Background ($\mu g/m^3$)	Maximum Total Impacts ($\mu g/m^3$)	State Limiting Standard ($\mu g/m^3$)	Federal Limiting Standard ($\mu g/m^3$)	Percent of Standard (%)
NO_2	1-hour	156.4	122	278	470		59.1
	Annual	12.2	25	37.2	-	100	37.2
CO	1-hour	1211.1	6988	8199	23000	40000	36
	8-hour	421.1	3444	3865	10000	10000	39
PM_{10} Residential receptors	24-hour	28.6	57	85.6	50	150	171
	Annual	2.2	20.6	22.8	30	-	76
PM_{10} All receptors	24-hour	128.3	57	185	50	150	370
	Annual	42	20.6	63	30	-	210
SO_2	1-hour	32.1	104	136	650	-	21
	24-hour	14.3	13	27.3	109	365	25
	Annual	0.6	0	0.6	-	80	0.0

Source: AFC Appendix 6.2-5; Duke Energy, Data Responses, March 9 and August 17, 2001.
Source: Exhibit 115, p. 3.1-13

6. Operational Impacts

In analyzing Project impacts during operation, Applicant calculated emissions based on the maximum capacity of the plant equipment in order to represent a worst-case. Duke's witness testified that actual emissions during plant operation are expected to be much lower than the levels shown in the FDOC. (Ex. 134, p. 123.) In addition, Duke applied the conservative EPA-approved model which is deliberately intended to overstate impacts. Worst-case operating conditions were applied and a wide range of weather conditions were assumed to guarantee that Project impacts were acceptable under all worst-case conditions, even if the combination of such conditions could not actually occur. (2/5/02 RT 159.) The Duke witness testified that he was "extremely confident" that the resulting estimates of Project impacts substantially overstate what the actual impacts from the Project will be. (2/5/02 RT 160.) He reviewed the Project's offsets to address all local and regional impacts and concluded that the Project will comply with the Air District's regulations and all other relevant LORS. In addition, he testified that the Project would not result in any unsafe air quality levels under any operating conditions. He agreed with the similar finding of the Commission staff and the Air District in this regard. (2/5/02 RT 160-163.)

Staff assessed the impact of facility operation using EPA-approved air quality dispersion models and guidelines without considering the air quality offsets that will be provided. The impact analyses were used to determine the worst-case ground level impacts of the facility. In addition, the one-hour start-up emissions were modeled to establish the highest impact from the Project during strart-up. The results show that the facility, by itself, does not violate the State or Federal ambient air quality standards for any pollutant. (Ex. 115, p. 3.1-15.)

However, the PM_{10} impact from the facility, when added to the existing background levels, which are already above the State Standard, will further violate the 24-hour State Standard. Staff points out that the background level that was used in analyzing all Project impacts is very conservative because it is

the highest single emission concentration level in the last seven years. Staff used that conservative approach to show the level of violation if the historical worst recent violation is ever repeated during the life of the proposed Project. In addition, the analysis assumed background levels which include the existing Morro Bay Power Plant emissions. This is a further conservatism since, of course, the existing plant will cease operations at the time the proposed Project begins operating. (Ex. 115, p. 3.1-15.)

Based on the conservative analysis, Staff considers the Project's potential PM_{10} impact to be significant if left unmitigated and therefore required Applicant to provide emission offsets. As a result of the offsets required in the FDOC and Conditions of Certification, Staff believes that the PM_{10} impact will be less than significant. (*Ibid*.)

Applicant, Staff and the Air District testimony all found the Project acceptable with the FDOC requirements and Conditions of Certification included. However, Intervenor CAPE filed testimony challenging the quantification of Project emissions of PM_{10} and the sufficiency of mitigation offsets for PM_{10} impacts. CAPE's testimony was presented by Ms. Pamela Soderbeck, who gained her knowledge regarding PM_{10} and $PM_{2.5}$ particulates by reading, or reviewing, a great many scientific articles on the topic.[28] CAPE claims that that the Project's estimated PM_{10} emission levels, based on Applicant's estimates and included in the Air District's FDOC, are grossly understated. (Ex. 139, p. 9.) CAPE argues that Applicant has estimated PM_{10} emissions using only the front half (filterable) portion of the emissions while omitting the back half (condensable) portions of PM_{10} emissions. (*Ibid*.) The CAPE witness also alleged a lack of evidence of any vendor guarantee or specification which supports Applicant's estimated emission rates of 11 lbs./hr in base load operation or of 13.3 lbs./hr with duct firing.

[28] Ms. Soderbeck's education is in history (San Diego State University BA '75) and law (Harvard Law School JD '78). She stated that she has reviewed 700 articles, about 400 of them "in pretty good detail". (Ex. 139, p. 1; 3/12/02 RT 84.) She has no advanced degrees in air quality or public health. (*Id.* RT 162.)

Rather, CAPE argues that the weight of evidence supports a finding that actual PM_{10} emission rates will be 22 lbs./hr without duct firing and 26.6 lbs./hr with duct firing. (CAPE Op. Br. Group III, p. 9.)

The CAPE witness cites her impression of PM_{10} emission rates at numerous other power plant facilities which do not match or support Duke's claim for such low rates. (Ex. 139, p. 9.) Based on these emission rates, CAPE argues that the Project will be unlikely to meet the limitations contained in the FDOC and should not be licensed without providing additional PM_{10} emission reduction credits (ERCs). CAPE also advocates that accurate monitoring to determine actual PM_{10} emissions from the Project is not likely to occur unless continuous monitoring for PM_{10} emissions is required. (Ex. 1`39, pp. 14-15.)

CAPE argues that the Applicant's proposed mitigation for PM_{10} emissions is inadequate to mitigate local or regional impacts from the Project. In CAPE's view, not only are emission rate estimates too low, as noted above, but of the ERCs that are provided by Duke, CAPE contends a significant portion is made up of offsets which are "phantom" or "paper offsets", and do not actually mitigate impacts. (Ex. 139, Soderbeck p. 14.) In making this claim, CAPE refers to ERCs for the Project which result from Duke forgoing its right to burn oil at the existing facility.[29] (3/12/02 RT 96-97.) These ERCs were banked as a result of oil burning at the MBPP ceasing in 1995 under a ban that expires at the end of 2002. CAPE argues that Duke could not reinstate oil burning while still meeting NOx emissions standards, thus making the ERCs for oil burning "phantom" offsets. The Intervenor charges that the underestimate of emissions combined with the inadequate ERCs mean that the Project will cause an increase of local PM_{10} concentrations.

[29] CAPE argues that, since the existing MBPP has not burned oil since 1995, ERCs based on oil burning are not allowable, and since they comprise 51 percent of the Project's ERCs, leave the Project short of mitigation by 104 tons per year of particulates. (3/12/02 RT 97.)

Applicant, Staff and the Air District dispute CAPE's charge. The Air District witness testified that the Project owner could, in fact, burn oil once the existing limitation expires in 2002. He also noted that under Air District regulations, the time to challenge the banking of ERCs is at the time they are banked, rather than at the time the ERCs are used. (3/12/02 RT 53, 55.)

CAPE goes on to argue that even the slightest increase in local PM_{10} caused by the Project will have a significant adverse impact on the public health of the citizens of Morro Bay, especially children and the elderly. (3/12/03 RT 104.) CAPE's testimony includes numerous articles regarding the risks of air-born particulates to public health. (Ex. 139 pp. 16 et. seq.) In addition to Ms. Soderbeck's testimony, CAPE offered that of Mr. John Hartman (Ex. 139, Hartman.) Mr. Hartman relied on a series of studies which examined the relationship between increases in PM_{10} and increased mortality.[30] He then calculated an increased risk of premature mortality for Morro Bay citizens as a result of Project impacts, which he found to be significant.[31] (Ex. 139, Hartman; 2/6/02 RT 113.)

7. Cumulative Impacts

Staff provided the Applicant with a modeling protocol to conduct the cumulative impact analysis. The major component of the protocol required the Applicant to include modeling of all known future projects that emit more than five tons per year of air emissions within six miles of the proposed facility. The modeling results (impacts) would be added to the ambient background levels to establish the total impact. However, the Air District conducted a comprehensive review

[30] Mr. Hartman's education and background is in accounting, business management, and information systems analysis. (Ex.139, John Hartman's Resume.)

[31] CAPE also submitted the declaration of Sylvia Twersky-Bumgardner, who attached two studies on particulate impacts to public health: *Selected Key studies on Particulate Matter and Health: 1997-2001,* American Lung Assoc., and *Air Pollution and Children's Health* Cal EPA's Office of environmental Health Hazard Assessment and the American Lung Assoc. (Ex. 139, Twersky-Bumgardner, Exhibits A and B.) However, Ms. Twersky-Bumgardner did not testify at the evidentiary hearings.

and determined that there are no planned facilities within a six mile radius of the Project that are eligible for modeling. Therefore, no cumulative impact is anticipated as a result of this Project. (Ex. 115, p. 3.1-18; Ex. 134, p. 125.)

CAPE argues in its Reply Brief, that limiting Staff's cumulative impact analysis to known projects within a six-mile radius of the Project is not adequate. (CAPE's Reply Brief Group III Topics, p. 5-10.) However, CAPE offered no evidence of cumulative significant impacts beyond the six-mile radius used by Staff.

8. Mitigation

Applicant proposes that it would implement Best Available Control Measures (BACM) during construction of the Project. (Ex. 4, Section 6.2.6.6; Appendix 6.2-5; ex. 115, p.3.1-19.) These measures are listed below:

- Frequent watering of unpaved roads and disturbed areas (at least twice a day).
- Limit speed of vehicles on the construction areas to no more than 10 MPH.
- Employ tire washing and gravel ramps prior to entering a public roadway to limit accumulated mud and dirt deposited on the roads.
- Treat the entrance roadways to the construction site with soil stabilization compounds.
- Place sandbags adjacent to roadways to prevent run-off to public roadways.
- Install windbreaks at the windward sides of construction areas prior to the soil being disturbed. The windbreaks shall remain in place until the soil is stabilized or permanently covered.
- Employ dust sweeping vehicles at least twice a day to sweep the public roadways that are used by construction and worker vehicles.
- Sweep newly paved roads at least twice weekly.
- Limit on equipment idle times (no more than five minutes).
- Employ electric motors for construction equipment when feasible.
- Apply covers or dust suppressants to soil storage piles and disturbed areas that remain inactive over two weeks.
- Pre-wet the soil to be excavated during construction.

- Employ oxidizing soot filters on all large suitable off-road construction equipment with an engine rating of at least 100 bhp.

Once the Project enters its operational phase, Applicant proposes to mitigate any emission increases from the Project using a combination of clean fuel, emission control devices and emission reduction credits.[32] The Project will use a combination of dry low NO_x combustion design, SCR and high-temperature CO oxidation catalyst technology for each of the combined-cycle turbine trains to minimize its NO_x and CO emissions. The proposed control devices are designed to maintain the turbine/duct burner emissions to 2.0 ppm NO_x, 2 ppm CO, and 2 ppm VOC. The ammonia slip emissions (from unreacted ammonia in the SCR) will be maintained at 5 ppm or less. Natural gas will be the only fuel used, which will minimize the Project's PM_{10} and SO_x emissions. (Ex. 115, p. 3.1-20.)

The Applicant, Staff and Air District are all in agreement regarding the proposed mitigation and Conditions of Certification. During the evidentiary hearings, the Air District's witness suggested that the mobile monitor that will be used for monitoring during operation, pursuant to the requirements of AQ-7, could be used for construction monitoring in satisfaction of Condition AQ-C3. Although Applicant did not agree that potential construction impacts will be significant, Duke does agree with the District's proposal to use the mobile monitor required for AQ-7 to satisfy the requirements of Condition AQ-C3. (2/6/02 RT 62-63; 87-88.)

9. Offset Regimen

Both Air District and Commission rules require that overall air quality does not deteriorate as a result of the Project. Applicants must propose BACT for their

[32] In its Air Quality Management Plan (AQMP), the Air District includes banked ERCs in its planning emissions inventories for future years as if they were actual ongoing emissions. Therefore, the future effects due to emission increases from new sources are already taken into account in the AQMP, including the use of ERCs as a source of mitigation or offsets. This calculation assures that a new source will not detract from the Air District's attainment strategy. As a result Commission staff determined that banked offsets in this case constitute real mitigation of potential impacts from the Project in the context of the District overall attainment strategy.

facility and in addition, use emission reductions to "offset" or mitigate any emission increases. Air District rules require evaluating the Project by looking at its maximum future emissions in comparison to existing, or baseline emissions from the existing plant. The remaining emission increases from the Project are then mitigated by the surrender of ERCs generated at the site of the existing plant and by other ERCs purchased from offset holders within the vicinity of the Project. (Ex. 134, p. 126.) Staff and the Air District determined that the Project's air quality mitigation package is in compliance with the Air District's Rule 213 calculation method. (Ex. 115, p. 3.1-21.)

10. Public Health Effects

Staff testimony states that the purpose of the public health analysis is to assess the proposed Project's air toxic emissions for compliance with applicable emission LORS, which differ from those criteria pollutants in the Air Quality section. (Ex. 115, p. 174.) The primary tool employed in the public health analysis is the Health Risk Assessment (HRA). The HRA methodology and results are described in the Application for Certification (Ex. 4, Sections 6.2 and 6.16 and associated appendices) and the District's FDOC. (Ex. 115, Attachment A, p. 9-11.)

Applicant described the methodology used to conduct the HRA for the Project as following the generally accepted practice described in California Air Pollution Control Officer's Association (CAPCOA) Guidelines (1993). The HRA was conducted in three steps. First emissions of noncriteria pollutants from proposed sources were estimated. Second, dispersion modeling was used to compute the ground-level concentration of each noncriteria pollutant at defined boundary receptors and also at offsite 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 and chronic and acute noncarcinogenic health hazard indices. (Ex. 4, p. 6.16-7.)

For the proposed Project, the gas-fired combined-cycle units, equipped with SCR, will be the primary source of emissions of noncriteria pollutants. Applicant used emission factors from the State of California for noncriteria pollutants emitted by gas turbines and combined these with maximum use rates of natural gas fuel to calculate maximum hourly and annual emission rates. Ammonia slip from the SCR was included as well as the diesel exhaust emission factor at the maximum use rate of diesel fuel, all combined to calculate the maximum emission rates. (Ex. 134, pp. 138-140.)

During the comment process and through data requests during the siting process, the various risks and assumptions were challenged, re-tested, and the results revised. (Ex. 134, p. 140.) In every case they reveal HRA results for the Project which are below the threshold of significance. The Air District, therefore, concluded that the Project would comply with Toxic Best Available Control Technology (TBACT) requirements. (*Ibid.*)

AIR QUALITY Table 4
Health Risk and Hazard Levels

	Risk or Health Hazard Index From Project	TBACT Required Level	Significance Level
Acute Non-Cancer Health Hazard Index (1)	0.355	0.1	1.0
Chronic Non-Cancer Health Hazard Index (1)	0.041	0.1	1.0
Cancer Risk to the Maximum Exposed Individual (1)	1.51 in one million	1 in one million	10 in one million
Cancer Risk without Diesel Engines to the Maximum Exposed Individual	0.17 in one million	Not applicable	Not applicable
Note: Includes existing standby engines and motor vehicles gasoline fueling.			

Source: Exhibit 115, FDOC, and p. 8, Table 3.

In its FDOC, the Air District reviewed and revised Applicants determinations. (Ex. 115, FDOC, p. 7.) As explained in the FDOC, the Project cannot be permitted if the total estimated cancer risk exceeds ten in a million. In addition, any project causing a risk greater than one in one million must install TBACT on equipment which increases toxic emissions. Table 4 from the FDOC shows that toxic emissions from the Project do not exceed absolute thresholds of ten in one million risk for cancer causing compounds. However, TBACT levels are exceeded. The dominating cancer risk and health hazard pollutants are diesel exhaust particulate from the diesel standby engines and acrolein from the turbine exhaust.

However, particulate traps are considered TBACT for the diesel engines and oxidation catalysts are considered TBACT for organic compounds from gas turbines, like acrolein. The Project will control acrolein emissions by using oxidation catalysts on its turbines. Condition of Certification AQ-53 allows the District to require diesel particulate traps on all standby diesels engines relocated to the new Project. (*Id*. pp. 8-9.)

Staff presented its independent analysis of the Project's risk to public health and concluded that, prior to the imposition of mitigation, the Project posed a possible, although unlikely, potential for an impact to public health. This is based on the single violation of PM_{10} standards in 1997. Thus, Staff required the Project to provide PM_{10} offsets. (2/6/02 RT 74-75.) The Staff witness concluded that modeled impacts for the Project would not represent a risk to public health for two reasons. First, the modeling methodology used is so conservative that the Commission staff does not expect modeling levels to actually occur during plant operation. Second, even if the modeled numbers were to occur, Staff believes they would not result in a significant impact because of the existing clean air in Morro Bay, where normal air quality pollution level is well below the state thresholds for both the annual and 24-hour basis. (*Id*. RT 75-76.)

The Staff witness added that even if the modeling results were to match actual operation emissions, the City of Morro Bay would still maintain PM_{10} levels below even the new proposed standard of 20 mcg, on an annual basis. Furthermore, since Staff has required offsets for PM_{10} based on worst-case assumptions, no impacts are expected. The witness pointed out that this is particularly the case here, where the Project's ERCs come from the shut down of the existing plant and are therefore located at the same spot as the Project. Staff considers this the most beneficial kind of ERCs possible. (2/6/02 RT 77-78.) Finally, the worst-case modeled impacts are so low as to be insignificant. Therefore, even a small potential increase above the current insignificant levels, would still result in an insignificant number. (*Id.* RT 77.)

Thus, the Applicant, the Staff, and the Air District are all in agreement that there are no significant public health effects associated with the Project. (Ex. 4, p. 6.16-25; Ex. 115, p. 3.4.13; Ex 4, FDOC p. 21.)

However, CAPE disagrees and argues that the Project will cause significant, unmitigated public health risks. CAPE states 1) that Applicant has modeled potential health impacts improperly, 2) that Applicant, Staff and the Air District have ignored the findings of thousands of public health studies demonstrating severe health impacts associated with any increase in PM_{10} or $PM_{2.5}$ exposures, 3) that an inappropriate emission factor was used to estimate the health impacts of the Project's acrolein emissions, 4) that as a result of modeling errors, Staff has underpredicted PM_{10} and $PM_{2.5}$ emissions, and 5) used improper ERCs, resulting in the Project being inadequately mitigated to avoid a significant public health impact in Morro Bay. According to CAPE, the various conservatisms which Applicant and Staff testified are included in air quality and public health modeling are not real and thus the model is not overly conservative in predicting public health impacts. CAPE argues that among Duke's many mistakes is its use of a 9 lbs/hr base load emission rate rather than using General Electric (GE) guarantee data for the Frame 7 turbine emission rates of 18 lbs/hr, suggesting

that at a minimum only half the particulates are included in Duke's emission rates. (3/12/02 RT 119-125.) Further, CAPE urges the Commission to use an analysis which applies the modeled results for the second worst-case location,[33] to all locations throughout Morro Bay, during all times. (Ex. 139, Declaration of John Hartman.)

CAPE witness Pamela Soderbeck referred to her review and analysis of hundreds of epidemiological studies drawn from national and international cities to support CAPE's position that any increases at all in PM_{10} or $PM_{2.5}$ from the Project will result in a significant adverse impact upon public health, including premature mortality. (See Ex. 139, Twersky-Bumgartner Declaration and attachment, Hartman Declaration and attachments, and Soderbeck Declaration and attachments; 3/12/02 RT 84-85.) Citing these studies, CAPE argues that the people most susceptible to these adverse health effects are infants and children, those over age 65, and those with chronic diseases. In CAPE's view, there is no margin of safety and no safe threshold in PM standards. Thus, CAPE argues that even if existing air quality and public health standards are met by the Project, any increase in ambient PM over existing levels will create a significant impact, under a CEQA analysis. Therefore, CAPE seeks a condition which would guarantee that there are no PM_{10} increases to ambient levels anywhere in Morro Bay on an annual basis. (3/12/02 RT 184.)

While offering no direct evidence on the topic during the hearings, CAPE also argues in its opening and reply briefs that the Applicant uses an acrolein emission factor which is inappropriate because it does not include startups and shutdowns. (See Opening Brief of CAPE re Group III Topics, pp.14-19 and Reply Brief of CAPE re Group III topics, pp. 23-25.) The witness for the Air District acknowledged that acrolein, although not carcinogenic, does cause eye irritation, both acute and chronic, and is a difficult substance to handle in the laboratory and in the field. (3/12/02 RT 74-75.) Since the substance has a very low

[33] The modeled worst-case location is Morro Rock, which is not inhabited.

reference exposure level (REL), very small concentrations can result in health impacts. CAPE accuses the Applicant of being selective in using emission data for acrolein. Further, CAPE argues that Applicant did not account for increased emission rates for acrolein during plant startup and shutdown. (CAPE Opening Brief re Group III Topics, p. 16.)

11. Facility Closure

Eventually the Project will cease to operate and will close. As that time approaches, the Commission will require a Facility Closure Plan to be submitted to the Commission's Compliance Project Manager. It must indicate that the Applicant will comply with the applicable construction related permit conditions included in the Conditions of Certification, which includes the control of fugitive dust emissions from plant demolition activities. (Ex. 115, p. 3.1-24.)

Public Comment

During the Public Comment period following the February 6, 2002 air quality hearing, **Mr. Zaitz** expressed his concern regarding the effect of plant emissions on public health. (2/6/02 RT 120.) **Leonard Wagner**, of Sacramento encouraged those involved in the permitting process to work out their differences. (*Id*. RT 124.) **Robert Freiler** voiced opposition to the Project and urged instead the use of clean technologies. He is opposed to the Project's proposed use of once-through cooling water drawn from the Morro Bay estuary. He also complained that the building in which the hearing was held did not meet all the requirements of the Americans with Disabilities Act (ADA). In response, the Committee ensured that all future hearings were held in ADA-compliant facilities. (*Id*. RT 127-131.) **Mandy Davis** offered to give kayak tours of the Morro Bay estuary to members of the Staff, the Committee and the Air District to help them appreciate the beauty of the estuary. (*Id*. 131-137.)

Additional public comments were taken following the continuation of the air quality hearing on March 12, 2002. **David Nelson** acknowledged that the details of the air quality analysis are confusing to him. Nevertheless he fears that Morro Bay may end up getting more particulate matter as a result of the Project than will other local communities. He asks the Commission to ensure that the Project contribute no additions to existing PM_{10} levels, or to other existing pollution levels. He also stated his opposition to the proposed Project's duct-firing feature. (3/12/02 RT 230-233.) **Larry Sheers** said that he requires oxygen to maintain his health and fears that the existing plant is harming him. (*Id.* RT 233.) **Doris Murray** lives two blocks downwind of the existing plant and stated that she has to keep her windows closed in order to keep particulates emitted by the existing plant from entering her home. (*Id.* RT 236.)

Nelson Sullivan objected to the proposed Project substituting 145-foot stacks for the existing plant's stacks of 450 feet. He stated his belief that the existing taller stacks can better disperse emissions and asked why the new plant can't simply send its emissions to the old, taller stacks through a ducting system. He also stated that the job of the Air District is to protect regional air quality and that the public in Morro Bay needs the Energy Commission to specifically protect the community. (*Id*. RT 237-239.) **Don Boatman** said that he lives one-half mile downwind from the existing plant. In his view a plant which emits fewer pollutants per MW is not necessarily a cleaner plant overall. He thinks that the plant emission impacts on the region are not as important as its effects within Morro Bay. (*Id.* RT 239.)

Commission Discussion

Expert witnesses for the Air District, the Commission staff, and Applicant all testified that, with the Conditions of Certification,[34] the Project will not impose any significant, unmitigated direct, indirect, or cumulative air quality or public health impacts and that the Project will comply with all LORS related to air quality and public health. (Staff: Ex. 115, pp. 3.1-27; 3.4-13; SLOAPCD: Ex. 115 App. A, FDOC, p. 17; Duke: 2/5/02, RT 162-163, 175, 177.) The expert witnesses for Applicant, Staff and the Air District are all qualified individuals with years of experience in their respective fields of air quality and public health regulatory matters.[35] In most cases, the witnesses have previously testified as experts in power plant licensing cases and the Commission has relied upon their testimony.

The only party offering testimony in fundamental disagreement with the experts noted above is CAPE. CAPE takes the primary position 1) that the PM_{10} emissions used by the Applicant, Staff, and Air District are understated, 2) that epidemiological studies establish that any increase in ambient PM_{10} constitutes a significant public health impact, and 3) that erroneous calculations for PM_{10} emissions and inadequate emission reduction offsets will result in the Project creating a significant increase in local PM_{10} emissions thereby causing a significant air quality and public health impact under CEQA.

CAPE argues that duct firing is disproportionately dirtier compared to baseload operations. (Ex. 139.) The evidence shows that the proposed PM_{10} limits for the Project are 11 lbs/hr without duct firing and 13.5 lbs/hr when using duct burners. However, Applicant's testimony established that there is virtually no difference

[34] Applicant, Staff and the Air District agreed upon all Conditions of Certification for Air Quality. No separate public health conditions were recommended. The minor controversy regarding additional monitoring under Condition AQ-C3 was resolved by the agreement of these parties at the evidentiary hearing of February 6, 2002. (2/6/02 RT 62-63, 87-88; Duke Opening Brief on Group III Topics, p. 3-8)

[35] The professional qualifications of the various expert witnesses is established in the record: Duke, Rubenstein and Walther (Ex. 134, App. A.); Staff, Badr and Odoemelam (Ex. 115.)

between the PM_{10} emissions from the turbines in the unfired and fired modes when examined on a MMBtu/hr basis. (Ex. 134, pp. 124-125; 2/5/02 RT 168-169.) This is because most particulate matter from combustion turbines and duct burners is associated with burning natural gas. As more natural gas is burned, more particulates are produced, but in proportion to the amount of fuel burned. (2/5/02 RT 169.)

The weight of evidence establishes that the Project as proposed, including duct firing, will not result in any significant local impacts from PM_{10}, under any operating conditions. (Ex. 134, p. 125.) Modeling evidence shows that without duct firing, a slight decrease[36] in PM_{10} would occur under some circumstances and not others. (2/5/02 RT 170.) The witness established that if duct firing were eliminated from the Project, the Project would still have no significant localized PM_{10} impacts. However, while the Project will have no significant PM_{10} impacts with or without duct firing, ERC requirements are based on the total permitted emissions, which include those for duct firing. Thus, to eliminate duct firing would not remove a significant impact, but would mean that the Project is required to provide fewer PM_{10} offsets. (Ex. 134, p. 125; 2/5/02 RT 170.)

The Commission is familiar with duct firing technology and has analyzed its air quality impacts in previous siting cases. Our decisions in those cases have permitted projects with duct firing and where we have found that the projects complied with LORS and could be conditioned to have no significant unmitigated impacts.[37] In the instant case, all Project emissions, including those associated with duct firing, have been fully analyzed for this specific Project by both the

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[36] The decrease in ambient peak PM10 concentrations by eliminating duct firing would be less than 5 percent. (2/5/02 RT 170:11-12.)

[37] The Commission Decisions include those for the following projects: Sutter Power Plant, Los Medanos Energy Center, Delta Energy Center, High Dessert Power Project, Elk Hills Power Project, Mountainview Power Project, Midway-Sunset Power Project, Blythe Energy Project, Three Mountain Power Project, Contra Costa Project, and Metcalf Energy Center Project. We take official notice of these decisions to the extent they address duct firing.

Commission staff and the Air District. The evidence establishes that any potential impacts from the Project's use of duct firing will be fully offset and that no significant local or regional impacts will result. The acceptability of duct firing at the proposed Project is also discussed in the Biological Resources and Soil and Water sections of this Decision.

CAPE claims that the PM_{10} emissions levels based on Applicant's estimates and included in the Air District's FDOC are grossly understated. (Ex. 139, Declaration of Soderbeck, p. 9.) CAPE argues that Applicant failed to base its PM_{10} emission estimates on both the front half (filterable) and back half (condensable) portions of PM_{10} emission (*Ibid.*) However, Applicant's witness clarified through credible testimony given under oath that all of Duke's PM_{10} calculations and analysis reflect both filterable and condensable particulates. (2/5/02 RT 168:1-4.) We are persuaded by Applicant's testimony.

CAPE also challenged Applicant's estimates for PM_{10} emission levels of 9 lbs/hr (unfired) and 13.5 lbs/hr with duct firing. CAPE argues that recent General Electric vendor information on guarantees and performance specifications for Frame 7 turbines requires using PM_{10} emission base rates of 18 lbs/hr, approximately double the rate assumed by Duke. (Ex. 139, declaration of Soderbeck; Ex. 179.) CAPE offered figures for vendor specifications and guarantees for the purpose of showing that the Project will be unlikely to achieve the limitations contained in the FDOC and should therefore be required to provide additional ERCs.

However, in rebuttal testimony, Applicant's witness explained the difference between vendor guarantees as opposed to emission limitations contained in the FDOC. The first being a commercial agreement that "… take[s] into account the wide range of inexperience in measuring particulate emissions from gas turbines throughout the country." (3/12/02 RT 196: 18-20.) This high level of variability leads vendors to set emission levels high for guarantee agreements, in order to

reduce the vendor's risk exposure. (*Id*. RT 197.) By contrast, emission limitations are legally enforceable maximum emission rates set by the Air District in the FDOC. Duke's witness clarified that he did not rely on guarantee figures or upon standard GE emission figures for other power plants presented in Exhibit 179, offered by CAPE. (3/12/02 RT 194.)

CAPE also argues in its opening brief that Applicant is attempting to apply a different source test methodology than the one required by the Air District. (CAPE Op. Br. on Group III Topics, pp. 7-10.) However, the record does not reveal that Applicant is challenging the Air District on this question. Rather, the FDOC makes very clear that it requires the use of USEPA-approved test methods to determine compliance with emission limits. The Commission requires the same test methods through its Conditions of Certification. (Ex. 115, Condition AQ-17 and Att. A (FDOC) Condition 17, p. 21.) CAPE's challenge is without merit.

In CAPE's view, for the Project to adequately control PM_{10} emissions the regulatory agencies should require additional testing, such as continuous real-time monitoring of PM_{10}.[38] The witness from the Air District addressed this matter in his testimony. He stated that the District believes the PM_{10} emission limits used by Duke are realistic. He explained that one of the District objectives during the permitting process is to impose the lowest possible emission limit. Thus, when Applicant proposed a low PM_{10} emission permit level in its permit application for the Project, the District conducted a review to make sure the proposed limit was feasible. He testified that the District found the limits to be feasible. (3/12/02 RT 51.)

[38] To support its request for continuous monitoring, CAPE included a paper by Dr. James Janke. (Ex. 139, Declaration of Soderbeck, Ex. 2). However, the Janke paper is replete with references to coal and oil burning power plants and hazardous waste incinerators. The document appears to be irrelevant to natural gas-fired combustion turbines.

However, to ensure that the District would actually benefit from the lower PM_{10} emission levels proposed by Duke, the District included the emission limits in the FDOC and imposed extensive source testing requirements on the Project. In this way, if there are exceedances, the Air District can take corrective action. (3/12/02 RT 22, 52; Ex. 115, FDOC, p.22, Condition 22.) The source testing required by the Air District will use EPA-approved tests at three different load levels 30 days after commissioning and every six months thereafter to track Project emissions (*Ibid.*) The Air District witness stated that this testing method can ensure that the units are operating consistently and can prevent any manipulation of test results. (*Id.* RT 25, 52-53.)

We find that the Air District has reasonably relied upon the emission limits for PM_{10} and has a realistic testing plan to ensure the Project does not exceed the limits.[39]

Although not addressed in CAPE's pre-filed testimony or in the oral testimony of CAPE's witness at the March 12, 2002 hearing, CAPE alleges in its Opening Brief that acrolein emissions from the Project will result in "quite significant health impacts". (CAPE Op. Br. Group III Topics, p. 14.) However, the evidentiary record contains no statements suggesting that acrolein presents a significant health impact. In fact, the testimony from the Air District's witness regarding acrolein does not support CAPE's claim.

> MR. WILLEY: … And I'd also like to point out that acrolein is not a carcinogenic impact, not a long-term impact. It's {sic} impact is eye irritation, mild eye irritation, I believe is the correct term on that. (3/12/02 RT 76.)

[39] The Air District witness testified that "First and foremost we wouldn't grant the permit to operate if they couldn't meet the emission limits presented in the permit." (3/12/02 RT 26.)

The Morro Bay Project has been designed to include an oxidation catalyst. As a result, acrolein emissions will be controlled by more than 90 percent. (Ex. 115, FDOC, pp. 4, 6; 3/12/ RT 75-76.) In addition, the Air District may require source testing of acrolein emissions under multiple operating conditions. (3/12/02 RT 75-75.) The evidence in the record is clear that due to the use of the oxidation catalyst, acrolein emissions will be below the rates assumed by the Applicant and the Air District. Therefore, there is no basis for CAPE's claim that acrolein emissions from the Project will significantly harm public health.

In addition to its concern about acrolein, CAPE cites a series of studies to argue that any increase in local PM_{10} concentrations will cause a significant public health impact. (Ex. 139.) However, the studies cited by CAPE are epidemiological studies which do not include data from the Project or from the City of Morro Bay and its environment. Applicant's public health expert testified on rebuttal that CAPE had misapplied general, otherwise useful epidemiological studies to the specific Morro Bay Power Plant Project. The epidemiological studies cited by CAPE are not specific to Morro Bay, unlike the air quality analysis and the HRA upon which the Applicant, Staff, and the Air District have relied. The Duke witness noted that, in contrast to the studies cited by CAPE, the CEQA process which the Commission applies asks whether the specific project will have a significant impact on a specific environment. (3/12/02 RT 185-197, 206.)

CAPE's error is shown by its reliance on a study cited by CAPE's witness, Mr. Hartman, during cross examination. (Ex. 182, "Levy and Spangler study.") Asked if he knew of any peer-reviewed scientific articles that apply epidemiological findings to calculate the potential health impacts of a specific power plant, CAPE's witness cited the Levy and Spangler study. (2/6/02 117-118.) That study looked at emissions from two older coal-fired power plants located in Massachusetts. The two plants in the study bear no relevant connection to the Project. (3/12/02 RT 198.) The plants in the study are older coal-fired plants

which are not required to meet new source standards. (Ex. 182.) The sulfur dioxide emissions from the two coal-fired plants are 3,304 times greater than the emissions from the proposed Project. (*Id.* 3/12 RT 198.) Combined NO_x emissions from these two coal plants was over 20,000 tons per year as compared with 292 tons per year from the Morro Bay Project. (*Id*.) Furthermore, the study did not even address PM_{10} emission from the two plants, but rather focused on NO_x and SO_x emissions. The Levy and Spengler study examined the average population-weighted annual concentration across an area of 600 by 600 kilometers in doing their analysis. CAPE's approach, on the other hand, used a single number representing the maximum concentration at the location of maximum impact, excluding Morro Rock.

More specifically, Duke's witness explained that CAPE had inappropriately tried to apply studies developed elsewhere to the Project, which is outside the "domain" of the studies cited by CAPE.[40] (2/5/02 RT 191-192.) He explained that the epidemiological studies relied upon by CAPE are not applicable outside the specific domain in which those studies were developed. This is because the CAPE studies fail to account for such variables as different types of particulates in the ambient air analyzed. (2/5/02 RT 188.) The witness demonstrated that the most important violation of domain is CAPE's attempt to apply the epidemiological studies of a complex urban PM_{10} mix which contains a substantial contribution from diesel exhaust and metals, to the much simpler PM_{10} mix from the proposed Project, which will be mostly sulfate and carbon particles, and which will not contain metals. The weight of evidence establishes that the potential health effects of metals are a distinguishing factor between the

[40] According to the Duke witness the proper domain for a particular power plant project is the unique set of pollutants that make up the background or ambient air quality at the time a particular study was conducted. (2/5/02 RT 191-192.) Projects located in different domains would not necessarily have the same set of relationships because the number and the type of pollution sources are likely to be different between domains. (2/5/02 RT 192.)

results of the studies and the impacts from the Project. (3/12/02 RT 201, 203.) It is undisputed that such metals in particulates have harmful health effects. (Ex. 139, Declaration of Twersky-Bumgardner.) On the other hand, natural gas combustion results in insignificant metal emissions. (Ex. 181.) We find that CAPE's epidemiological studies are not appropriate to establish public health impacts of the specific Morro Bay Power Plant proposal on the specific environment of the Morro Bay area.

CAPE makes an additional error in assuming that the second highest modeled PM_{10} concentration that could occur at a single, worst point would instead occur at all points and on every day of the year. This assumption is reflected in CAPE's attempt to use this single, second highest concentration to reflect the concentration to which the entire population of Morro Bay might be exposed. (Ex. 139, Declaration of Hartman, Ex. B.) Yet, the evidence establishes that a concentration at the single, second highest concentration point in Morro Bay is properly judged as a single-point concentration, not the level for all points in Morro Bay. Applicant's witness explained that CAPE's approach is the equivalent of taking the 10,000 people in Morro Bay and putting them all at the point of second highest concentration. (2/5/02 RT 194.) In reality, the PM_{10} concentrations throughout the City of Morro Bay will be far lower than at the level modeled at that point. Furthermore, they will be below the level of significance. (3/12/02 RT 207.)

CAPE was the only party to employ the methodology it used. By contrast the Applicant, Commission staff, and the APCD used assumptions which took into account concentrations at all points, and demonstrated through a Morro Bay-specific Health Risk Assessment that emissions from both the existing plant and the proposed Project do not cause significant health effects. (Staff: Ex. 115, p. 3.4-13; Air District: Ex. 115, Attachment A, p. 21; Applicant: Ex. 4, p. 6.16-25).

The HRA is a well-established and widely employed analytical tool, developed and implemented in compliance with applicable federal and state law, using conservative assumptions. (2/5/02 RT 174.) As expressed in the evidence of record, the HRA demonstrates that there are no significant public health impacts associated with the Project. (2/5/02 RT 175.)

Although CAPE argues that *any* increase in PM_{10} is significant, no matter how slight, the modeling witnesses for Applicant and Staff testified to many conservatisms embedded in the modeling for PM_{10}. Yet, even with all these conservatisms, the modeled increase from the Project is determined to be between .05 and .1 mcg/cu meter on an annual average. (2/5/02 RT 193.) This is far below the proposed new PM_{10} standards of 20-mcg/cu meter. Furthermore, the witness from the Air District testified that the Morro Bay area is expected to meet the new proposed PM_{10} standards and that the general air quality trend for ambient PM_{10} concentrations in Morro Bay is downward (2/6/02 RT 59, 61.) We concur with the expert witnesses for Applicant, the Staff, and the Air District that even if the Project does make a slight contribution to existing concentrations of PM_{10}, the increase will amount to the levels which will still be insignificant in terms of any risk to public health in Morro Bay.

CAPE also contends that the Project has provided insufficient ERCs to fully offset the Project emissions. In CAPE's view, Duke's understatement of emission rates leads to a requirement for inadequate ERCs to offset the understated emissions. In addition, CAPE claims that the ERC's, which Applicant does provide, are overstated because 1) they are "paper", or unreal offsets, and 2) they will result in an increase in local PM_{10} concentrations. Finally, CAPE asks that additional testing for PM_{10} be required through an added Condition of Certification. As we have discussed above, the Commission has found that the PM_{10} emission rates proposed by Applicant and reviewed and approved by the Air District and Commission staff are reasonable worst-case estimates supported by evidence of record and consistent with Commission action in prior decisions.

Concerning the adequacy of Applicant's offset package, the witnesses for Duke, the Air District, and Staff are unanimous that the ERCs for the Project meet the requirements for all applicable LORS. (2/5/02 RT 162; 2/6/02 RT 57-58.) The witnesses for the Applicant and Staff also testified that in addition to meeting all legal requirements, the Project's air emissions will not have a significant adverse impact on the local or regional air quality or public health. (2/5/02 RT 163; 2/6/02 RT 77.) Staff witnesses explained that the ERCs are preferred to other potential forms of mitigation and are adequate to mitigate any impacts from the Project. This is because the ERCs offset the same type of emissions from the Project and are based on banked emission credits from the same site as the Project itself, an approach preferred by Staff. (2/6/02 RT 89.) The Air District witness agreed with Staff, noting that while ERCs are designed to create a regional benefit, those of the Project will create a local one as well because the credits come from the same site as future Project emissions. (*Id.* RT 104.)

The evidence establishes that the amount of ERCs is adequate to address modeled worst-case PM_{10} impacts. Furthermore, expert testimony establishes that the ERCs for the Project meet all legal criteria and are of high quality.[41] (3/12/02 RT 36-38, 44-45.) CAPE challenged some of Duke's ERCs because they were banked as a result of forfeiting the right to burn oil at the existing Morro Bay plant. However, the Air District witness established that all ERCs were banked pursuant to a legal, public process. (*Id.* RT 54-55.) Furthermore, he clarified that with the installation of NO_x control, oil could again be burned legally at the existing facility. (*Id.* RT 53.) This would legitimize any ERCs which are based on a reduction of oil burning capacity. The overwhelming weight of evidence, based on expert testimony, establishes that the ERCs surrendered for the Project and itemized in the FDOC are adequate to meet LORS and to avoid any significant air quality or public health impacts.

[41] The Staff witness testified that high quality ERC have five characteristics: they are quantifiable, enforceable, real, permanent, and surplus. (3/12/02 RT44)

CAPE has also failed to convince us that we should impose additional mitigation in the form of added testing. First the Air District has determined that Applicant's emission rates are reasonable. (3/12/02 RT 51.) In addition, the Air District has imposed the emission rates as an enforceable permit limit and required source testing within 30 days of commissioning the Project. If the Project cannot meet the limits, it will not be allowed to operate. (*Id*. RT 26.) Furthermore, initial source testing will be followed by semi-annual source testing at three different load levels. (Ex 115, FDOC, p. 22.) The Air District witness explained that the FDOC requires extensive source testing of PM_{10} emissions and that additional testing, as advocated by CAPE, would be burdensome. (3/12/02 RT 23, 25-26.) CAPE's proposed additional mitigation testing is not justified.

Finally, the City of Morro Bay has offered a number of suggested changes to the Conditions of Certification proposed by Staff in the FSA. Some of the proposed changes are an effort to ensure that the City has the ability to review and comment on various plans that will be submitted pursuant to the Conditions of Certification. Both Applicant and Staff stated that they do not oppose the City having such a review and comment role. (2/5/02 RT 200; Staff's Reply Br. on Group III Topics, p. 1.) We have adopted those proposed changes which are consistent with such a role.

However, a number of other changes proposed by the City would give the City *approval* authority, as well as the ability to inspect certain records and to inspect the Project premises. We find that these activities should remain under the authority of the Energy Commission and the Air District. We have, therefore, not incorporated the City's recommended changes which we find unacceptable.[42]

[42] The unacceptable proposed language changes are those found in the City of Morro Bay changes to the following Conditions of Certification: AQ-6, AQ-7, AQ-9, AQ-10, AQ-16, AQ-22, AQ-24, AQ-28, AQ-31, AQ-32, AQ-40, AQ-44, AQ-45, AQ-46, AQ-51, AQ-52, AQ-53, and AQ-54.

The City is welcome to propose revised changes that are limited to the City's involvement in review and comment.

FINDINGS AND CONCLUSIONS

Based on the persuasive weight of the evidence of record, the Commission makes the following findings and reaches the following conclusions.

1. The SLOAPCD is the air quality regulatory agency for the area where the Project site is located.

2. The area of the Project site is designated as attainment for the state's CO, NO_2, SO_2, and SO_4 standards and as attainment for all federal air quality standards.

3. The area is designated as non-attainment for state ozone and PM_{10} standards.

4. The SLOAPCD has measured a single PM_{10} standard violation since 1994 and has determined that PM_{10} levels are declining in the City of Morro Bay.

5. The APCO for the SLOAPCD has determined that the Air District will likely be in attainment for proposed federal and state $PM_{2.5}$ standards.

6. Construction and operation of the Project will result in emissions of criteria pollutants and their precursors.

7. The SLOAPCD has issued a FDOC for the Project that determines the Project will comply with all applicable Air District rules.

8. The SLOAPCD has found that BACT for NO_x shall be 2.0 ppmvd @ 15% O_2 calculated on a 1-hour rolling average.

9. BACT for CO shall be 2.0 ppmvd @ 15% O_2 calculated on a 3-hours rolling average.

10. The SLOAPCD has set a PM_{10} emission limit for each gas turbine at 9.0 lbs./hr. and 13.3 lbs/hr using a duct burner.

11. The Project will achieve BACT through the use of natural gas as the fuel for all equipment, advanced dry low-NO_x combustors, and selective catalytic reduction and oxidation catalyst technology.

12. The Air Pollution Control Officer for the SLOAPCD has certified that complete offsets for criteria pollutants emitted by the Project have been identified and secured in accordance with District rules.

13. The Project's offset package includes emission reduction credits from the Project site and the local community.

14. Emission reduction credits for the Project are likely to contribute to a local, as well as regional, air quality benefit.

15. Assuming implementation of the Conditions of Certification, Project emission from construction and operation will be appropriately mitigated and will comply with applicable LORS.

16. Implementation of the Conditions of Certification, below, ensures that the Project will not result in any direct, indirect, or cumulative significant adverse impacts to air quality.

17. The FDOC and the Final Staff Assessment require the use of appropriate test methods for measuring Project emissions.

18. Epidemiological studies developed using domains, cities, and types of particulate matter unrelated to the specifics of the proposed Project, do not establish public health impacts of the Project.

19. The PM_{10} emission rates proposed for the Project have been reasonably relied upon by the SLOAPCD and the Commission staff in their respective analyses. In addition, the District will conduct monitoring of particulates to ensure compliance with the FDOC and all LORS.

20. The modeling used by Applicant, Staff and the SLOAPCD is appropriate, and adequately reflects the worst-case air quality conditions pertinent to the Project. In addition, the District will conduct monitoring of particulates to ensure compliance with the FDOC and all LORS.

21. The evidence establishes that the worst-case increase in PM_{10} concentrations, determined through conservative modeling techniques, would potentially have a significant impact on public health, if not mitigated.

22. Actual Project emissions during construction and operation will likely be lower than modeled emission levels.

23. Applicant has provided adequate offsets for PM_{10}.

24. Additional monitoring as provided in the FDOC and Conditions of Certification will ensure that the Project meets the expected PM_{10} emission levels.

25. Implementation of the Conditions of Certification, below, reasonably assures that the Project will conform with all applicable laws, ordinances, regulations, and standards relating to Air Quality as set forth in the pertinent portion of Appendix A of this Decision.

26. Applicant performed a health risk assessment, using a well-established scientific protocol, to analyze potential adverse health effects of noncriteria pollutants emitted by the Project.

27. The point of maximum impact for toxic contaminant dispursion is located immediately adjacent to the Project site, within the existing PG&E switchyard.

28. With implementation of the Conditions of Certification, acute and chronic non-cancer health risks from Project construction and operation emissions are insignificant.

29. Project emissions will not significantly contribute to adverse cumulative public health impacts.

30. With the acrolein emission mitigated by the oxidation catalyst, the operation of the proposed natural gas-fired Project will not pose a significant public health risk.

31. Source testing required by the SLOAPCD will further ensure that acrolein emissions do not pose a significant public health risk.

32. Implementation of the Conditions of Certification reasonably ensure that the Project will be constructed and operated in conformity with the applicable laws, ordinances, regulations and standards reflected in the Public Health portion of Appendix A of this Decision.

We, therefore, conclude that, with implementation of the Conditions of Certification, the Project will comply with applicable LORS related to air quality and public health and will not result in any significant direct, indirect, or cumulative adverse impacts to local or regional air quality and that Project emissions of noncriteria pollutants will not pose a significant direct, indirect, or cumulative adverse public health risk.

CONDITIONS OF CERTIFICATION

AQ-C1 Prior to ground disturbance at the project site, the project owner shall prepare a Construction Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for construction activities at the Morro Bay Power Plant Modernization Project site and related facilities.

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

- the identification of the employee parking area(s) and surface of the parking area(s);
- the frequency of watering of unpaved roads and disturbed areas;
- the application of chemical dust suppressants;
- the use of gravel in high traffic areas;
- the use of paved access aprons;
- the use of sandbags to prevent run off;
- the use of posted speed limit signs limiting speed to 10 MPH;
- the use of wheel washing areas prior to large trucks leaving the project site;
- the methods that will be used to clean tracked-out mud and dirt from the project site onto public roads;
- the use of windbreaks at appropriate locations;
- the suspension of all earth moving activities under windy conditions; and,
- the use of on-site monitoring devices.

Verification: At least sixty (60) days prior to ground disturbance at the project site, the project owner shall provide the California Energy Commission Compliance Project Manager (CPM) with a copy of the Construction Fugitive Dust Mitigation Plan for approval and to the City of Morro Bay for review and comment.

AQ-C2 The project owner shall mitigate, to the extent practical, construction related emission impacts from off-road, diesel-fired construction equipment. Available measures that may be used to mitigate construction impacts include the following:

- Catalyzed Diesel Particulate Filters (CDPF);
- Ultra-Low-Sulfur Diesel fuel, with a sulfur content of 15 ppm or less (ULSD);
- Diesel engines certified to EPA and CARB 1996 or newer off-road equipment emission standards.

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

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

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

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

Diesel Construction Equipment Mitigation Plan
The Construction Mitigation Plan shall be submitted to the CPM for approval and to the City of Morro Bay for review and comment prior to rough grading on the project site, and must include the following:

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

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

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

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

Report of Change and Mitigation Implementation
Following the initiation of construction activities, and if changes to mitigation measures are necessary, the CMM shall submit a Report of Change and Mitigation Implementation to the CPM for approval and to the City of Morro Bay for review and comment. This report must contain at a minimum the cause of

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

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

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

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

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

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

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

3. Installation of CDPF:

    a. The or engineer who must submit a report to the CPM for approval.

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

4. Construction equipment engine idle time:

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

Report of Emergency Termination of Mitigation

If a specific mitigation measure is determined to be detrimental to a piece of construction equipment or is determined to be causing significant delays in the construction schedule of the project or the associated linear facilities, the mitigation measure may be terminated immediately. However, notification containing an explanation for the cause of the termination must be sent to the CPM for approval and to the City of Morro Bay for review and comment. All such causes are restricted to one of the following justifications and must be identified in any Report of Emergency Termination of Mitigation. Any such report of termination of a mitigation measure shall be accompanied with appropriate mitigation as provided for in **Condition AQ-C3**.

1. The measure is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or power output due to an excessive increase in back pressure.
2. The measure is causing or is reasonably expected to cause significant engine damage.
3. The measure is causing or is reasonably expected to cause a significant risk to nearby workers or the public.
4. Any other seriously detrimental cause which has approval by the CPM prior to the change being implemented.

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

AQ-C3 To ensure that combustion emissions from construction activities do not result in violations of the State NO_2 or PM_{10} ambient air quality standards, the project owner/operator shall employ the following measures:

1. Continuous ambient monitoring for NO_2 and PM_{10} shall be conducted at the nearest feasible location to the highest pollutant concentration impact site identified in the project construction modeling presented in the AFC. Said monitoring shall be conducted throughout the duration of project construction unless an alternative timeframe is approved by the CEC and the District based on data supplied by the applicant which demonstrates the risk of an ambient standard violation is limited to a specific timeframe or specific construction activity. The project owner/operator shall prepare an Ambient Air Monitoring Plan for approval by the CPM and the District, which identifies the location, parameters, monitoring methods and timeframe for installation and monitoring.

2. The project owner/operator shall develop a Mitigation Contingency Plan to be implemented in the event that emissions from construction activities cause a measured exceedance of the State NO_2 or PM_{10} standards. Said plan must be approved by the CPM and the District prior to the start of construction, and shall contain the following elements:

   a. A construction activity management plan, which shows how construction activities will be modified to reduce emissions sufficiently to ensure that ambient air quality standards are not, exceeded again.
   b. An Offsite Mitigation Plan which demonstrates the ability to reduce local emissions of NO_2 and/or PM_{10} sufficiently to offset the potential for additional exceedances of an ambient air quality standard. The project owner/operator, at their option, could implement this plan in lieu of full or partial implementation of condition 2.a. above, provided the offsite emission reductions could be accomplished in a timeframe suitable to ensure no further standard violations.

3. In lieu of implementing conditions 1 and/or 2 above, the project owner/operator may implement an Offsite Mitigation Plan designed to reduce emissions from local sources in an amount sufficient to offset the potential for construction emissions to cause a violation of the State NO_2 or PM_{10} standards. This mitigation plan shall be approved by the CPM and the District and implemented at least 3 months prior to start of construction.

Verification: Not less than 120 days prior to breaking ground for construction activities, the owner/operator shall submit for approval to the CPM and the District and to the City of Morro Bay for review and comment either an Ambient Air Monitoring Plan with a Mitigation Contingency Plan or an Offsite Mitigation Plan. Project owner may use a mobile monitor required in Conditions AQ-7, to meet the requirements of this condition, AQ-C3.

Conditions Prior to Combusting Fuel

AQ-1 The owner/operator shall submit to the San Luis Obispo County Air Pollution Control District (District), the City of Morro Bay and the CPM all design criteria and specifications that affect air pollutant emissions or emission measurements systems, for the Selective Catalytic Reduction (SCR) system, the ammonia injection system, the oxidation catalyst and the continuous emission monitoring (CEM) systems, and shall receive Air Pollution Control Officer (APCO) approval prior to installation.

Verification: The project owner/operator shall submit all design criteria and specifications identified in this condition to the District, the City of Morro Bay and CPM at least 30 days prior to component deliveries on the project site.

AQ-2 Pursuant to the requirements of District Rule 216, the owner/operator shall apply for and receive a revised Title V permit for the Morro Bay Power Plant prior to the first firing of the Gas Turbine Units.

Verification: The project owner/operator shall submit a copy of the revised Title V permit for the Morro Bay Power Plant to the District, the City of Morro Bay and CPM at least 30 days prior to the first firing of the gas turbine units.

AQ-3 District approved continuous emission monitors (CEM) shall be installed, calibrated, and operational prior to the first firing of the Gas Turbines Units. After commissioning of the Gas Turbine units, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the normal range of Carbon Monoxide (CO), ammonia (NH_3) and oxides of Nitrogen (NO_x) emission concentrations, which shall include startup and shutdown conditions. The type, specifications, and location of these monitors shall be subject to District review and approval and to the City of Morro Bay for review and comment. The owner/operator shall submit a CEM Operation and Works Plans to the District and CPM for comment and approval. The owner/operator shall also install and maintain a telemetric data acquisition system at the District office. The owner/operator may use a predictive emission monitoring system (PEM) during the first three (3) years of operation in lieu of the ammonia CEM. If the PEM is chosen for ammonia, the owner/operator shall submit a plan for APCO and CPM approval prior to the first firing of the Gas Turbines Units. The APCO and CPM must approve the plan prior to installation. Operation and equipment installation for the PEM shall occur according to the provisions of the approved PEM plan.

Verification: If the PEM option is chosen, the project owner/operator shall submit a PEM plan for District and CPM approval six (6) months prior to the first firing of the Gas Turbine Units. The CEM Operation and Works Plans shall be submitted for District and CPM comment and approval and to the City of Morro Bay for review and comment no later than 60 days prior to first firing of the Gas Turbine Units. The owner/operator shall submit a letter from the District to the CPM indicating that a telemetric data acquisition system has been installed at the District office. The owner/operator shall submit a letter from the District to the CPM and to the City of Morro Bay indicating that the CEM (and potentially the PEM if chosen) has been installed and is operating properly.

AQ-4 The owner/operator shall submit a Start up and Commissioning Plan to the APCO and CEC CPM for approval and to the City of Morro Bay for review and comment. This plan shall describe the procedures to be followed during the commissioning of the Gas Turbines, duct burners, the heat recovery steam

generator (HRSG), 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, the installation and operation of the oxidation catalyst system and the installation, calibration, and testing of the CO, NH_3 and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines without abatement by the SCR and oxidation catalyst systems.

Verification: The owner/operator shall submit the Start up and Commissioning Plan to the APCO and CPM for approval and to the City of Morro Bay for review and comment at least 90 days prior to the first firing of the Gas Turbine Units.

AQ-5 The owner/operator shall notify the District and arrange for an inspection of the gas turbine units.

Verification: No later than seven (7) days prior to the first firing of the Gas Turbine Units, the owner/operator shall notify the District and arrange for an inspection of the equipment. The owner/operator shall also notify the CPM and the City of Morro Bay at the same time as the District, although an inspection is not required by the CPM.

AQ-6 The owner/operator shall surrender the offsets identified in the Final Determination of Compliance (FDOC) or other offsets approved by the APCO and the CPM equal to the amount of permitted emissions prior to the first firing of the Gas Turbine Units.

Verification: No later than 30 days prior to the first firing of the gas turbine units, the owner/operator shall submit the necessary documentation that they have surrendered all offsets as identified in the District evaluation or other offsets as approved by the District and CPM.

AQ-7 The owner/operator shall submit a plan for performing ambient air monitoring, and shall obtain APCO and CPM approval for that monitoring. The plan shall provide for air monitoring at two separate locations in the surrounding area, to be performed by a third party approved by both the APCO and CPM. Continuous parameters measured at each location shall include NO, NO_2, NO_x, NH_3, CO, and surface wind speed and direction; 24-hour particulate matter samples 10 microns or less in size (PM_{10}) shall be taken on the standard one day in six schedule at each site. The monitoring locations will be selected, subject to APCO and CPM approval, with the intent to be best indicators of potential project air quality impacts and/or to be locations of highest community concern. The monitoring shall meet all requirements contained in the District's GUIDELINES FOR AMBIENT AIR QUALITY AND METEOROLOGICAL MONITORING, dated March 1993, including a forthcoming update to electronic data submission requirements or meet requirements determined by the APCO and CPM to be equivalent. Pre-combustion monitoring shall occur at each of

these sites for twelve months prior to turbine startup, with the length of monitoring period and the starting date of monitoring subject to APCO and CPM approval. At each of these sites, ambient air monitoring for the same parameters noted above shall then be conducted continually until one year following the start of commercial operation. The duration of this monitoring may be extended for one or both of the sites per APCO and CPM approval, for up to three additional years. This extension may occur at each site if requested by the APCO and CPM and justified by the monitoring data according to a protocol to be developed and agreed upon by the APCO, CPM and Duke. With APCO and CPM approval, the monitoring parameters included in this extended monitoring may be reduced to those which are determined to have key importance in evaluating the impact of plant emissions on the surrounding community. The owner/operator shall submit for approval, regular reports from these monitoring stations including monthly ambient air quality readings, maintenance and calibration reports to the District and CPM.

Verification: Twenty-four (24) months prior to the first firing of the Gas Turbine Units or 90 days following CEC approval of 00-AFC-12, whichever is later, the owner/operator shall submit a plan for performing ambient air monitoring, and shall obtain District and CPM approval for that monitoring. All ambient air quality reports shall be submitted by the owner/operator to the District and CPM for approval on a monthly basis for the life of the Project. The owner/operator shall submit for approval maintenance and calibration reports as necessary to the District and CPM.

AQ-8 If the turbine foundations are not completed within 30 months of the Final Determination of Compliance (FDOC) issuance, the project shall go through a new Best Available Control Technology (BACT) determination subject to APCO and CPM approval and to the City of Morro Bay for review and comment before the foundations are poured. This determination shall be made through a supplemental Authority to Construct application with the District and a Request to Amend the Conditions of Certification with the CEC. The project shall comply with the new APCO and CPM approved BACT determination and any conditions required of that determination.

Verification: No later than 10 days following the completion of the gas turbine foundations, the owner/operator shall submit a letter to the District, the City of Morro Bay, and CPM indicating the exact date when the gas turbine foundations were completed.

AQ-9 The owner/operator shall obtain APCO approval of any offsite gas metering system that will provide fuel to the new gas turbine units. The metering system shall not release natural gas under normal operations.

Verification: The owner/operator shall submit to the CPM the written approval from the District of any offsite metering system that will provide fuel to the new

gas turbine units no later than 10 days prior to the construction of that metering system.

AQ-10 The owner/operator shall take action to ensure that rust like particulate (RLP) is not emitted from any of the HRSGs. Such action shall include:

a) Developing and submitting a RLP control and monitoring plan to the APCO at least 180 days prior to the first firing of any Gas Turbine Unit.
b) Obtain APCO approval for the RLP plan at least 120 days prior to the first firing of any Gas Turbine Unit
c) Performing maintenance, monitoring and record keeping according to the APCO approved RLP plan.

Verification: The owner/operator shall submit to the CPM the District approved RLP plan no later than 60 days prior to the first firing of any gas turbine unit.

Turbine Commissioning Conditions

AQ-11 The owner/operator shall minimize emissions of NO_x and CO from the Gas Turbine Units to the maximum extent possible during the commissioning period according to the APCO and CPM approved Start up and Commissioning Plan.

Verification: The owner/operator shall submit for approval the Startup and Commissioning Plan to the District and CPM no later than 30 days prior to beginning Initial Commissioning activities. Emissions verification shall be determined through reporting requirements of Condition AQ-16.

AQ-12 At the earliest feasible opportunity in accordance with the recommendation of the equipment manufacturer, the combustors of the Gas Turbines and duct burners of HRSGs shall be tuned to minimize NO_x and CO emissions.

Verification: The owner/operator shall notify the District and CPM and the City of Morro Bay by letter of the exact date that the combustors for each gas turbine/duct burner set have been tuned, no later than 10 days following the completion of the tuning. Emissions verification shall be determined through reporting requirements of Condition AQ-16.

AQ-13 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturer's, the SCR and oxidation catalyst systems shall be installed, adjusted, and operated to minimize the emissions of nitrogen oxides, ammonia and carbon monoxide from the gas turbines.

Verification: The owner/operator shall notify the District, the City of Morro Bay, and CPM by letter of the exact date that the SCR and oxidation catalyst were operational for each gas turbine/duct burner set, no later than 10 days following the date they were operational. Emissions verification shall be determined through reporting requirements of Condition AQ-16.

AQ-14 The total number of firing hours of each Gas Turbine and its duct burner 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 and oxidation catalyst systems in place. Upon completion of these activities, the owner/operator shall provide written notice to the District and the unused balance of the 300 firing hours without abatement will expire.

Verification: See the verification for Condition of Certification **AQ-13** The first quarterly emissions report as required under Condition AQ-24 shall include a daily log of hours of operation.

AQ-15 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 of Certification **AQ-29**.

Verification: See the verification for Condition of Certification **AQ-29**.

AQ-16 During the commissioning period, the owner/operator shall demonstrate compliance with Conditions of Certification **AQ-13** and **-14** through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

- firing hours,
- fuel flow rates,
- stack gas nitrogen oxide emission concentrations,
- stack gas carbon monoxide emission concentrations and
- stack gas oxygen concentrations.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbine Units. The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day.

Verification: The project owner/operator shall include the information required in this condition in the first quarterly report required under the verification to Condition AQ-24. All records shall be retained on site for at least 5 years from the date of entry and made available to District and CEC personnel upon request.

AQ-17 The owner/operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with Condition of Certification **AQ-27**. The source test shall determine NO_x, CO, and VOC emissions during start-up and shutdown of the gas turbines. The VOC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Prior to the execution of the source tests, the owner/operator shall submit to the District, the CEC Compliance Program Manager (CPM), and the City of Morro Bay a detailed source test plan designed to satisfy the requirements of this condition. The District, the CEC CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The City of Morro Bay may submit comments. The owner/operator shall incorporate the District and CEC CPM comments into the test plan. The owner/operator shall notify the District, the CEC CPM, and the City of Morro Bay prior to the planned source testing date. Source test results shall be submitted to the District and the CEC CPM for approval and to the City of Morro Bay for review and comment. The following source test methods shall be used unless otherwise directed by the APCO: EPA Methods 201A/202 (PM_{10} and condensable particulate matter) for PM_{10}; EPA Method 7E or 20 for NO_x ; EPA Method 10 or 10B for CO; EPA Method 3, 3A, or 20 for O_2; EPA Method 18 for VOC.

Verification: Not more than thirty days after the end of the Commissioning Period, the owner/operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with Condition of Certification **AQ-27**. The owner/operator shall submit a source testing methodology to the District and CPM for approval not more than 20 working days prior to the intended source test date. The owner/operator shall notify the District and the CEC CPM and the City of Morro Bay within seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CEC CPM and the City of Morro Bay within 30 days of the source testing date.

AQ-18 The owner/operator shall conduct a District and CPM approved source test on each HRSG exhaust stack while the gas turbines and associated HRSG duct burner are operating at maximum allowable operating rate and at minimum load (simulating startup conditions) to demonstrate compliance with Condition of Certification **AQ-19** for formaldehyde, acrolein, benzene and polycyclic aromatic hydrocarbons (PAHs). If three consecutive biennial source tests demonstrate that

the annual emission rates are 75% below the established significance levels contained in District Rule 219, then the owner/operator may discontinue future testing for that pollutant under this permit condition.

Verification: The owner/operator shall conduct the source test described in this condition not more than 30 days after the end of the Commissioning Period and on a biennial basis thereafter. The owner/operator shall submit the results of these source tests not more than 60 days following the date of the source tests.

AQ-19 For the entire facility, the cancer risk shall not exceed ten in a million and the health hazard index shall not exceed one as determined by the procedures contained in District Rule 219, Toxic New Source Review.

Verification: See the verification for Condition of Certification **AQ-20**.

AQ-20 To demonstrate compliance with Condition of Certification **AQ-19**, the owner/operator shall calculate and record on an annual basis the maximum projected emissions of acrolein, formaldehyde, PAHs and benzene. Maximum projected annual emissions shall be calculated using the maximum heat input rate and the highest emission factor (pounds of pollutant per mmBtu of heat input) determined by any source test of the Gas Turbine Units.

Verification: The owner/operator shall submit these calculations and a summary of the results as part of each 4th quarter report to the CPM and the City of Morro Bay.

AQ-21 The owner/operator shall perform a revised health risk assessment to update emissions of acrolein, benzene, PAHs and formaldehyde using the emission rates determined by the source test required under Condition of Certification **AQ-18** and the most current District approved procedures and unit risk factors in effect at the time of the analysis.

Verification: The owner/operator shall submit this risk analysis shall to the District and the CEC CPM and the City of Morro Bay within 60 days of the source test date.

AQ-22 The owner/operator shall conduct a District-approved PM_{10} source test on each HRSG exhaust stack to demonstrate compliance with Condition of Certification **AQ-25** The testing must be performed at three load levels: full gas turbine load with duct firing, full load without duct firing, and partial load without duct firing.

Verification: The owner/operator shall perform the source test as indicated in this condition not more than thirty days after the end of the Commissioning Period and once every 6 months thereafter. If any two consecutive source tests demonstrate that emission rates at a specified load level is less than 75% of the permitted limits, source testing for that load level shall only be required once in every 12 month period. All source test results shall be

submitted for approval to the CPM no later than 60 days after the source test date.

Gas Turbine Unit Operating Conditions

AQ-23 The heat input rates shall not exceed the following:

Each gas turbine:	1,850.4 mmBtu/hr
Each duct burner:	426.2 mmBtu/hr
Each gas turbine and duct burner pair	2,141.2 mmBtu/hr and 49,062.4 mmBtu/day
Total all gas turbine And duct burners	66,826,240.0 mmBtu/year

Verification: The owner/operator shall submit summary of the fuel monitor recording demonstrating compliance with the limits established in the Condition as part of the Quarterly reports required in the verification of Condition AQ-24 to the CPM and the City of Morro Bay.

AQ-24 The maximum daily combined emissions from the gas turbine units, including start-ups and shutdowns, shall not exceed the following limits:

Pollutant	Lbs/Day
Oxides of Nitrogen (NO_x)	2,483.2
Carbon Monoxide (CO)	10,652.8
Particulate Matter <10 microns (PM_{10})	1,203.2
Volatile Organic Compounds (VOC)	644.3
Ammonia (NH_3)	1,336.5
Sulfur Dioxide (SO_2)	134.4

Verification: The owner/operator shall provide quarterly reports no later than 45 days after the end of each calendar quarter to the CPM and the City of Morro Bay that demonstrates compliance with the emissions limits of this condition. The owner/operator shall submit for approval to the CPM and to the City of Morro Bay for review and comment, the form and content in the Quarterly reports, CEM (and PEM if available) data, fuel consumption data, operational load levels, startup/shutdown times and emission factors established by the most recent source tests sufficient to demonstrate compliance with the emission limits established in the Conditions of Certification.

AQ-25 The pollutant mass emission rates in the exhaust discharged to the atmosphere from each Gas Turbine Unit shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day

Oxides of Nitrogen (NO_x)	15.5	354.3
Carbon Monoxide (CO)	9.4	215.8
Particulate Matter <10 microns (PM_{10})	13.3	300.8
Volatile Organic Compounds (VOC)	5.4	107.9
Ammonia (NH_3)	14.6	334.1
Sulfur Dioxide (SO_2)	1.5	33.6

These limits shall not apply during start-up, which is not to exceed four (4) hours. SCR and oxidation catalyst controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions. The CO emission limit shall be 18.9 lbs/hour for the first 12 months of operation and 9.4 lbs/hour thereafter. The NH_3 limit shall be 29.2 lbs/hour for the first 12 months of operation (1st year), 21.9 lbs/hour for the second 12 months of operation (2nd year) and 14.6 lbs/hour thereafter.

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the emissions limits of this condition.

AQ-26 The pollutant concentrations discharged to the atmosphere from each Gas Turbine unit shall not ultimately exceed the following limits, calculated at 15 percent O2, dry, averaged over the time period noted:

Pollutant	Concentration (ppmvd)	Averaging Time
Oxides of Nitrogen (as NO_2)	2.0	rolling one-hour
Carbon Monoxide (CO)	2.0	rolling three-hour
Ammonia (NH_3)	5.0	rolling three-hour

These limits shall not apply during start-up, which is not to exceed four (4) hours, or shutdown, which is not to exceed one (1) hour. SCR catalytic controls and oxidation catalyst and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions. Start-up shall be defined as the period of time after fuel flow is initiated until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of this Condition, not to exceed four (4) hours. Shutdown shall be defined as the period of time from noncompliance with the emission concentration limits of this Condition until the termination of fuel flow to the Gas Turbine, not to exceed one (1) hour.

The CO emission limit shall be 4.0 ppmv for the first 12 months of operation and 2.0 ppmv thereafter. The NH_3 limit shall be 10 ppmv for the first 12 months of operation (1st year), 7.5 ppmv for the second 12 months of operation (2nd year) and 5.0 ppmv thereafter.

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the emissions limits of this condition.

AQ-27 Start-up 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	LB/STARTUP
Oxides of Nitrogen (as NO_2)	320.0
Carbon Monoxide (CO)	2,480.0
Volatile Organic Compounds (as CH4)	64.0

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the emissions limits of this condition.

AQ-28 Each Gas Turbine unit shall be limited to 400 hours of startup and shutdown time per year; no more than two turbines shall be in startup mode at any one time. Each gas turbine shall be limited to a combined start-up and shutdown time of 4 hours per rolling 24-hour period. A log of all startups and shutdowns shall be maintained onsite and retained for the most recent 5-year period. The log shall include date and time of occurrence, total time in startup or shutdown mode, total emissions of NO_x and CO in tons for each event.

Verification: The owner/operator shall maintain this information on site for a minimum of five years and make it available to the District and CPM upon request. This information shall be summarized and submitted as part of the Quarterly reports to the CPM and to the City of Morro Bay.

AQ-29 Emission from all gas turbine unit sources shall not exceed the following limits:

POLLUTANT	TONS/QUARTER	TONS/YEAR
Oxides of Nitrogen (NO_x)	76.83	292.30
Carbon Monoxide (CO)	167.32	636.54
Particulate Matter <10 microns (PM_{10})	53.41	203.20
Volatile Organic Compounds (VOC)	20.40	77.60
Sulfur Dioxide (SO_2)	6.05	23.00

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the emissions limits of this condition. The annual emissions data (tons/year) shall be included in the 4th quarter summary.

AQ-30 CEM Systems, including remote District access, shall be installed and operated on each of the Gas Turbine Units. These systems shall be designed to continuously record the measured gaseous concentrations,

and shall calculate and continuously monitor and record the CO, O_2, NH_3 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. The equipment installed for the continuous monitoring of 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: The owner/operator shall submit CO, NO_x and ammonia data corrected to 15% O_2, indicating substituted CO data as necessary as a part of the Quarterly reports to the CPM.

AQ-31 The owner/operator shall conduct a Relative Accuracy Test Audit (RATA) on the CEMS in accordance with 40 CFR Part 60, Appendix B, Performance Specifications; a performance test shall also be performed, and the written test results of the performance tests shall be provided to the District and CPM for approval. A complete test protocol shall be submitted to the District and CPM prior to testing, and notification to the District and CPM prior to the actual date of testing shall be provided so that a District observer may be present. 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 lb/hr.
b. Carbon Monoxide: ppmv dry at 15% O_2 and lb/hr.
c. Ammonia (NH_3): ppmv dry at 15% O_2 and lb/hr and the following process parameters:
d. Natural gas consumption.
e. Turbine load in megawatts.
f. Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19, and % CO_2.

Verification: The owner/operator shall conduct the RATA test within sixty (60) days after the end of the commissioning of the Gas Turbines. The owner/operator shall submit the RATA results within sixty (60) days after testing to the District and CPM for approval. The owner/operator shall submit the RATA test protocols for approval to the District and CPM no later than thirty (30) days prior to the source test date. The owner/operators are to notify the District and CPM of the actual test date at least ten (10) days prior to the test date. Changes to the test date made subsequent to the initial ten days notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

General Conditions

AQ-32 Each Gas Turbine and related HRSG shall be abated by a properly operated and properly maintained SCR system whenever fuel is combusted at those sources and the catalyst bed has reached minimum operating temperature. Each turbine unit shall be abated by a properly operated and maintained Oxidative Catalyst system.

Verification: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-33 The owner/operator shall take monthly samples of the natural gas combusted. The samples shall be analyzed for sulfur content using District-approved laboratory methods. The sulfur content test results shall be retained on site for a minimum of five years from the test date and shall be utilized to determine the quarterly SO_2 emissions. The quarterly SO_2 emissions shall be determined by using the average sulfur content during the last three (3) measurements along with the amount of fuel combusted during the last three months. Quarterly SO_2 emissions shall be calculated and recorded within 30 days of the end of any month.

Verification: The owner/operator shall submit the results of the monthly sulfur content tests and the calculated quarterly SO_2 emissions with the Quarterly reports required under Condition AQ-24 to the CPM and to the City of Morro Bay.

AQ-34 The APCO, the CPM and the City of Morro Bay shall be notified in writing before any changes are made to operating procedures, equipment, or materials used which have the potential to increase the emission of any air contaminant.

Verification: The owner/operator shall notify the District and CPM in writing at least 60 days prior to making any changes as indicated in this Condition.

AQ-35 The gas turbine units and related ancillary equipment shall be operated and maintained in accordance with the manufacturer's recommendations and the information presented in the application under which this permit was granted.

Verification: See the verification for Condition of Certification **AQ-24**.

AQ-36 If the APCO determines that the operation of this equipment is causing a public nuisance, the owner/operator shall take immediate action and eliminate the nuisance.

Verification: The owner/operator shall include any such findings by the APCO in the Quarterly reports to the CPM and to the City of Morro Bay.

AQ-37 The owner/operator shall demonstrate emissions monitoring compliance by using properly operated and maintained continuous emission monitors

(CEMs) 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 for the gas turbines and duct burners.
b. Oxygen (O_2) concentrations, Nitrogen Oxide (NO_x) concentrations, and Carbon Monoxide (CO) concentrations.
c. Ammonia injection and emission rates.

The owner/operator 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, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

The owner/operator 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 NH_3 concentrations, NH_3 mass emissions corrected CO concentrations, and CO mass emissions.

Records shall be maintained onsite for a period of five years after creation, unless otherwise allowed by the APCO.

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the information requirements of this condition.

AQ-38 For each emission source, the owner/operator shall record the parameters specified in d. and e. of this Condition every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

a. Total heat input rate for every clock hour.
b. The NO_x mass emissions (as NO_2), and corrected average NO_x emission concentration for every clock hour.
c. The CO mass emissions, and corrected average CO emission concentration for every rolling three-hour period.
d. On an hourly basis, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.
e. For each calendar day, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.
f. For each calendar quarter, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.

g. For each calendar year, the cumulative total NO_x mass emission (as NO_2) and the cumulative total CO mass emissions.
h. Records shall be maintained onsite for a period of five years after creation, unless otherwise allowed by the APCO.

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the information requirements of this condition.

AQ-39 The owner/operator 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 (NH_3) mass emissions from each source. The owner/operator shall use the actual heat input rates, actual start-up times, actual shutdown times, and District-approved emission factors to calculate these emissions. Records shall be maintained onsite for a period of five years after creation, unless otherwise allowed by the APCO. The calculated emissions shall be presented as follows:

a. For each calendar day, VOC, PM_{10}, SO_2, and NH_3 mass emissions shall be summarized for each source.
b. On a daily basis, the cumulative total VOC, PM_{10}, SO_2 and NH_3 mass emissions shall be summarized for each calendar quarter and for the calendar year.

Verification: The owner/operator shall provide data in the quarterly reports required in the verification for Condition of Certification **AQ-24** that demonstrates compliance with the information requirements of this condition.

AQ-40 Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

Verification: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-41 The owner/operator shall submit to the Air Pollution Control District a written report each month that 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 statement when no excess emissions occurred.
e. Records shall be maintained onsite for a period of five years after creation, unless otherwise allowed by the APCO.

Verification: A copy of this report shall be submitted as part of the Quarterly reports to the CPM and to the City of Morro Bay.

AQ-42 The owner/operator shall monitor and report SO_2 emissions in accordance with 40 CFR Parts 72 and 75.

Verification: See the verification for Condition of Certification **AQ-24**.

AQ-43 The owner/operator shall hold "Acid Rain" Sulfur Dioxide Allowances in the compliance sub accounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

Verification: The owner/operator shall submit a copies of correspondence with the District demonstrating compliance in the 4th quarterly report to the CPM and to the City of Morro Bay as to demonstrate compliance with this Condition.

AQ-44 The equipment installed for the continuous monitoring of CO2 or O2 and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

Verification: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-45 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: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-46 Pursuant to Clean Air Act Amendments (CAAA) Title IV, Part 75, Section 75.50, permanent records shall be maintained onsite for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50.

Verification: The owner/operator shall make all such records available to the CPM upon request.

AQ-47 Pursuant to CAAA, 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: See the verification for Condition of Certification **AQ-24**.

AQ-48 The owner/operator shall perform testing monthly (or less frequently if deemed appropriate by the Air Pollution Control Officer) to verify compliance with the Ammonia (NH_3) slip limit. The owner/operator 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: The owner/operator shall submit the results of all monthly ammonia slip tests to the CPM and to the City of Morro Bay as part of the Quarterly and Annual reports.

AQ-49 Annual performance tests shall be conducted once in every twelve-month period in accordance with Air Pollution Control District test procedures.

Verification: The written results of the performance tests shall be provided to the District, the CPM, and the City of Morro Bay within thirty (30) days after each test. 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 a twelve month period due to the equipment being non-operational or in limited operation at the end of the current twelve month period, the APCO may delay testing until the unit is operating at sufficient capacity.

AQ-50 The owner/operator shall report all breakdowns which result in the inability to comply with any emission standard or requirement contained on this permit to the APCO and the City of Morro Bay as soon as reasonably possible, but in any case within 4 hours of its detection. The APCO may elect to take no enforcement action if the owner/operator demonstrates to the APCO's satisfaction that a breakdown condition exists.

As soon as the occurrence has been corrected, but no later than 10 days after the breakdown, a written report shall be supplied to the APCO and the City of Morro Bay. 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. pictures of the failed equipment when applicable.

Verification: All breakdown reports are to be included in the Quarterly reports to the CPM and to the City of Morro Bay.

AQ-51 The owner/operator 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 owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-52 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 Ringlemann 1 or equivalent 20% opacity.

Verification: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-53 If any of the existing standby diesel engines are relocated to the new turbine plant, the owner/operator shall provide written notice to the APCO, and shall receive written approval from the APCO, prior to such relocation. Any notice of proposed relocation shall be accompanied by a health risk assessment prepared in accordance with District Rule 219. If the APCO determines the health risk exceeds the toxic impact limits of Rule 219, the owner/operator shall install APCO approved oxidation particulate traps or APCO approved equivalent controls on any relocated standby diesel engine rated at 50 hp or greater prior and use ultra low sulfur fuel.

Verification: The owner/operator shall notify the CPM with 30 days if such action is taken pursuant to this Condition.

AQ-54 Any representative of the Air Pollution Control District authorized by the Air Pollution Control Officer or the California Energy Commission 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 this authorization;
b. to have access to and copy any records required to be kept under the terms and conditions of this authorization;
c. to inspect any equipment, operation, or process described or required in this authorization; and,
d. to sample emissions from the source.

Verification: The owner/operator shall provide the District or CPM access to the power plant facility upon request.

AQ-55 The turbines and duct burners shall be fired exclusively on natural gas.

Verification: See the verification for Condition of Certification **AQ-23**.

AQ-56 The minimum stack height of any HRSG shall each be at least 145 feet above grade level at the stack base.

Verification: The owner/operator shall submit relevant "as-built" design diagrams showing the final true height of each of the HRSGs.

B. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the Morro Bay Power Plant Project will have a significant impact on public health and safety resulting from the use, handling, transportation, 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.

Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts. These include local meteorological conditions, terrain characteristics, and the proximity of population centers and sensitive receptors. The evidence of record incorporates these factors in the analysis of potential impacts.

1. Natural Gas

As the fuel for the proposed power plant, natural gas poses a fire and/or explosion risk due to its flammability. Natural gas is composed primarily of methane but also contains ethane, propane, nitrogen, butane, isobutane and isopentane. It is colorless, odorless, and tasteless and is lighter than air. Natural gas can cause asphyxiation when methane is ninety percent in concentration. Methane itself is flammable when mixed in air at concentrations of 5 to 14 percent. Natural gas, therefore, poses a risk of fire and/or explosions if a release were to occur. In particular, gas explosions can occur in the facility's Heat Recovery Steam Generator. However, due to its tendency to disperse rapidly, natural gas is less likely to cause explosions than many other fuel gases, such as propane or liquefied petroleum gas. While the Project will use natural gas in significant quantities, it will not be stored on-site. (Ex. 115, p. 3.2-8.)

The risk of a fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices during start-up. For example, the National Fire Protection Association has established controls for gas fired equipment, including:

1) the use of double block and bleed valves for gas shut-off;
2) automated combustion controls; and
3) burner management systems.

These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. (*Ibid*.)

The Safety Management Plan proposed by Applicant will address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. Since the proposed facility will not require the installation of any new gas pipelines off-site, impacts from a break in the pipeline are limited to the existing pipelines already in use in the area and to the new pipeline to be installed on-site. The design of the natural gas pipeline is governed by laws and regulations discussed in the Conditions of Certification found in the Facility Design portion of this Decision, supporting exhibits, and related LORS. The only new gas pipelines installed for the proposed Project will be placed on-site where the risk of natural gas accidents can be better controlled and minimized. Therefore, the use of natural gas at the Project site will not result in adverse off-site impacts. (*Ibid*.)

2. Aqueous Ammonia

The Project will use aqueous ammonia in controlling the emission of oxides of nitrogen (NO_x) from the combustion of natural gas in the facility. The accidental release of aqueous ammonia without proper mitigation can result in hazardous

down-wind concentrations of ammonia gas. The Project will use two 30,000-gallon tanks to store the 29.4 percent solution aqueous ammonia. (Ex. 115, p. 3.2-9.)

a. On-Site Facilities

Applicant presented its testimony through a panel of experts made up of Eric Walther, James White, and Brent Waggener. They summarized the design features of the ammonia handling and storage facilities at the Project. These features include:

- Choice of aqueous, rather than anhydrous, form of ammonia to reduce consequences if there were an accidental release.

- Central location of the aqueous ammonia storage facility on the MBPP site to keep it as far away as possible from surrounding residential areas.

- Passive secondary containment structures that surround each aqueous ammonia storage tank and the tank truck unloading facility, limiting the area of potential spread of an accidental release.

- Underground containment (tertiary) vault that would collect an accidental release, reducing its ability to vaporize into the atmosphere.

- 24-inch drain at the bottom center of the sloped secondary containment beneath each aqueous ammonia storage tank, combined with direct entry into the vault to reduce the time available for ammonia to volatilize from an exposed pool of liquid.

- Use of plastic balls to reduce ammonia evaporation from an exposed liquid surface, or out of the underground containment vault. (Ex. 4, p. 6.15-1; Ex. 134, p. 17; 1/29/02 RT 98-99.)

b. Transport of Aqueous Ammonia

The combined-cycle gas turbines proposed for the Project will use approximately 2,564 tons of aqueous ammonia per year, requiring delivery of 6,000 gallons in a tank truck approximately once every 3 days. (Ex. 4, p. 6.15-15; Ex. 134, p. 20.) Applicant's witnesses testified that tank truck transport of aqueous ammonia for agriculture and other industry throughout California has experienced no incidents according to the U.S. Department of Transportation database for the period 1993-1999. The Project will only utilize tank truck transport (e.g., USDOT 407/MC 307 design or equivalent) because these vehicles are specifically designed to safely transport aqueous ammonia and other hazardous liquids. Duke's witness, Dr. Walther's, stated his opinion that the excellent safety record for the tank truck transport of aqueous ammonia indicates that the probability is negligible for an incident in which aqueous ammonia might be spilled from such a truck in proximity to the public in Morro Bay. (*Ibid*.)

The evidence confirms that the transportation of aqueous ammonia pursuant to the requirements of applicable federal and state LORS will result in no significant impacts. (Ex. 4, p. 6.15-15; Ex. 134, p. 18.)

Staff's independent analysis agreed with that of Applicant. "Indeed, S[s]taff has failed to find a single accident or spill of aqueous ammonia either at a CEC-certified power plant or during transportation to a CEC-certified power plant." (Ex. 115, p. 3.2-14, 17:32-34.) Condition of Certification **HAZ-6** will ensure that hazardous materials used at the Project will only be delivered along routes approved as safe by the CPM. (Ex. 115, p. 3.2. -14.)

c. Risk of Off-Site Ammonia Release

To assess the potential impacts associated with an accidental release of aqueous ammonia from the Project, Applicant and Staff analyzed four "bench mark" exposure levels of ammonia gas occurring off-site. These include: 1) the

lowest concentration posing a risk of lethality, 2,000 ppm; 2) the Immediately Dangerous to Life and Health (IDLH) level of 300 ppm; 3) the Emergency Response Planning Guideline (ERPG) level 2 of 150 ppm (recently changed from the 200 ppm value), which is also the Risk Management Plan (RMP) level 1 criterion used by USEPA and the State of California; and 4) the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure of 75 ppm.[1] Staff presumes that a potential release of less than 75 ppm at any public receptor does not pose a risk of significant impact. However, Staff also assessed the probability of occurrence of the release and/or the nature of the potentially exposed population in determining whether there exists a likelihood of a potentially significant impact. (Ex. 115, p. 3.2-9.)

Applicant and Staff applied the various analytical techniques through two separate modeling scenarios: a "worst case" which assumes a spontaneous catastrophic failure of the entire contents of one storage tank and, an "alternative scenario which presumes the release of 8,000 gallons of aqueous ammonia from a delivery truck, applying more realistic meteorological assumptions than are used for the worst case. The worst-case scenario is so unlikely as to be essentially impossible, while the alternative case scenario is conceivable, although improbable. (Ex. 115, p. 3.2-10; Ex. 4, p. 6.15-21; Ex. 134, 23.)

The results of the modelinig established that in both instances, concentrations exceeding 75 PPM would be confined within the Project site (916 feet from the storage tanks for the worst-case and 724 feet for the alternative scenario). Therefore, the evidence of record established that, based on accepted modeling techniques, release of aqueous ammonia used for the Project will not cause a significant impact. (*Ibid*.)

[1] A detailed discussion of the exposure criteria considered by Staff and the applicability of the criteria to different populations and exposure-specific conditions is provided in Appendix A of the

3. Hydrazine versus Carbohydrazide

Duke proposes to continue at the proposed Project the current use of aqueous hydrazine as an oxygen scavenger for boiler feed water. Pure hydrazine is toxic, very volatile, and is very hazardous to handle. However, many of these concerns are eliminated by use of a 35 percent aqueous solution, which is currently in use at the existing plant and is proposed for the modernization Project. Nevertheless, even in aqueous solution, risks remain. (Ex. 115, 3.2-10.) Staff recommends Applicant not be permitted to use hydrazine, but be required to use carbohydrazide instead. If however, Applicant is permitted to continue using aqueous hydrazine, Staff recommends that mitigations for the risks of such use, transfer, and storage should be added to the Safety Management Plan[2] called for in Conditions of Certification HAZ-3. (Ex. 116, pp. 3-4.)

a. On-Site Facilities

The Applicant concurs with the Staff's recommendation for the Safety Management Plan on aqueous hydrazine, but does not concur with the recommendation to replace the aqueous hydrazine with carbohydrazide. (Ex. 134, p. 15.) Applicant's witness testified that the design for the aqueous hydrazine system ensures the continued safe use of hydrazine. The Project will store 347 pounds of aqueous hydrazine in a stainless steel tote with indented fittings which would sit in a secondary concrete containment wall with a special storage building. The building will be surrounded by a berm. Applicant's witness testified that USEPA standards assume such a containment system reduces vaporization by a factor of ten. He also noted that the amount of aqueous hydrazine which will be stored at the Project is below the threshold required by USEPA for modeling off-site consequences. (Ex. 134, p. 15; 1/29/02 RT 99-100.)

Hazardous Materials analysis of the FSA. (Exhibit 115, p. 3.2-23.)

Duke's witness cited the forty-year track record of safe transport, delivery and use of 35 percent aqueous hydrazine at the existing MBPP. (Ex. 134, p. 17.) In addition, the witness testified regarding Duke's concerns that if it uses carbohydrazide, as Staff recommends, its vendor guarantees on the HRSG units may be adversely affected by issues associated with accelerated corrosion or cation conductivity problems. (1/29/01 RT 112.) However, Staff disputed this claim. (Ex. 171; 1/29/02 RT 131.)

b. Transportation of Hydrozine

Applicant relied upon its 40-year experience with the safe use of hydrazine in its handling and transport as well as the "excellent record for the safe transport of aqueous hydrozine in California." (1/29/02 RT 98; Ex. 134, p. 26.) Staff witness Greenberg, on the other hand, voiced concerns that even if the modeling of off-site impacts showed no significant impacts, risks from a transportation spill would not necessarily be limited to a small pool area, as at the plant site, and response time to control and remove the spill could lead to significant impacts. (Ex. 116, p. 1; 1/29/02 RT 136, 138-139.)

c. Risk of Off-Site Hydrazine Release

While state regulation does not require modeling and preparation of an RMP for storage of aqueous hydrazine in amounts of less than 1000 pounds, Staff conducted its own modeling for the use of hydrazine at the Project. (Ex. 134, p. 18.) The results of Staff's model indicated significant impacts in the event of an aqueous hydrazine spill. (Ex. 115, p. 3.2-10.) Applicant countered that Staff modeling had not assumed tertiary containment of aqueous hydrazine on-site. However, Duke testimony showed that once modeling for off-site consequences was properly corrected to accurately reflect Applicant's facilities, the worst-case

[2] Condition of Certification HAZ-3, proposed by Staff in the FSA originally required a Safety Management Plan for aqueous ammonia and aqueous sodium hypochloride.

location for an aqueous hydrazine release would be only one-fifth the distance of the worst case aqueous ammonia release. Since neither worst-case analysis for aqueous ammonia or aqueous hydrazine reaches the nearest residence, Applicant concluded there would not be a significant impact. (Ex. 136.) Staff witness Greenberg questioned Applicant's assumption of reliance on tertiary containment, noting that on one site visit to the existing plant he observed that the doors of the hydrazine containment building were left open and unattended, causing him to question the adequacy of the building to contain a spill. (1/29/02 RT 137.)

The only other party offering evidence regarding the use of aqueous hydrazine was Morro Bay Fire Department Chief Jeff Jones. The Fire Chief testified that he would support the continued use of aqueous hydrazine.

> …looking at the long-standing use of the aqueous hydrazine currently on the plant, we felt that the workers were trained in and familiar with the use of aqueous hydrazine, and that there have been no reported incidents at the plant to our knowledge. And with that in mind, it may be better to stay with a chemical that people are familiar with onsite. (1/29/02 RT 154.)

Commission Discussion

The evidence is undisputed that with implementation of the Conditions of Certification, the Project's use of natural gas will not pose a risk of significant impacts. In addition, reliable modeling by Staff and Applicant has demonstrated that the storage, use and transportation of aqueous ammonia will not create a significant risk to on-site workers or to the public health and safety in Morro Bay. CAPE's argument that the record should contain modeling of a simultaneous catastrophic failure of *both* aqueous ammonia storage tanks is not persuasive. The modeling contained in the record conforms with LORS and Staff standards.

By contrast, CAPE's position is based on mere speculation of risks from terrorism and is wholly unsupported by any evidence in the record.

We concur with the requests of the City that the Morro Bay Fire Department should be able to review and comment upon any Safety Management Plans required by the Conditions of Certification. However, while we expect the CPM to give great weight to the terms agreed upon by Applicant and the City in their Agreement to Lease (ATL), we do not include the terms of the ATL in the Conditions of Certification. (Ex. 137.) The City's concerns about adequate equipment, personnel, and training regarding aqueous hydrazine are, we believe, adequately addressed by the language contained in Condition of Certification **WORKER-3**. (Ex. 115, p. 3.2-20, HAZ-3.6.)

Regarding Applicant's desire to continue the use of aqueous hydrazine, rather than carbohydrazide as recommended by Staff, we find for the Applicant. While Staff testimony tends to show that carbohydrazide is probably to be preferred as an oxygen scavenger, the evidence of record does not establish that Applicant's continued use of hydrazine poses a credible risk of significant impacts to public health or the environment. Corrected modeling in the record establishes the extent of worst case toxic impacts as within the plant site boundaries. (Ex. 136.) This modeling was carried out even though the amount to be stored at the site is below the state regulatory threshold requiring such modeling. We are also persuaded by the safety history of using hydrazine at the existing plant for 40 years. (1/29/02 RT 98.) The Morro Bay Fire Chief buttressed this view by voicing his preference for continued use of hydrazine, with which the Fire Department and Duke employees are familiar.

Although we are not persuaded by Applicant's claims to having technical problems using carbohydrazide as a substitute for hydrazine, neither are we persuaded by Staff's claim of significant impacts likely to result from continued use of aqueous hydrazine. In our view, it appears that carbohydrazide is the

preferred oxygen scavenger for use at new generation facilities in California. However, we adopt Applicant's proposed wording to Condition of Certification **HAZ-3** which gives the CPM discretion over which material should be used. In exercising that discretion, we expect the CPM to give consideration to: 1) the thoroughness of Applicant's Safety Management Plan regarding hydrazine, 2) the recommendations of the Morro Bay Fire Department, and 3) whether Applicant will provide self-closing doors to ensure closure of the tertiary containment building when workers are not present.

FINDINGS AND CONCLUSIONS

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

1. The Morro Bay Power Plant Project will use hazardous materials at the facility.

2. Aqueous ammonia, aqueous hydrazine, sodium hypochlorite, petroleum products, and natural gas are hazardous materials which will be used by the Project and have the potential to create public health and safety hazards.

3. Small quantities of hydrogen gas, scale inhibitors, corrosion controllers, solvents, amines, and paint are hazardous materials which will be used by the Project. During construction, additional small amounts of hazardous materials will be used including, phosphate or nitrate cleaning solutions, cleaning solvents, antifreeze, and pesticides. Because these materials will be stored in solid form, in small quantities, or possess very low toxicity, any impacts of spill or release will be limited to the Project site.

4. 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 and, to a lesser degree, the accidental release of hydrazine.

5. The Project owner's design and proposed 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 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.

7. The Morro Bay Power Plant Project's handling, storage and transportation of hazardous materials will not contribute to a cumulative risk to public health and safety.

8. 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 Morro Bay Power Plant Project will not create or contribute to any significant adverse impacts to the environment or to unreasonable risks to the public health and safety.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material at the MBPP not listed in Appendix B, below, or in greater quantities or strengths 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 Compliance Project Manager (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 San Luis Obispo County and the CPM for review at the time the plan is first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall reconcile recommendations from San Luis Obispo County and the CPM in the final document. A copy of the final plans, including all comments, shall be provided to San Luis Obispo County and the CPM once approved by EPA.

Verification: At least 60 days prior to the delivery of aqueous ammonia to the proposed storage facility, the project owner shall provide the final plans listed above and accepted by San Luis Obispo County to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia, aqueous sodium hypochlorite, and either aqueous hydrazine or carbohydrazide. The plan shall include procedures,

protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of these chemicals with incompatible hazardous materials. The MBFD shall review and comment upon and the CPM shall review and approve all aspects of the plan, including, but not limited to, the project owner's proposed use of either aqueous hydrazine or carbohydrazide in accordance with all applicable laws, ordinances, regulations, and standards.

Verification: At least sixty days prior to the delivery of aqueous ammonia, aqueous sodium hypochlorite, aqueous hydrazine or carbohydrazide to their storage tanks, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to specifications in American Petroleum Institute (API) 620. Each storage tank shall be protected by a secondary containment basin capable of holding 100% of the tank storage volume (administrative limit) plus the volume associated with 24 hours of rain assuming the 25-year storm.

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

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only transport vehicles, which meet or exceed the specifications of DOT Code MC-307.

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

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route(s) approved by the CPM.

Verification: At least 60 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation to the CPM for review and approval.

C. WORKER SAFETY AND FIRE PROTECTION

Industrial workers use process equipment and hazardous materials on a daily basis. Accidents involving relatively small amounts of material can result in serious injuries. 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 and during demolition of the existing plant. It also addresses fire protection and the ability of the Project and City of Morro Bay 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

Appliciant's witness testified in support of Duke's position on the topic of Worker Safety and Fire Protection. (Ex. 134, p. 30-52; Ex. 4, § 6.17; Ex. 109; 1/29/02 RT 158-167.) He stated that the existing MBPP's worker safety and fire protection history dates back to the plant's inception in May 1955, and that the safety record at the plant easily surpasses the industry average concerning accidents. (1/29/02 RT 160.) The modernization Project is designed to continue all the current elements that exist in the safety and health program, injury and illness prevention

programs, and emergency response programs. (Exhibit 4, Section 6.17; *Id.* RT 161.)

a. Worker Safety

The worker safety practices at MBPP have evolved since the 1950s, along with industry standards and federal and state regulations, resulting in a safe operational environment at MBPP. Duke will continue to implement this comprehensive safety program for the Project. (Ex. 4, p. 6.17-1; Ex. 134, pp. 31-32.)

Safe use and handling of hazardous materials are given close attention. (Ex. 4, p. 6.17-1; Ex. 134, p. 32.) The existing program of employee training for safe handling of hazardous materials includes both initial and refresher training to assure that appropriate personnel are kept up to date on coordination with response agencies, proper use of onsite emergency response equipment, and hazardous materials information in the Business Plan/Contingency Plan, Spill Prevention Control and Countermeasures (SPCC) Plan, and Stormwater Pollution Prevention Plan. (Ex. 4, p. 6.17-1; Ex. 134, p. 32.)

The witness noted that Duke maintains a Facility Emergency Response Plan that contains detailed instructions for plant personnel to follow in the event of a hazardous material release, fire, flood, earthquake or explosion. The information includes maps, diagrams, contacts, teams, first aid and a description of the Incident Command System. (Ex. 4, p. 6.17-1; Ex. 134, p. 32.)

To support safe construction practices, construction and demolition contractors at MBPP obtain Duke Energy approval of their site-specific health and safety programs, assuring consistency with the Duke Energy health and safety program, and compliance with applicable LORS. (Ex. 134, p. 32.)

For construction of the Project, including demolition of onsite tanks and disassembly/removal of existing power generation facilities and stacks, Applicant will require construction/demolition contractors to develop comprehensive site-specific health and safety programs to protect the health and safety of their employees. This program will meet or exceed applicable federal and governmental safety policies and procedures, and will have the flexibility to incorporate subcontractor procedures and policies. It includes programs for administration, personal protective equipment, injury prevention, occupational health, fire protection and prevention, and equipment safety. (Ex. 4, p. 6.17-21; Ex. 134, p. 43.)

Contractors will provide safety professionals to monitor construction/demolition activities in conjunction with the Duke Energy Site Manager and assist in implementing the construction/demolition safety program. In addition, contractors will assist in managing the safety performance of subcontractors and will establish with the subcontractors that safety is a condition of employment. Selected subcontractors will also be required to meet stringent safety criteria, described in their pre-qualification packages. Subcontractors will also be included in all aspects of the worker safety program and will be monitored daily to assure compliance. Major elements of the construction safety program are summarized in the testimony. (Ex. 4, p. 6.17-21; Ex. 134, p. 43.)

The Duke witness noted that the Applicant's overall company goal is an OSHA-recordable incidence rate of 1.0 or less per 200,000 man-hours worked, and a lost-time incidence rate of 0.0. By comparison, the national recordable incidence rate for heavy industry is 6.3 percent. He added that during construction of Duke's Moss Landing Power Plant Project an incidence rate of 1.23 was achieved. (Ex. 134, p. 45.)

b. Fire Protection

Applicant's witness testified that Duke and the City of Morro Bay have an agreement that since May 11, 1999, the City assumes the lead role in fire suppression, hazardous materials and emergency response activities at the MBPP. Duke will continue to work with the City to provide additional fire prevention resources for the proposed new facility. Joint planning by Duke Energy and the City will continue to assure that reasonably foreseeable contingencies can be safely handled. (Ex. 4, p. 6.17-2; Ex. 134, p. 32.)

Fire protection for the Project is an extension of fire protection for the existing MBPP. Fire protection requirements and resources have been analyzed for the disassembly and removal of onsite fuel oil tanks; the construction of new power generation facilities, the operation of the new power generation facilities, and the demolition of existing power generation facilities (including stacks). (Ex. 4, p. 6.17-28; Ex. 134. p. 45.)

The MBPP will continue to rely on both onsite fire protection systems and MBFD fire suppression and emergency response resources. For onsite systems, the new facilities constructed at the Project will be connected to the existing fire protection systems. Hence, extensions of the current underground fire water piping network will be installed to continue to provide water from the 1,000,000-gallon onsite storage tank and the 500,000-gallon offsite tank, if needed. Design changes in the underground fire water piping network or addition of hydrants would be provided to the MBFD for review and comment. (Ex. 4, p. 6.17-28; Ex. 134. p. 46; 1/29 RT 168-169.)

Demolition of the onsite fuel oil tanks is of special interest to fire prevention because this activity will involve the use of oxy-acetylene cutting torches that operate at high temperatures in an environment of fuel oil residuals and enclosed

spaces. Both Duke Energy and the MBFD studied the potential impacts of the demolition on fire protection. (Ex. 4, p. 6.17-28; Ex. 134. p. 46.)

In addition to summarizing his testimony on worker safety and fire protection, Duke's witness proposed modifications to the three Conditions of Certifications recommended by Staff. (1/29/02 RT 161-165.)

Staff witness Alvin J. Greenberg, Ph.D. sponsored the FSA portion dealing with this topic area. (Ex. 115, pp. 3.10 – 1 through 3.10 – 14; 1/29/02 RT 70.) His testimony analyzed Applicant's proposal in this area and recommended conditions which would allow the Project to comply with LORS and avoid impacts to fire protection services. (*Id.* RT 170.) Dr. Greenberg generally found acceptable Duke's recommended changes to Staff's proposed Conditions of Certification **WORKER-1** and **WORKER-2**. However, he recommended against adopting Applicant's recommended change to Condition **WORKER-3**, which deals with Duke's financial contributions to the City of Morro Bay Fire Department for additional training and equipment associated with fire protection services for the new Project. (*Id.* RT173-174.)

City of Morro Bay Fire Chief Jeff Jones sponsored testimony as well. (Ex.137; 1/27/02 RT 180-182.) He seeks an opportunity for the Fire Department to review and comment on Applicant's fire safety plans and supports Staff in recommending no change to the language of Condition **WORKER-3**.

Commission Discussion

There is no dispute among the parties regarding Duke's proposed modifications to **WORKER-1** and we have adopted that language. We also adopt some of Duke's changes to **WORKER-2**, but following Staff's recommendation, have not deleted language requiring Applicant to send to Cal/OSHA copies of its Emergency Action Plan. (1/29/02 RT 172-173.) As to Condition of Certification

WORKER-3, we have not adopted Duke's recommended change due to the concerns expressed by Staff and the City that Applicant's recommended language is overbroad. However, while we do expect the CPM to have final approval of the agreement between the Project Owner and the City of Morro Bay Fire Department, we expect the CPM to give great weight to the fire protection-related language of AFC Appendix 6.10-5 (addressing the public service needs of the City) and to the language of the Agreement to Lease, entered between Duke and the City. Condition of Certification **WORKER-3** has been amended to reflect our view.

FINDINGS AND CONCLUSIONS

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

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the Project owner will implement comprehensive Safety and Health Programs for both the construction an operation phases of the Project, including a Demolition and Construction Safety and Health Program, an Operations and Maintenance Safety and Health Program, an accident/injury prevention program, a personal protective equipment program, an emergency action plan, a fire protection and prevention plan, and other general safety procedures.

3. The Project will rely on the City of Morro Bay Fire Department and on-site fire protective systems.

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

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

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

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

8. There are no significant cumulative worker safety or fire protection impacts associated with the Project.

9. 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 Demolition and Construction Safety and Health Program, containing the following:

- A Demolition and Construction Illness and Injury Prevention Program;
- A Demolition and Construction Personal Protective Equipment Program;
- A Demolition and Construction Exposure Monitoring Program;
- A Demolition and Construction Emergency Action Plan; and
- A Demolition and Construction Fire Protection and Prevention Plan.

The Demolition and Construction Illness and Injury Prevention Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and approval concerning compliance with applicable Cal/OSHA Safety Orders. The Demolition and Construction Safety and Health Program shall be submitted to the Morro Bay Fire Department for review and comment prior to submittal to the CPM for review and approval.

Verification At least 30 days prior to the start of demolition, the project owner shall submit to the CPM for review and approval a copy of the Project Demolition and Construction Safety and Health Program. The project owner shall submit to the Morro Bay Fire Department for review and comment the Demolition and Construction Safety and Health Program. The Project Owner shall incorporate or reconcile all Fire Department comments and recommendations.

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

- Operation Injury and Illness Prevention Plan;
- Operation Emergency Action Plan;
- Operation Hazardous Materials Management Program;

- Operations and Maintenance Safety Program;
- Operation Fire Protection and Prevention Program (8 CCR § 3221);
- Operation Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for review and comment concerning compliance with all applicable Safety Orders. The Operation Safety and Health Program, fire Protection Plan and Emergency Action Plan shall also be submitted to the Morro Bay Fire Department for review and comments prior to submittal to the CPM for review and approval.

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 Operations Safety & Health Program. It shall incorporate Cal/OSHA Consultation Service's comments, stating that they have reviewed the specified elements of the proposed Operations Safety and Health Program.

WORKER SAFETY-3 The project owner shall negotiate and enter into an agreement with the City of Morro Bay for Fire Protection and Hazardous Materials Services. These services shall include a detailed description of the services to be provided, a list of the plans requested and/or required by the City of Morro Bay Fire Department (MBFD) or site preparation, demolition, construction and operation of the proposed facility (only for those which are part of the CEC-certified project), a schedule for the submittal of those plans, and the cost reimbursement to the City from the project owner for these services. The schedule shall take into account all requirements for submittal to the CMP as per the Worker Safety and Hazardous Materials Conditions of Certification. When implementing this agreement, the CPM will review and approve all plans after receiving comments from the MBFD. The CPM will give the highest consideration to comments received from the MBFD and to the consistency of the agreement with relevant terms described in AFC Appendix 6.10-5 and the Agreement to Lease between the project owner and the City of Morro Bay.

Verification At least 30 days prior to the start of site preparation activities, the project owner shall submit to the CPM a copy of the final executed Agreement between the City of Morro Bay and the Project Owner.

D. 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.

In order to evaluate the significance of any waste management impacts under the provisions of the California Environmental Quality Act, the Commission applies waste management significance criteria (CEQA Guidelines, Appendix G, Environmental Checklist Form Approved January 1, 1999) and performance standards or thresholds adopted by responsible agencies. (Ex. 4, pp. 6.14-16-6.14-17; Ex. 134, p. 6.) A significant impact may result if:

- Construction, demolition or operations result in waste materials being introduced into the environment in violation of federal, state or local waste management and disposal regulations.
- Construction, demolition or operations result in the generation of waste materials in excess of the receiving capacity of applicable disposal facilities. (Ex. 134, p. 6.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant offered the testimony of Eric G. Walther, Ph.D. regarding the Project's proposal for waste management. (Ex. 134.) Dr. Walter testified that since the first units of the existing power plant came on line in 1955, the MBPP has

established an excellent record of waste management. (1/29/01 RT 30.) The witness stated that the proposed Project will be able to retain the same trained personnel and procedures that have a proven history of being effective. (*Id*. RT 31.)

The Commission also received the Staff analysis in the form of testimony from Alvin Greenberg, Ph.D. (Ex. 115.) and testimony of Jon Rohrer on behalf of the City of Morro Bay. (Ex. 135.)

1. Existing Site Conditions: Phase I and II ESA's

In the most recent review of the Project site, which was performed in 1997, Phase I and Phase II Environmental Site Assessments (ESA's) were conducted to provide information on current and potential contamination of soil and ground water that occurred during PG&E's ownership and operation of the existing plant. The Phase I ESA identified the presence or likely presence of hazardous substances or petroleum products in the onsite soil, ground water or surface water relating to an existing or historic release in six areas. (Ex. 4, p. 6.14-2 and Table 6.14-1.) Five of the six areas of contamination will be cleaned up by the time the proposed Project is started. In the sixth area most of the contaminated soil was removed and the remaining soil was sealed with cement slurry. To the extent future remediation might be required, Dr. Walther stated that PG&E would retain responsibility under the terms and conditions in the Purchase and Sale Agreement between PG&E and Duke. (Ex. 134, p.2.)

The Phase II ESA was conducted for PG&E as part of the process associated with the sale of the power plant by PG&E to Duke. (Ex. 4, p. 6.14-4 and Table 6.14-2.) Subsurface testing of soil, ground water and sediment was performed to further investigate issues identified in the Phase I ESA and to fully characterize the site. The evaluation showed that remediation was not required to protect human health and the environment, but in certain areas would likely be required

in order to comply with environmental regulations. The Phase II ESA identified nine small remedial issue areas of the site where soils contained more than 150 milligrams per kilogram (mg/kg) of total petroleum hydrocarbons (TPH) and where ground water contained more than 100 micrograms per liter (µg/L) of TPH. These nine small areas require soil or ground water remediation beneath a total of about 1.35 acres of the 107-acre site, or about 1 percent of the total area. (Ex. 4, p. 6.14-4.) The remedial issue areas are not located where Project facilities are planned. (Ex. 134, pp. 2-3.)

As part of the Purchase and Sale Agreement for the MBPP, PG&E is responsible for the remaining cleanup of these areas. When the onsite fuel tanks are demolished as the first phase of the Project, PG&E will collect additional Phase II data in previously inaccessible areas such as beneath the aboveground oil storage tanks, and will implement any additional remediation. (Ex. 4, p. 6.14-4; Ex. 134, p 3.)

2. Impacts

a. Construction and Demolition

Applicant and Staff presented their respective analyses of waste management issues involving each of the four phases of the Project. The evidence confirms that, with implementation of the Conditions of Certification, there are no significant waste management issues associated with the four phases of the project: (1) demolition of onsite tanks, (2) construction of new facilities, (3) demolition of existing power generation facilities, and (4) operation of the new plant.

Demolition, site preparation, and construction of the generating plant and associated facilities will generate both nonhazardous and hazardous wastes. Individual contractors will be the generators of construction wastes, and as part

of its contract specifications for construction contractors, the MBPP will require that materials be handled and disposed in accordance with applicable LORS. (Ex. 4, p. 6.14-20.) The most likely disposal site for nonhazardous waste would be the Cold Canyon Landfill. (Ex. 115, p. 3.9-4.)

Nonhazardous waste streams from construction will include paper, wood, glass, scrap metal, and plastics, from packing materials, waste lumber, insulation, and nonhazardous chemical containers. (Ex. 4, Table 6.14-5.) Applicant estimates that about 40 cubic yards of these types of wastes will be generated on a weekly basis, or a total of about 4000 cubic yards during the 21-month construction period. (Ex. 4,Table 6.14-5; Ex. 115, p. 3.9-4.)

Hazardous wastes typically generated during construction include waste oil and grease, paint, used batteries, spent solvent, welding materials, and cleanup materials from spills of hazardous substances. Table 6.14-5 of Applicant's AFC lists types, estimated amounts, and management methods of hazardous wastes. Duke estimates that a total of about 1 cubic yard of hazardous wastes will be generated per week of construction activities. Additionally, about 165 gallons of solvents, used oil, paints, and oily rags will be generated. Applicant estimated that 300,000 – 700,000 gallons of heat recovery steam generator (HRSG) cleaning waste (some hazardous and some nonhazardous) would also be generated during construction. (Ex. 115, p. 3.9-4.)

In addition to the construction hazardous wastes noted above, there will be wastes associated with both the demolition of the three existing 450-foot tall exhaust stacks used for units one through four and with the demolition of the existing buildings. For example, asbestos may be found in the high-temperature piping thermal insulation, some plant equipment is coated with lead based paint, mercury may be used in small quantities in electrical switches, and older capacitors or transformers may contain insulating oil with polychlorinated

biphenyls. Material from demolition of the exhaust stacks may include both hazardous and nonhazardous wastes, depending on analytical results.

WASTE Table 6.14-5
Construction and Demolition Wastes and Management
Morro Bay Power Plant

Source: Ex. 4, pp. 6.14-18 and 6.14-19

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WASTE Table 6.14-5 (continued)
Construction and Demolition Wastes and Management
Morro Bay Power Plant

Source: Ex. 4, pp. 6.14-18 and 6.14-19

Portions classified as hazardous would be transported offsite to a Class I (hazardous) disposal facility. Duke estimates that about 32,000 cubic yards (64,000 tons) of demolition debris from the stacks, concrete, and slabs could be generated over the course of demolition. (Ex. 4, Table 6.14-5.) On-site reuse of much of these demolition wastes, such as the use of ground-up concrete for fill material, is expected to greatly reduce the need for off-site disposal. Other wastes from demolition activities include 9600 tons of ACM, 8024 tons of power generators, 40,064 tons of steel, and 9100 tons of flooring, valves, and insulation. (Ex. 115, p. 3.9-5.)

Further wastes will be generated by the demolition of the fuel oil tanks. Approximately 2000 tons of displacement oil and oily water wastes will be generated along with 600 tons of steel, 90 tons of ACM, and 1800 tons of fuel oil and oily sludge wastes. *(Ibid.)*

b. Operation

Under normal operating conditions, the proposed facility will generate both nonhazardous and hazardous wastes. However, Applicant has determined that shutting down the existing power plant and operating the proposed MBPP will result in a net decrease of total hazardous and nonhazardous wastes generated. (Ex. 4, Table 6.14-6.) Duke's witness explained that going from the existing boiler-fired technology to the proposed Project's combined-cycle technology will lead to a dramatic reduction in overall waste generation of approximately 83 percent. Thus, waste generation will decrease from approximately 4230 tons per year down to 630 tons per year. (1/29/02 RT 32-33.)

Applicant expects nonhazardous wastes generated during plant operation to be similar to those generated by the present facility and include trash, office wastes, empty containers, broken or used parts, used packing material, and used filters. The quantities of nonhazardous wastes generated from gas-fired facilities are

typically minor and operation of the new units is expected to generate the same amount as currently generated, less than 0.43 tons per day. (Ex. 4, Table 6.14-3.) Nonhazardous solid waste at the existing facility is routinely segregated according to recyclable content to minimize the quantity disposed offsite. (Ex. 4, p. 6.14-10; Ex. 115, p. 3.9-5.) This practice will continue for operation of the proposed MBPP. (*Ibid.)*

Hazardous wastes likely to be generated during routine Project operation include oily water, CTG washwater, heat recovery steam generator (HRSG) washwater, spent selective catalytic reduction (SCR) catalysts, and minimal amounts of used cleaning solvents. About 25 tons per year (tpy) of oily water, 85 tpy of CTG washwater, 420 tpy of HRSG washwater, and 100 tpy of SCR catalyst (containing heavy metals such as vanadium) are expected to be generated on an annual basis from the new combined-cycle units. (Ex. 4, Table 6.14-6.)

Solid wastes will be disposed of at either Class I, II, or III landfills (depending on the waste type) while liquid wastes will be either discharged to municipal sewage treatment plants, transported to hazardous waste treatment or disposal facilities, or, if not hazardous, discharged to the ocean after treatment by an oil/water separator. (Ex. 115, p. 3.9-5.)

3. Impacts on Existing Waste Disposal Facilities

Applicant provided information on landfills in San Luis Obispo County, which accept nonhazardous wastes. (Ex. 4, Table 6.14-3.) Solid waste currently generated by the present power plant at ~0.45 tons per day (tpd) is taken to the Cold Canyon Landfill. (*Ibid.*) The Cold Canyon Landfill has a permitted disposal capacity of 750 tpd and is expected to remain operational until 2020. Other landfills in the area have additional capacity and include Chicago Grade Landfill (500 tpd, 2020) and City of Paso Robles Landfill (250 tpd, 2034). Project nonhazardous waste generation will be less than 3 tpd during the 21-month

construction period and ~0.43 tpd during operation. Thus, waste generation rates are only a small portion of daily permitted capacity for any one landfill. Even discounting the effects of recycling on the total amount of non-hazardous wastes destined for landfilling, the amounts of waste generated during Project construction and operation are insignificant relative to existing disposal capacity. (Ex. 4, p. 6.14-21; Ex. 134, p. 8; Ex. 115, p. 3.9-6.)

Three Class I landfills in California, at Kettleman Hills in Kings County, Buttonwillow in Kern County, and Westmoreland in Imperial County, are permitted to accept hazardous waste. In total, there is in excess of 22 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with remaining operating lifetimes up to the year 2050. Much of the hazardous waste generated during facility construction and operation will be recycled, such as used oil and spent catalysts. Even without recycling, the generation of hazardous waste from MBPP would be a very small fraction (less than one percent) of existing landfill capacity and not significantly impact the capacity or remaining life of any of the state's Class I landfills. (Ex. 115, p. 3.9-6.)

4. Cumulative Impacts

Other projects are expected to be constructed and operated during the same periods of time as the construction and subsequent operation of the Morro Bay Project. One of these projects will be the offsite tank demolition. Demolition of the offsite tank farm would be a separately permitted activity for which San Luis Obispo County is the lead agency. Other offsite projects consist of various construction projects, including homes and commercial businesses. Wastes from such projects are mostly solid and nonhazardous, and already make up part of current landfill disposal rates. The transport of nonhazardous solid waste to local landfills during construction of the Project might amount to one truck trip per day and would not cause a significant traffic impact. (Ex. 4, p. 6.14-21; Ex. 134, p 9.)

Commission Discussion

It is undisputed that the proposed project will generate less waste than the existing facility. (1/29/01 RT 33; Ex. 115, 3.9-5; CAPE Opening Brief, Group II, p. 3.) However, the parties disagreed on certain revisions to the Conditions of Certification contained in the FSA. (Ex. 115, pp. 3.9-11 through 3.9-13.) Nevertheless, before addressing the various positions on the Conditions of Certification, we respond to certain arguments made by CAPE.

CAPE attacked the testimony of Staff's witness Dr. Greenberg, alleging that he engaged in "speculation" as to whether there might be extension of the lifetimes of existing landfills to be used for Project wastes, or the opening of new landfills. (CAPE Opening brief, p. 4.) During direct examination, Dr. Greenberg stated that the results of his analysis contained in the FSA would not differ if the Project were to operate for longer than 30 years. (1/29/02 RT 63.) Later, in response to questioning from CAPE, Dr. Greenberg clarified that based on his professional experience and judgment, future changes at waste facilities make it likely that the current estimates for the facilities' legal capacities can and will be expanded. (*Id*. RT 69-70.)

CAPE argues that because the identified lifetime estimates of various local landfills for both hazardous and nonhazardous wastes *could* exceed the Project's operating life, that a significant effect exists and that certification should be limited to a 30-year period, with a requirement for recertification of the Project thereafter. CAPE is wrong on both the facts and the law in espousing its position. CAPE ignores the facts that 1) the Project will cause a reduction in waste compared to the existing facility, 2) in absolute terms the Project will generate a relatively small amount of waste and, 3) expert testimony established that even assuming waste facility closure dates identified in Exhibit 115, the expert witnesses for Staff and Applicant did not believe the Project will create significant waste impacts.

CAPE is also wrong on the law. The Warren-Alquist Act (PRC section 2500 et seq) and Commission regulations (20 Cal.Code Regs., Div.2) do not include the concept of recertification. Furthermore, such a concept has no useful purpose since the Commission' s conditions of certification and its continuing oversight are in effect and enforceable for the life of the Project, regardless of how long that is.

We find Dr. Greenberg's testimony to be credible, substantial evidence and have relied upon it to determine that the Project will not have significant impacts on waste facilities. We are not persuaded by CAPE's unsupported speculation to the contrary.

The parties also disagreed upon certain modifications to Staff's proposed Conditions of Certification. Duke recommended three changes to Condition of Certification **WASTE-2**. First, Applicant argues that hazardous waste should be excluded from the recycling requirement because hazardous wastes will generally be sent to Class I landfills and thus should not be included in any recycling requirements. (Ex. 134, p. 10; 1/30 RT 34-35.) Staff opposes this change because other hazardous waste reduction and recycling laws would require the Applicant to prepare hazardous management plans and identify recycling and source reduction options. (1/29/01 RT 64.) Staff argues that there is therefore no reason to exclude hazardous waste from the requirements of **WASTE-2**.

Second, Duke argues that the condition should exclude the specific percentages that are put forth in the proposed condition and that the percentages should be replaced by a suggested goal of maximizing recycling. (Ex. 134, p. 10; 1/29/02 RT 32-35.) Duke prefers that the condition be reworded to support recycling to the maximum extent practicable as determined by the CPM. (Ex. 134, p. 10; 1/29/02 RT 32-35.) Staff, on the other hand, thinks it is important to maintain specific recycling goals. Staff underscores its concern by noting that the waste

authority for the area has indicated that the ability of a small community like Morro Bay to meet its state-mandated recycling goals can easily be overwhelmed by a large amount of industrial waste. (*Id*. RT 65.) However, Staff did offer additional language giving Applicant flexibility in the event of unusual circumstances. (*Ibid*; Staff Reply Brief, p. 3.)

Third, Duke recommends that Condition of Certification **WASTE-2** be reworded to recognize the four distinct phases of the Project: demolition of the existing onsite fuel tanks; construction of the new power plant; demolition of the existing power generation facilities; and operation of the new power plant. (Ex. 134, p. 10-11; 1/30 RT 32-36.) Staff agreed with this change. (1/29/02 RT 65.)

The Commission is not persuaded that we should eliminate hazardous waste from the recycling goal requirements. Neither do we accept Duke's recommendation to eliminate numeric goals for recycling. However, we have adopted Staff's proposed language which allows the CPM to amend the goals due to unusual circumstances. Finally, we have included Applicant's recommendation for dividing the required waste management plans into four different project phases.

Regarding Condition of Certification **WASTE-3**, Applicant recommended amendments to reflect the fact that the Department of Toxic Substances Control (DTSC) has been designated the Administering Agency for remediation of the Project site, to clarify that there will be two plans prepared, and to clarify that the required plans are not associated with the Superfund process. (Ex. 134, p. 11-12; 1/29/02 RT 32-36.) Staff states that after reviewing Applicant's recorded changes; it is in general agreement. (1/29/02 RT 66; Staff Reply Brief, p. 3.) However, Staff stresses the need for a prohibition on Project construction until all necessary remediation has been completed. (*Id*. RT 66-67.) While the City of Morro Bay supports this recommendation of Staff, it generally prefers the original language contained in the FSA.

The Commission has chosen to adopt Duke's recommended language for Condition of Certification **WASTE-3**. However, we have added Staff's recommended prohibition on construction until all required remediation is accomplished.

Duke also proposed revisions to conditions **WASTE-5** and **WASTE-6** to recognize the role of DTSC as the Administering Agency that will provide remediation, guidance and disseminate information to all the other parties, including other regulatory agencies, PG&E, Duke, and the City of Morro Bay. (Ex. 134, p. 13; 1/29/02 RT 39.) Staff expert Dr. Greenberg stated that he agreed with Applicant's proposed changes to these conditions. (*Id*. RT 67:8-12.)

We adopt Applicant's proposed revisions to Conditions of Certification **WASTE-5** and **WASTE-6.**

Applicant also proposed revisions to condition **WASTE-7** in order to seek a balance between the goals of waste minimization and reducing visual impacts during demolition of the existing power plant and stacks. Duke fears that the original wording of the condition could be misinterpreted, conflicting with waste minimization or other positive aspects of the Project. For example, if the condition were interpreted to require solid debris from the stacks and power building to be removed from the site immediately, as a way to reduce visual impacts, these wastes would not then be recycled into the empty basement of the demolished power building. Additionally, if the solid wastes from demolition of the stacks and power building were required to be placed in too low a pile, the site would become unavailable for construction and related support activities. (Ex. 134, pp. 13-14; 1/29 RT pp. 40-42.)

While Applicant offered amending language, Staff countered that upon reflection, Staff recommends deleting Condition of Certification **WASTE-7** completely and addressing the matter as part of **VIS-4**, which is discussed in the Visual

Resources portion of this Decision. Accordingly, the Commission has eliminated the condition in question.

FINDINGS AND CONCLUSIONS

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

1. The Project will generate hazardous and nonhazardous wastes during construction and operation.

2. Nonhazardous wastes that cannot be recycled will be deposited at a Class III landfill.

3. Hazardous wastes that cannot be recycled will be transported within ninety days by registered hazardous transporters to an authorized hazardous waste management facility.

4. Disposal of Project wastes will not result in any signficant direct or cumulative impacts to existing waste disposal facilities.

5. Wastes generated during construction and operation of the Project will not result in any significant adverse impacts if the Project owner implements the mitigation measures identified in the evidence of record, as well as the Conditions of Certification.

6. The Conditions of Certification below will adequately insure that the Project's construction and operation wastes will comply with applicable laws, ordinances, regulations and requirements and will not create significant adverse impacts. Any associated impacts will be reduced to a level of insignificance.

The Commission therefore concludes that the management of Project wastes will comply with all applicable laws, ordinances, regulations, and standards as identified in the pertinent portions of Appendix A of this Decision, and that neither hazardous or nonhazardous wastes generated through construction of operation of the Project will create any significant adverse impact.

CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action, the project owner shall notify the CPM of any such

action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator with which the owner has contracted.

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 the project, the project owner shall prepare and submit to the IWMA, the City of Morro Bay for review and comment and to the CEC CPM, for review and approval, a waste management plan for each of the following four project phases:

- demolition of existing onsite fuel oil tanks
- construction of the new power plant
- demolition of existing power generation facilities
- operation of the new power plant

Each plan 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.
- A stated goal that not less than 50 percent of all construction and operation wastes and 80 percent of all demolition wastes will be recycled. Measures that will allow that goal to be achieved should be identified.
- A statement that the project owner will participate in the local recycling program to the extent that the local program is consistent with state law.

Should unusual circumstances arise that make the numerical recycling goals infeasible, the applicant may submit a request to the CPM to amend the goals. Such a request shall include a discussion of the facts that make the goals infeasible, and identification of new goals, along with a demonstration that the new goals are appropriate.

Verification: No less than 60 days prior to the start of each phase, the project owner shall submit the appropriate waste management plans to the IWMA and the City of Morro Bay for review and comment, and to the CPM for review and approval. The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods and the actual tonnage of material recycled and disposed.

WASTE-3 Before demolition, the project owner shall assure that two workplans are prepared. The first workplan shall be for demolition of the onsite tank farm and include a detailed site characterization plan with soil and groundwater sampling and analysis to determine the extent and nature of contamination existing beneath the structures. The second workplan shall be for demolition of the existing generation building, stacks and any other buildings. This workplan shall also include a detailed site characterization plan with soil and groundwater sampling and analysis. Both workplans shall be provided to the DTSC, the Administering Agency, for review and approval, and the CEC CPM for information. If contaminated soil or groundwater is found to exist, the project owner shall assure that PG&E contacts the DTSC for further guidance and possible oversight. In no event shall any project construction commence that involves either the movement of contaminated soil or construction on contaminated soil until the CPM has determined that all necessary remediation has been accomplished.

Verification: At least sixty (60) days prior to commencement of tank or structure demolition, the project owner shall assure that PG&E provides the appropriate workplan to the DTSC for review and approval. The DTSC will be responsible for distributing the workplans to the Central Coast Regional Water Quality Control Board, the City of Morro Bay and other interested regulatory agencies, and for coordinating comments back to PG&E within 30 days. The Project Owner shall provide a copy of each workplan to the CEC CPM for information. Within thirty (30) days of completion of the sampling and analysis and prior to the initiation of any construction activities, the project owner shall assure that PG&E provides the results of the sampling and analysis to the California Department of Toxic Substances Control. The DTSC will be responsible for distribution of copies of the sampling and analysis results to CCRWQCB, the City of Morro Bay, and other interested regulatory agencies. The Project Owner shall provide a copy to the CPM for information.

WASTE-4 The project owner shall have an environmental professional available for consultation during soil excavation and grading activities. The environmental professional shall meet the qualifications of such as defined by the American Society for Testing and Materials designation E 1527-97 (or updated) Standard Practice for Phase I Environmental Site Assessments as evidenced by one of the following or similar credentials: (1) Certified Industrial Hygienist with experience in worker exposure monitoring, (2) Qualified Environmental Professional certification, (3) Registered Environmental Assessor II, or (4) Registered Professional Engineer with experience in remedial investigation and feasibility studies.

Verification: At least thirty (30) days prior to the start of construction, the project owner shall submit the qualifications and experience of the environmental professional to the CPM for approval.

WASTE-5 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, or other signs, 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, PG&E, the CPM and DTSC stating the recommended course of action, prior to any further construction activity at that location. If, in the opinion of the environmental professional, significant remediation may be required, the project owner shall assure that PG&E contacts the DTSC for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the environmental professional to the CPM within five days of their receipt.

WASTE-6 Prior to commencement of site mobilization or tank or structure demolition, the project owner shall assure that PG&E prepares a schedule describing the remediation of hazardous wastes on the site, and provides the schedule to DTSC, the Administering Agency. The Project Owner shall advise PG&E that this schedule should also include the name of the Responsible Party for hazardous waste remediation and should be provided to the CPM for information. The DTSC will be responsible for providing the schedule to the City of Morro Bay, the CCRWQCB, and all other interested regulatory agencies for review and comment.

Verification: At least sixty (60) days prior to commencement of site mobilization or tank or structure demolition, the project owner shall assure that PG&E provides the schedule to the California Department of Toxic Substances Control for review. The DTSC will be responsible for distributing the schedule to the Central Coast Regional Water Quality Control Board, the City of Morro Bay and other interested regulatory agencies and for coordinating comments back to PG&E within 30 days. The Project Owner shall provide a copy of the schedule to the CPM for information.

V. 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. For our analysis of this Project's effects upon biological resources, we have divided our discussion into separate sections, one addressing terrestrial biology and another addressing aquatic biology. A separate section contains the evaluations of various alternatives for cooling. The evaluation of Applicant's Habitat Enhancement Plan is also found under a separate heading.

A. TERRESTRIAL BIOLOGICAL RESOURCES

SUMMARY OF THE EVIDENCE

We have analyzed the evidence of record to determine the potential impacts to terrestrial biological resources from the Morro Bay Power Plant Modernization Project. The evidence includes Applicant's various filings such as the AFC (Ex. 4, pp. 6.6B 1-148.) and other documents in support of Duke's position on terrestrial biological impacts. (Ex. 199, pp. 10-13; 6/4/02 RT 171-179.) Staff provided its assessment of terrestrial biological resources and impacts of the Project to state-listed and federally listed species, fully protected species, species of special concern, wetlands, and other areas of critical biological concern. (Ex. 197, pp. 3-1 through 3-61; Ex. 198, pp. 3-8.) Staff also described the terrestrial biological resources of the Project site and ancillary facilities. In doing so Staff identified impacts, determined the adequacy of mitigation proposed by the Applicant, and proposed additional mitigation measures to reduce identified impacts to less than significant levels, and to ensure compliance with applicable laws, ordinances, regulations, and standards. (Ex. 197, 3-1.)

Analysis of impacts is based upon information provided by: the Applicant in the data adequacy information; responses to data requests; public workshops; and

through discussions with various agency representatives including: the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), the California Department of Parks and Recreation (DPR), the National Marine Fisheries Service (NMFS), the California Coastal Commission (CCC), and the Morro Bay National Estuary Program (MBNEP). (*Id*.)

1. Setting

In the Morro Bay region, Applicant and Staff identified seven sensitive ecological communities listed by the California Natural Diversity Data Base (CNDDB) including: central coast dune scrub, central maritime chaparral, valley needlegrass grassland, northern coastal salt marsh, coastal brackish marsh, coastal and valley freshwater marsh, and riparian woodlands (*Id*; Ex. 4, p. 6.6B-46 to 47.) Within one mile of the Project site, there are the following community types: urban, planted forest, coastal valley grassland, riparian woodland, coastal scrub, coastal dune slack, and coastal active dunes and foredunes. (Ex. 4, p. 6.6B-7.) The dunes and associated slack and scrub communities occur adjacent to the west border of the MBPP site, and extend north and south along the coast. (Ex. 197, p. 3-4.)

In addition to the Project site in Morro Bay, there are two off-site locations that Applicant will use for Project activities. These are the proposed construction storage and laydown area (39.2 acres) at Camp San Luis Obispo (Camp SLO), located 8 miles south of Morro Bay; and the proposed satellite parking area in the City of Morro Bay. (*Id;* Ex. 199, pp. 15-21.)

A number of species that are listed as species of special concern, threatened or endangered under the Federal Endangered Species Act (ESA) or the California Endangered Species Act, (CESA) have the potential to occur on or near the site. Applicant conducted surveys of special status species both prior to and since filing the AFC, which are summarized in its testimony. (Ex. 199, App. 1.)

Due to the presence of sensitive species in the areas effected by the Project, the habitats for these species received particular attention. One of these is dune scrub habitat. Most of the coastal dune scrub vegetative community at and near the Project site is in a disturbed or degraded state. There is a larger adjacent complex of coastal scrub extending from the Project's western border to the west and northwest along the dunes and beaches of Estero Bay. A one-acre patch of disturbed dune scrub is located near Tanks 3 and 4. (Ex. 4, p. 6.6B-18.) This area was documented to contain burrowing owl in 1999, and may provide suitable habitat for the Morro shoulderband snail (MSS) (*Helminthoglypta walkeriana*) and California legless lizard (*Anniella pulchra*). (*Id*; Ex. 197, p. 3-5.)

Ice plant (*Carpobrotus* or *Mesembryanthemum* sp.) is an exotic invasive succulent, which has been introduced in California. In the vicinity area around the proposed Project it grows in diverse locations, including dune habitats and is found on-site as well. (Ex. 4, p. 6.6B-10, 6.6B-15-16.) The federally endangered Morro shoulderband snail has recently been found in ice plant vegetation near the proposed Project. Staff biologists testified that while ice plant is generally undesirable compared to native plant species, it is a sensitive habitat for the MSS and should be protected when it is potentially inhabited by an endangered species. (Ex.197, p. 3-5.)

Terrestrial Biological Resources Table 1 below lists all species of special status in the Project area. However, certain species received particular attention during the evidentiary hearings. The MSS is a federally endangered species that inhabits the vicinity of the MBPP site. (Ex. 4, pp. 6.6B-67 to 69.) As such, all adverse impacts to this species must be avoided, minimized, and mitigated as necessary. Protocol-level surveys of the MSS were conducted in January, February, and April of 2001. The surveys detected six empty shells of the snail on the MBPP property. These shells were found in the southeastern portion of the site in an area that is heavily disturbed. However, no live or dead snails were

detected in the dune strand and dune scrub habitats along the western edge of the site. (Ex. 197, p. 3-9.)

The snowy plover (*Charadrius alexandrinus*) is a shorebird that is federally threatened and is a California Species of Special Concern. Critical habitat has been designated for this shorebird on the beach and dunes west of the Project site. The snowy plover has nested in the area near Morro Rock as recently as 1997. The major causes of decline for this species include habitat destruction and habitat and nest disturbance due to human recreational activities. DPR conducts an ongoing program in the beach area to protect this species from human encroachment. (Ex. 197, p. 3-10.)

The peregrine falcon (*Falco peregrinus*) nests on Morro Rock west of the proposed project. This falcon is a federally de-listed endangered species, but is still listed as state endangered. In 2001, two nesting pairs were confirmed for the first time on the rock. This falcon species inhabits Morro Bay year-round and forages for avian prey in the general vicinity of the project area. (*Id*.) A burrowing owl (*Athene cunicularia*) inhabited the northwestern corner of the MBPP site in 1999. This species is a California Species of Special Concern and a Federal Species of Concern. (*Id*.)

The area also provides potentially suitable habitat for special status reptiles and amphibians, including the federally threatened California red-legged frog (*Rana aurora california*). However, species-specific surveys conducted in the summer of 2000 did not find individuals, egg masses, or populations of this species on-site. (Ex. 4, pp. 6.6B-71 to 72.) All adverse impacts to these species and their habitats must be avoided and/or mitigated as necessary.

In conjunction with USEPA and the USFWS, Applicant decided to proceed with a formal, rather than informal, consultation under Section 7 of the Endangered Species Act. This involved the following species: the endangered Morro

shoulderband snail, the threatened California red-legged frog, the endangered tidewater goby, and the threatened southern sea otter. Impacts to the brown pelican may also be addressed. Applicant was motivated to prefer formal consultation based on 1) the risk that all Project-related activities would have to cease if a federally-listed species were encountered in the Project site under informal consultation; and 2) Duke's preference to secure incidental take authorization for construction and operation of the Project even though minimization measures make the potential for a "take" extremely low. (Ex. 199, p. 52.) By means of a letter dated April 10, 2003, USEPA requested formal consultation under Section 7 for the Project.

TERRESTRIAL BIOLOGICAL RESOURCES Table 1
Terrestrial and Marine/Estuarine Special Status Species
Likely to Occur within One Mile of MBPP

Occurs within one mile	Scientific Name	Common Name	Legal Status Federal/State Other
Plants			
N	*Arctostaphylos morroensis*	Morro manzanita	FT
D	Calochortus clavatus var. clavatus	Club-haired mariposa lily	CNPS 4
N	Calystegia subacaulis ssp. Episcopalis	Cambria morning-glory	CSC CNPS 1B
N	*Chorizanthe breweri*	Brewer's spineflower	CNPS 1B
N	*Cirsium fontinale var. obispoense*	Chorro creek bog thistle	FE
D	Cordylanthus maritimus ssp.Maritimus	Salt marsh bird's -beak	FE /SE CNPS 1B
N	*Dithyrea maritima*	Beach spectacle-pod	FSC/ST CNPS 1B
D	Dudleya abramsii var. bettinae	San Luis Obispo serpentine dudleya	FSC CNPS 1B
D	Dudleya blochmaniae ssp. Blochmaniae	Blochman's dudleya	FSC CNPS 1B
N	*Erigeron blochmaniae*	Blochman's leafy daisy	CNPS 1B
N	*Eriodycton altissimum*	Indian knob mountainbalm	FE/SE

D	Erysimum insulare ssp. Suffrutescens	Suffrutescent wallflower	CNPS 4
N	*Layia jonesii*	Jones's layia	FSC CNPS 1B
N	*Malacothrix incana*	Dunedelion	CNPS 4
D	*Mucronea californica*	California spineflower	CNPS 4
D	*Suaeda californica*	California seablite	FE CNPS 1B
Fish			
D	*Oncorhynchus mykiss*	Central California coast steelhead trout	FT
D	*Eucyclogobius newberryi*	Tidewater goby	FE/CSC
Mollusks			
D	Helminthoglypta walkeriana	Morro shoulderband snail	FE
Insects			
D	*Icaricia icarioides moroensis*	Morro Bay blue butterfly	FSC
Herpetofauna			
N	*Taricha torosa*	California newt	CSC
D	*Anniella pulchra*	California legless lizard	FSC/CSC
D	*Clemmys marmorata pallida*	Southwestern pond turtle	FSC/CSC
D	*Rana aurora californica*	Red-legged frog	FT
N	*Scaphiopus hammondi*i	Western spadefoot toad	FSC/CSC
D	*Phrynosoma coronatum*	Horned lizard	FSC/CSC
D	*Thamnophis hammondii*	Two striped garter snake	CSC
Birds			
D	*Gavia immer* (nesting)	Common loon	CSC/MNBMC
D	*Pelecanus occidentalis*	California brown pelican	FE/SE
D	*Phalacrocorax auritus* (rookery)	Double crested cormorant	CSC
D	*Ardes herodias* (rookery)	Great blue heron	CDFSC
D	*Botaurus lentiginosus*	American bittern	MNBMC
D	*Accipiter cooperi*	Cooper's hawk	CSC
D	*Accipiter striatus*	Sharp shinned hawk	CSC
D	*Circus cyaneus*	Northern harrier	CSC

D	*Elanus leucurus*	White-tailed kite	FP
D	*Aquila chrysaetos*	Golden eagle	CSC
D	*Falco peregrinus* (nesting)	Peregrine falcon	FE Delisted/SE
N	*Laterallus jamaicensis*	California black rail	FSC/ST
N	Rallus longirostris obsoletuss	California clapper rail	FE/SE
D	*Charadrius alexandrinus* (nesting)	Western snowy plover	FT/CSC
D	*Sterna antillarum*	California least tern	FE/SE
D	*Brachyramphus marmoratus*	Marbled murrelet	FT/SE
D	*Athene cunicularia*	Burrowing owl	FSC/CSC
D	*Empidonax traillii*	Willow flycatcher	SE
D	*Lanius ludovicianus*	Loggerhead shrike	FSC/CSC
D	*Riparia riparia*	Bank swallow	ST
D	*Dendroica petechia*	Yellow warbler	CSC
Mammals			
N	*Dipodomys heermanni morroensis*	Morro bay kangaroo rat	FE/SE
D	*Neotoma fuscipes (luciana)*	Monterey dusky-footed woodrat	FSC/CSC
N	*Neotoma lepida intermedia*	San Diego desert woodrat	FSC/CSC
D	*Enhydra lutris*	Southern sea otter	FT

Source: Exhibit 4, Table 6.6B-2; Exhibit 197, pp. 3-6 through 3-8.

D = the species has been documented to occur historically within 1 mile radius of MBPP site.
N = there is no available historical record of the species' occurrence within 1 mile radius of MBPP site. However, this lack of data does not completely preclude the possibility that the species may occur in suitable habitat(s).
Status legend: CNPS List 1B = Plants rare or endangered in California and elsewhere,
CNPS4 =Plants of limited distribution (California Native Plant Society 1994), FE = Federally listed Endangered, FT = Federally listed Threatened, FSC = Federal species of concern,
FPT = Federally Proposed (Threatened), FC = Federal Candidate, CSC = CDFG species of special concern, CDFG-sensitive = Species that warrant special protection during timber operations, FP = CDFG fully protected, ST = State listed Threatened, SC = State Candidate (Endangered), SE = State listed Endangered, MNBMC = Fish and Wildlife Service Migratory Nongame Bird of Management Concern.

Potential causes of indirect impacts to terrestrial species include air pollution, noise, lighting, traffic, erosion, and collisions of birds with facility structures. Indirect impacts from noise or air pollution may also impact Morro Rock. Indirect impacts can result from construction and demolition activities, as well as from maintenance and operation of the Project. If not properly mitigated, indirect adverse impacts may reduce the effective size of remaining habitats by decreasing the quality, connectivity, and safety of habitats for wildlife (i.e. resting, nesting, foraging, roosting) on-site and on adjacent lands. (Ex.197, p. 3-22.)

2. Off-Site Construction, Laydown, and Satellite Parking Areas

Applicant proposes to use three areas at Camp SLO for the storage of equipment related to construction of the Project. In total, the three areas are approximately 39.2 acres in size. Roughly 30 acres in parcels C/D and E represent grassland vegetation. The southwestern border of Parcel E is contiguous with riparian habitat that supports special status species such as the Morro shoulderband snail, California red-legged frog, and least Bell's vireo. During use of the Camp San Luis Obispo site, vehicle use will result in noise and air pollution produced by the traffic and could potentially cause direct (mortality) or indirect (disruption of behaviors, degradation of habitat quality) harm to sensitive species in the area. Habitat mitigation and avoidance and minimization measures are required to ensure less than significant impacts to the sensitive species. (Ex. 197, p. 3-26.)

On March 14, 2002 several live Morro shoulderband snails were found at the fringe of laydown areas in Area E. As a result, protocol surveys were conducted to determine the abundance and distribution of the snail at Camp San Luis Obispo. Non-protocol level surveys were conducted within surrounding habitats and nearby habitats. In total, 39 snails were found within the Staging areas E and C/D. Further scheduled surveys will determine details of a final impacts analyses and mitigation requirements in consultation with USFWS and CDFG. (Ex. 197, p. 3-27.)

Project-related activity at the off-site satellite parking area will be temporary in nature and the area will revert to agricultural production after the Applicant is finished using the area. However, Staff testified that there is a potential for significant adverse impacts to the designated critical habitat of the California red-legged frog. In addition, there will be a temporary disturbance of approximately 5 acres of agricultural foraging and nesting habitat for special status species. Staff has concluded that biological impacts from the satellite parking area will be insignificant provided appropriate mitigation measures are implemented. (*Id*.)

In summary, the impacts of the Project to terrestrial biological resources are potentially significant because there are endangered species as well as ESHAs in the three areas impacted by the Project. The direct impacts of permanent and temporary habitat loss will require some habitat compensation and mitigation in order to bring impacts to insignificant levels. Indirect impacts of construction, operation and maintenance to special status species can be mitigated to insignificant levels. (*Id*.)

Public Comment

Colleen Johnson, a resident of Morro Bay, urged the Commission to consider alternative sites for the Project, outside of Morro Bay. She also voiced skepticism about using any habitat enhancement plan to mitigate impacts from the Project upon the estuary. (6/4/02 RT 223-226.) **Mandy Davis,** of Morro Bay stated her belief that paving of the Embarcadero dirt road would add to impacts, especially during construction. She also voiced concern for the potential impacts of Project air emissions on peregrine falcons nesting on Morro Rock. In addition, she is concerned about Project impacts to the riparian area adjacent to the Project site. (*Id.* RT 323-332.)

Nelson Sullivan encourages more scrutiny of the impingement of jellyfish in the existing cooling water intake structure. He recalled that in the past jellyfish had

clogged the intakes, forcing a plant shutdown. (*Id.* 332-334.) **Gary Johnson** identified himself as an active Audubon Society bird watcher, noting that Morro Bay is usually one of the top areas in California for number of bird species sighted annually. He believes that impacts to the snowy plover are a result of humans bringing their pet dogs and horses to the beach, thus harassing the birds. (*Id*. 334-338.)

Mike Walgren, with the California Department of Parks and Recreation, stressed that in the Morro Bay area only five known populations of the endangered Morro shoulderband snail exist. Three of these areas will be directly impacted by the Project. These include the satellite parking area, the laydown area and the area next to the power plant site. (*Id*. RT 339.) He stressed that little is known about this endangered species and its habitat requirements, noting that until just a few months prior to the hearing, the MSS was thought to live on only a single type of plant specie. He also voiced his concern regarding "edge effects" resulting from the Project paving the Embarcadero dirt road. He noted that species which could suffer from increased use of the road include the MSS, the Morro blue butterfly, the globos dune beetle, the coast horned lizard, and potentially other species. Regarding the snowy plover, he stated that Duke's proposal to fund fencing for a period of five years was not acceptable to DPR, since the birds may not use the areas for several seasons, only to return later to locate there for foraging and nesting. (*Id.* 338-340.)

Commission Discussion

1. Dune Scrub Compensatory Mitigation

Staff biologists testified that Applicant's proposed habitat mitigation, submitted to fulfill mitigation requirements for disturbance to coastal dune scrub habitat, was not adequate based on the quality, size, and lack of connectivity to other habitat. The Staff witness testified that the proposed mitigation area is more likely to

function as a garden or visual display than a functioning and viable habitat, able to support wildlife species over long periods of time. Thus, Staff did not support the Applicant's proposed Coastal Dune Scrub Restoration Plan as a viable habitat mitigation plan for reducing impacts to dune scrub habitats to less than significant levels. (Ex. 197, p.3-33.)

Instead, Staff proposed the partial or complete fulfillment of mitigation through an ongoing, regional habitat restoration/conservation program and recommended Applicant contribute to the intensive restoration efforts the DPR is conducting on 26 acres of dune scrub north of the Project facility. This parcel was recently found to support living and reproducing Morro shoulderband snails. Staff proposed that funding would be dispersed through the Morro Bay National Estuary Program. Biologists for Commission staff determined that the various Project impacts to dune scrub habitat added up to a total of 4.5 acres at a total cost of $254,675. The Staff mitigation recommendation is derived as follows:

- 3.0 acres of MSS iceplant habitat at the existing tank farm, which would be impacted by the new power block construction and be compensated at a 0.5:1 mitigation ratio at $60,000 per acre. This totals 1.5 acres and $91,500.

- 0.28 acre of dune scrub habitat impacted by fence installation, which is to be compensated at an overall 4:1 mitigation ratio at $60,000 per acre for acquisition and $30,000 per acre for restoration. This totals 1.12 acres and $59,920.

- 0.77 acre of dune scrub habitat impacted by access road construction, which is to be compensated at a 0.5:1 mitigation ratio at $60,000 per acre. This totals 0.385 acre and $23, 485.

- 0.33 acre of dune scrub habitat impacted by road widening which is to be compensated at an overall 4:1 mitigation ratio at $60,000 per acre for acquisition and $30,000 per acre for restoration. This totals 1.32 acres and $70,620; and

- 0.3 acre of dune scrub habitat impact by the new front gate access road, which is to be compensated at a 0.5:1 mitigation ratio at $60,000 per acre. This totals 0.15 acre and $9,150 total. (*Id*., p. 3-38, Table 3.)

While Applicant has agreed to the $70,620 mitigation costs associated with 0.33 acre of dune scrub habitat impacted by road widening, Duke disputes the other dune scrub mitigation measures. (6/4/02 RT 114-120.) Applicant argues that the disputed areas are neither inhabited by any listed species nor immediately adjacent to areas that are inhabited. (*Id*. RT 306.) Duke states that the areas in question have all been thoroughly surveyed according to established protocols and no evidence of occupation by any listed species were found. (Ex. 203.) For example, the nearest identified location of the MSS is on the other side of Morro Creek nearly a mile from the site. (Ex. 203, p. 5.) Duke also notes that none of the areas in dispute are designated "critical habitat" or Environmentally Sensitive Habitat Areas that must be protected for their own sake, regardless of any impact on species.

Duke's position is that disturbing habitat is not, by itself, a "taking" pursuant to the Federal or State endangered species laws nor a significant impact under CEQA. Applicant reasons that if a sensitive species is not using the habitat, then destruction of the habitat cannot amount to harming a species under federal law nor constitute an impact under CEQA. Duke argues that under CEQA there is no "adverse impact" to a species unless an actual nexus to impact on the species—not merely "habitat"—is shown. Furthermore, Duke argues that Staff has not shown that the Project will "restrict the range" of the MSS (or any other species). (6/4/02 RT 32-34.)

We examine below each of the contested habitat compensation proposals for dune scrub habitat.

a. 3.0 Acres of Iceplant at Site of Proposed Power Block

The Duke witnesses argued against the requirement for compensatory mitigation to replace destruction of this habitat by Project construction. Applicant's reasons include: the land is not designated critical habitat, no MSS are present at the site, as an existing tank farm the area is highly fragmented and is subject to continual maintenance, and the nearest known MSS population is about .9 mile away. (6/4/02 RT 118-119.)

We do not dispute any of Applicant's allegations regarding this area. Nevertheless, we observe that in evaluating this particular location, we are addressing identified (although degraded) MSS habitat in the form of iceplant which, although unoccupied, is within the identified range of the MSS. Furthermore, the site has been identified by USFWS as sufficiently close to known MSS populations as to be considered "suitable habitat". (6/4/02 RT 130.) CDFG and DPR representatives also spoke in favor of this, and other compensation conditions. (*Id.* RT 321-322; 340-341.) However, we are particularly persuaded by the evidence showing that little is known about the habitat and locations of the MSS and that assumptions about its habitat have recently been proven wrong. (*Id*. RT 233, 340.)

The unknowns surrounding this sensitive species, the fact that the area is within identified range of the MSS, and that the tank farm iceplant constitutes potential habitat within that range leads us to conclude that sufficient nexus exists between the Project's destruction of the iceplant acreage and the need to provide compensation. We find that the required compensation ratio has been appropriately adjusted down to reflect the fact that this area constitutes degraded habitat, and therefore the mitigation is proportional to the impact. We must agree with the representative of CDFG that given the unknowns surrounding the range and habitat of the MSS, it is better to be safe than sorry. (*Id*.) Accordingly, we have required compensation for the Project impacts to this area, as recommended by Staff in Condition BIO-T-14 Item 8.a.

b. Other Disputed Dune Scrub Habitat Areas

However, there are several mitigation measures included in Condition BIO-T-14 Item 8.a which we believe Staff has not justified. One of these relates to the permanent fencing required by the USFWS to reduce impacts to the MSS and to the western snowy plover. Currently, there is no protection of the dune habitat west of North Embarcadero, which results in uncontrolled human and domestic animal access to that area. Duke's installation of the permanent fence will therefore restrict such access and create an overall environmental benefit. Since the fence itself serves to mitigate an existing problem, Staff is seeking mitigation upon mitigation. Applicant's installation of the permanent fence will reduce an existing impact due to human and domestic animal intrusion upon the dune habitat. We are not persuaded that the fencing itself will create an impact for which Applicant must provide compensatory habitat.

Staff also seeks compensation for the loss of habitat resulting from Applicant's plan to pave an existing dirt road, as part of the Embarcadero extension. Staff testified that if not paved, the road could "revert to dune scrub habitat." (6/4/02 RT 265, 271:4.) However, the evidence establishes that the road may have existed for the last 40 years. (6/4/02 RT 313.) It appears as a dirt road on a Coastal Land Use Plan from 1982. (Ex. 226.) The road is presently used by automobiles and is maintained on a routine basis by the City of Morro Bay. (*Id*. RT 315.) In fact, it is the means of vehicle access to a boat repair facility and to the beach. (*Id*. RT 104.) The City of Morro Bay has no plans to close the road in the future. (*Id*. RT 314.) Yet remarkably, Staff describes this dirt road as "degraded dune scrub habitat" and seeks compensation for it based on Duke's proposal to pave the road. (*Id.* RT 257- 258.)

We find that the road is neither existing nor potential dune scrub habitat for sensitive species. Therefore, Applicant's paving of the road will have no significant impact which requires mitigation. Thus, no compensation is called for.

PLACEHOLDER

TERRESTRIAL BIOLOGICAL RESOURCES Table 2
Summary of Parties Compensation Positions and Commission Decision

Duke also challenged Staff's requirement of compensation for a 0.3 acre spot associated with the proposed new front gate access road. The evidence establishes that this area is common, degraded grassland which is not rare, unique, or valuable habitat. (Ex. 199, p. 38.) No sensitive species have been found there and it is not designated as an ESHA. (6/4/02 RT 120.) Based on the evidence we find that this is not potential dune habitat for sensitive species. (*Id*.) Thus, Applicant's use of the area will not cause a significant impact and there is no justification for compensatory mitigation.

As a result of the determinations above, we have modified the acreage and costs for compensatory habitat found in Staff's proposal for Condition of Certification BIO-T-14, Item 8.a. Table 2, which follows, shows a summary of various parties' positions and to Commission's resolution of the matter. Table 3 summarizes the adjustments which the Commission has made, based on the evidence, to the Conditions proposed by Staff.

TERRESTRIAL BIOLOGICAL RESOURCES Table 3
Commission Compensation Summary

Habitat		**Compensation Amount**
Dune	BIO-T-14, Item 8.a.	~~$254,675~~ $162,120
Upland	BIO-T-14, Item 8.c.	~~$225,000~~ $62,500
Riparian	BIO-T-14, Item 8.b.	$14,850
Snowy Plover	BIO-T-15	Not to exceed $10,000 per year, for 10 years (adjusted for inflation)
Total (some changes may be made in values based on results of MSS surveys)		**$494,525** **$239,470** (not including the Snowy Plover costs)

2. Coastal Commission Report

Coastal Act [Public Resources Code § 30413(d)] requires the California Coastal Commission to provide a report to the CEC concerning power plants to be located in the Coastal Zone. The CEC is required to incorporate provisions

specified in the Coastal Commission's report in its decision, unless the CEC finds the provisions would result in greater adverse effects on the environment or that it would not be feasible. (Public Resources Code §25523.)

The evidence adjudicated above concerning dune scrub habitat was presented at an evidentiary hearing before two members of the Energy Commission.[1] No members of the California Coastal Commission were present to hear the evidence.[2] The hearing was quasi-judicial in nature, with parties presenting formal testimony, which had been previously filed and served on all other parties. Witnesses were placed under oath and were subject to cross-examination by other parties in the case. As a result of this rigorous adjudication process, the Commission has made the determinations of fact and law indicated above and reflected in our findings and conclusions. After the close of the evidentiary record, the Coastal Commission approved on December 12, 2002, its report to the CEC issued pursuant to Public Resources Code § 30413(d).[3]

As it regards terrestrial biology, the Coastal Commission report has apparently relied heavily on the Final Staff Assessment for terrestrial biology prepared by the Commission staff. (Ex. 197, pp. 3-1, *et.seq*.) The Coastal Commission report contains specific provisions requiring the Energy Commission to include several Conditions of Certification recommended by Staff and the report adds two additional Conditions.[4] However, based on our detailed review of the law and evidence we have found that some provisions of the Conditions recommended by Staff and included in the Coastal Commission report mischaracterize the

[1] The hearing took place in Morro Bay on June 4, 2002.

[2] A member of the Coastal Commission staff participated remotely via telephone.

[3] The Coastal Commission report was marked for identification as Exhibit 320. The Committee took official notice of the Report in an Order dated February 20, 2003.

[4] Coastal Commission specific provisions include Conditions BIO-T-4, 5, 14, 15, 17, and additional Conditions BIO-T-18 and 19.)

facts, overstate impacts, and call for habitat compensation which is not supported by substantial evidence.

The Conditions in question include the specific provisions concerning dune scrub habitat, discussed above, and the length of time for Applicant to pay for fencing potential snowy plover habitat if the area is not used by plovers.[5] We have shown on Table 2 the various habitat compensation calculations based on the positions of Staff, the California Coastal Commission, Duke, and the determination of the Commission. In our view, all of the compensation called for by Staff and the Coastal Commission is not justified. As stated in our discussion of Staff's specific mitigation recommendations, several measures are not supported by substantial evidence of a significant impact. This is particularly true where the record contains no evidence that the alleged habitat area contains sensitive species and that the area has not been designated as critical habitat. Nevertheless, in adjudicating these disputes, we believe we have erred on the side of caution. This is because 1) the animals under consideration are legally designated sensitive species, 2) in some cases the behavior and habitat of the species is not well understood, and 3) many of the habitats are near or adjacent to the Morro Bay National Estuary, which calls for particular protection. Absent these factors it would be difficult to support the Staff recommendations to the extent we have done so.

Where Staff has merely provided conclusory assertions and conjecture to support its recommendations for habitat compensation, such recommendations are not supported by substantial evidence of record and thus do not show an essential nexus between the mitigation measure and a real impact recognized by law. The United States Supreme Court has held that mitigation measures must be roughly proportional to the impacts of the Project and that there be an essential nexus between the mitigation measure and a legitimate governmental interest. [*Dolan v. City of Tigard*, 512 U.S. 374 (1994); *see also Nollan v.*

California Coastal Commission, 483 U.S. 825 (1987)] In addition, the CEQA Guidelines support this view and reference these authorities. Guidelines § 15126.4, subd. (a)(4). Thus, we have adopted those mitigation measures which we judge to be supported by substantial evidence. We have, however, rejected measures, which in our view either lack essential evidentiary support or are inconsistent with legal requirements for nexus and proportionality. To the extent that specific provisions of the Coastal Commission report disagree with this determination, we find those provisions legally infeasible.

We have also included the Coastal Commission's recommendations for two additional Conditions of Certification. However, it is not feasible to require Applicant to demonstrate that *all* impacts to coastal dune scrub habitat will be avoided in paving and upgrading the Embarcadero Extension Road. We have therefore slightly modified the Coastal Commission language to BIO-T-18, so that impacts will be avoided to the greatest extent feasible.

The Coastal Commission report also calls for a new Condition to address the horizontal drilling under Willow Camp Creek to install gas pipelines. The specified Coastal Commission condition would require a geotechnical report that evaluates the horizontal directional drilling activities under Willow Camp Creek and also identifies any clean-up measures if a "frac-out"[6] were to occur. However, section 6.3 of the AFC entitled "Geologic Hazards and Resources", includes a geologic investigation of the bridge site location with exploratory borings and cone penetration tests soundings. (Ex. 4, Fig. 6.3-4; Ex. 4, App 6.6-3.) Based on that research, Applicant has determined that drilling can be performed without the use of drilling mud. Prior to work on horizontal drilling, Duke will submit a Fluid Monitoring Plan. Thus, the geotechnical report sought by the Coastal Commission already appears in the record. However, we have included all other applicable provisions of the Coastal Commission's Condition BIO-T-19.

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[5] Conditions of Certification BIO-T-14, Item 8a, and BIO-T-15.

3. Conditions

The various parties reached agreement on a number of the Conditions of Certification. The agreed-upon Conditions include: BIO-T-1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13 (except item 20), BIO-T-16, 17. We have made modifications to these Conditions as appropriate to reflect the consensus of the parties. However, a number of matters remained disputed following the evidentiary hearings and briefs. We address these disputed Conditions below.

With respect to **BIO-T-6**, Applicant asks that the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) not include a discussion of the removal of transmission conductors and power plant facilities in the event of facility closure. (Ex. 199, 26-27.) Staff disagrees, and testifies that in the event of facility closure, removal of major structures is an option which can have important biological implications. (Ex. 198, p. 4.) Staff states that this is standard condition language intended to insure that biological impacts are addressed in closure plans. We find that the Staff position is reasonable and have adopted Staff's proposed language from the FSA. (Ex. 197, p. 3-50.)

BIO-T-13, Item 20 requires that construction activities which create high noise levels (i.e. >70 dbA) be restricted on weekdays to between 7 a.m. and 7 p.m. and between 9:00 a.m. and 5:00 p.m. on weekends. Duke requests that the weekend start time be changed to 8:00 a.m. (Ex. 199, p. 31.) We must point out that this Condition, as proposed by Staff in the FSA (Ex. 197, p. 3-53; Ex. 198, p. 6.), is consistent with Condition of Certification NOISE-8 of this Decision, which restricts noisy construction on weekends and holidays to the hours of 9 a.m. to 5 p.m. In the interest of protecting the Morro Bay community and to maintain consistency within this Decision, we deny Applicant's request and adopt the weekend hours proposed by Staff.

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[6] The term "frac out" refers to a ground rupture associated with drilling activities. Such a rupture can result in uncontrolled spilling of drilling fluids onto the ground surface or into surface waters.

BIO-T-14, Item 8.a addresses compensation for Project impacts to dune scrub habitat and is discussed above in detail.

Condition **BIO-T-14, Item 8.c** addresses compensation for Project impacts to sensitive species at the Camp San Luis Obispo temporary laydown area. The species involved include the California red-legged frog, the Morro shoulderband snail (MSS), and the least Bell's Vireo. In Staff's view, Applicant's temporary use of the area may adversely impact foraging, nesting, and dispersal habits for these species. In addition to habitat compensation, Staff is also recommending that Applicant practice avoidance and mitigation measures to ensure less than significant impacts to sensitive species. Staff points out that recent surveys have determined the site is significant habitat for the MSS, which was not previously known to exist at Camp San Luis Obispo. Ultimate disposition of this matter may await the Biological Opinion of the United States Fish and Wildlife Service. (Ex. 197, p. 3-26; Ex. 198, p. 6.)

Applicant argues that its proposal for Camp SLO mitigation is roughly proportional to the impacts of the Project on the MSS and satisfies the requirement that there be an essential nexus between mitigation measures and a legitimate governmental interest. The Duke witness testified that species-specific surveys conducted thus far in the staging and laydown areas surrounding Camp SLO found the MSS only at the fringes of these areas. Within these fringes, MSS were found only in moist areas, such as beneath structures, rocks, and debris. (Ex. 199, p. 41.) The witness claimed that finding the MSS in these fringe areas is very unusual given that the Camp SLO high clay content grassland is highly atypical of areas previously believed to support the MSS. On this basis, Duke submits that Camp SLO is not high quality MSS habitat and that the proposed financial mitigation should be deleted and the Condition reduced to

avoidance measures and restoration of the staging and laydown areas to grassland habitat.

We find that the temporary nature of the impacts of construction laydown activities and the atypical[7] MSS habitat found at Camp SLO demand a downward adjustment to Staff's habitat compensation recommendation. This adjustment will ensure that the mitigation measures will be roughly proportional to the impacts of the Project and that there be an essential nexus between the mitigation measure and our obligation to protect the habitat of sensitive species.[8] Nevertheless, the amount of compensation for habitat may ultimately have to be adjusted further, pending the determination of the USFWS in its Biological Opinion. (Ex. 197, p. 3-26 to 3-27; Ex. 198, p. 6.)

With respect to **BIO-T-15**, Applicant disputed Staff's position that funding for fencing to protect snowy plover habitat should continue for the life of the Project. Staff found that the proposed road, bicycle and pedestrian paths, and bridge over Morro Creek would contribute to degradation of nesting habitat and decreased nest and plover survival in this area.[9] (Ex. 197, p. 3-18.) Although Applicant claims that the Project is unlikely to affect the plover, it has agreed to participate in a seasonal fencing program for a period of five years, with the possibility of terminating payments after that time if there is no evidence that snowy plovers are using the habitat area in question. (Ex. 199, p. 43-44.) Staff argues that it is not appropriate to limit mitigation to only 5 years because the impacts of the

[7] Grassland habitat with high content clay soils generally is not included in what is considered high quality MSS habitat. *See id*.

[8] The dollar amount of the adjustment is reflected in Terrestrial Biology Resources Tables 2 and 3.

[9] The Draft Recovery Plan for the plover lists Morro Strand State Beach and Atascadero State Beach, just north of the power plant site, as critical nesting area. (Ex. 197, p. 3-18.) Staff's position is supported by a witness from the USFWS, who stated that her agency is assuming that the plover historically did occur in the area. California Department of Parks and Recreation (DPR) also supported staff's recommendation. (6/4/02 RT 131, 341-342.)

Project will continue for the life of the Project and therefore the mitigation should continue for the same period.

We are willing to give the benefit of the doubt to a mitigation plan where sensitive species, such as the snowy plover, are involved. However, in this instance, the best evidence that the area in question is actually habitat for the plover lies in the fact that it is mentioned as part of the recovery plan and that USFWS staff "assumes" that the area constitutes habitat. On the other hand, the evidence is undisputed that, while plover have nested north of the MBPP and northwest of Atascadero Road, no Snowy Plover have nested in southern Morro Strand Beach (the area west of the Project site) since at least 1997, if ever. (Ex. 199, p. 43; 6/4/02 RT 113, 131, 145, 167.) In addition, it is likely that the installation of exclusion fencing along the west side of the road north and south of Morro Creek will add permanent protection to the potential plover nesting area.

For these reasons, we have rejected Staff's funding requirement for the life of the Project absent a determination that the assumed habitat area is actually used by the snowy plover. To create a sound foundation for a determination of habitat use, we have required Applicant to pay for fencing for a period of ten years, rather than Duke's recommended five-year period. Even if Applicant were to commence work on the Project immediately upon certification, this would provide a window of at least 16 years[10] in which to evaluate whether the snowy plover considers the site suitable habitat. If at the end of that period the fencing cannot be shown to have encouraged plover nesting on Morro strand Beach, Applicant may, in consultation with USFWS and the CPM, discontinue paying for the fencing.

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[10] The six years since 1997, plus the additional ten-year payment term of Condition BIO-T-15, equals 16 years.

The Applicant and Staff agreed that Condition **BIO-T-16** is not necessary and should be deleted. (6/4/02 RT 168, 228.) We agree and have done so.

FINDINGS AND CONCLUSIONS

Based on the evidence of record and assuming proper implimentation of the Conditions of Certification which follow, we make the following findings and conclusions.

1. In light of the unknowns surrounding the Morro shoulderband (MSS), the Project's location within the identified range of the MSS, the potential iceplant habitat within that range located at the existing tank farm, and the Project's proposal to permanently eliminate that potential habitat, sufficient nexus exists between the Project's destruction of the iceplant acreage and the need to provide compensatory habitat for the MSS. The downward adjustment of the compensation ratio appropriately reflects the degraded status of the tank farm habitat and is proportional to the potential impact.

2. The Embarcadero dirt road is neither existing nor potential dune scrub habitat for sensitive species and Applicant's paving of the road will have no significant impact which requires mitigation.

3. The 0.3 acre degraded grassland associated with the new front gate access road is not valuable habitat for sensitive species and requires no mitigation.

4. The California Coastal Commission report submitted pursuant to Public Resources Code section 30413 (d) dated December 12, 2002, contained specific provisions regarding Project impact to terrestrial biology, including the text of Conditions of Certification BIO-T-14 and BIO-T-15, as recommended by Staff in the FSA and including two additional Conditions of Certification.

5. To the extent the requirements of the Conditions are feasible, we have included them. To the extent we have found some provisions not supported by substantial evidence, we find them not feasible.

6. The Project will not impose significant adverse effects on any protected plant communities or special status species.

7. The Project will not impose significant adverse effects on any protected or special status species of mollusks, insects, herpetofauna, birds, or mammals.

8. The measures specified in the Conditions of Certification will adequately mitigate the potential direct, indirect, and cumulative adverse effects of the Morro Bay Power Plant Project upon terrestrial biological resources to below a level of significance.

9. With the implementation of the mitigation measures, the Project will conform with all applicable laws, ordinances, regulations, and standards governing terrestrial biological resources.

We, therefore, conclude that implementation of the Conditions of Certification below will ensure that construction and operation of the Morro Bay Power Plant Project will not create any significant direct, indirect, or cumulative adverse impacts to terrestrial biological resources, and that the Project will conform with all applicable laws, ordinances, regulations, and standards relating to terrestrial biological resources as identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

Designated Biologist Selection

BIO-T-1 The Project Owner shall submit the resume, including contact information, of the proposed Designated Biologist to the CPM for approval. The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. Three years experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
3. At least one year of field experience with biological resources found in or near the project area; and
4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources

tasks that must be addressed during Project construction and operation.

Verification: The Project Owner shall submit the specified information at least 60 days prior to the start of any site (or related facilities) mobilization. Site and related facility activities shall not commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, then the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist.

Designated Biologist Duties

BIO-T-2 The Designated Biologist shall perform the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities:

1. Advise the Project Owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;
2. Be available to supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, and supervise trained and approved biological monitors, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat;
3. The Designated Biologist and Biological Monitors shall be thoroughly familiar with the Biological Conditions of Certification and the BRMIMP;
4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. Trained and approved biological monitors may also be authorized by the Designated Biologist to perform this duty. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way. These inspections may be conducted by monitors approved by and working under the Designated Biologist's supervision, provided the monitors receive appropriate, CPM-approved training prior to conducting such inspection and the Designated Biologist is available for consultation on an as-needed

basis if a State or federal-listed species is found or is determined to be potentially present where positive identification of the species cannot be easily determined;

6. Notify the Project Owner and the CPM of any non-compliance with any biological resources Condition of Certification; and
7. Respond directly to inquiries of the CPM regarding biological resource issues.

Verification: The Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports. Qualified Biological monitors shall be approved by the CPM and training shall be verified according to procedures established in the BRMIMP.

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

Authority of the Designated Biologist and Biological Monitors

BIO-T-3 The Project Owner's Construction/Operation Manager shall act on the advice of the Designated Biologist to ensure conformance with the biological resources Conditions of Certification. If required by the Designated Biologist or Biological Monitors, the Project Owner's Construction/Operation Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist and Biological Monitors shall:

1. Require a halt to all activities in any area when determined that there would be adverse impact to biological resources if the activities continued;
2. Inform the Project Owner and the Construction/Operation Manager when to resume activities; and
3. Notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the halt.

Verification: The Designated Biologist must notify the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The Project Owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the Project Owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the Project Owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

Worker Environmental Awareness Program

BIO-T-4 The Project Owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the Project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the Project.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and permanent habitat protection measures;
5. Identify whom to contact if there are further comments and questions about the material discussed in the program; and
6. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

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

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the Project Owner shall provide to the CPM two (2) copies of the WEAP and all supporting written materials prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The Project Owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

The Project Owner shall keep the signed training acknowledgement forms on file for a period of at least six months after the start of commercial operation.

During project operation, signed statements for active project operational personnel shall be kept on file for six months, following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)

BIO-T-5 The Project Owner shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to the City of Morro Bay, CDFG and USFWS (for review and comment) and shall implement the measures identified in the approved BRMIMP.

The final BRMIMP shall identify: (typical measures are)

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project Owner;
2. All biological resources Conditions of Certification identified in the Commission's Final Decision;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Incidental Take Permit and Streambed Alteration Agreement and Regional Water Quality Control Board permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
10. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

11. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities - one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
12. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
14. All performance standards and remedial measures to be implemented if performance standards are not met;
15. A discussion of biological resources related facility closure measures;
16. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
17. A copy of all biological resources permits obtained.

Verification: The Project Owner shall provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

1. The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt.

2. The Project Owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

3. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with the City of Morro Bay, CDFG, the USFWS, and appropriate agencies to ensure no conflicts exist.

Within thirty (30) days after completion of Project construction, the Project Owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding.

Closure Plan Measures

BIO-T-6 The Project Owner will incorporate into the permanent or unexpected permanent closure plan, and the BRMIMP, measures that address the local biological resources.

Protocol: The planned permanent or unexpected permanent closure plan will address the following biological resources related mitigation measures:

1. Removal of Project Owner's transmission conductors when they are no longer used and useful;
2. Removal of all power plant site facilities and related facilities;
3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
4. Revegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

Verification: At least twelve months prior to commencement of closure activities, the Project Owner shall address all biological resources related issues associated with facility closure, which is incorporated into the BRMIMP, in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Incidental Take Permit

BIO-T-7 If the project will result in "take" of rare, threatened, or endangered species as defined and interpreted under California Endangered Species Act (CESA), the Project Owner shall acquire, as appropriate (i) a Consistency Determination under Section 20801 of the California Fish and Game Code, (ii) an Incidental Take Permit for such species under Section 2081(b) of the California Fish and Game Code, or both. The Project Owner shall incorporate the terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities requiring a Consistency Determination or Incidental Take Permit under the California Endangered Species Act, the Project Owner shall submit to the CPM a copy of the final CDFG Consistency Determination and/or Incidental Take Permit (if necessary).

Streambed Alteration Agreement

BIO-T-8 The Project Owner shall acquire any required Streambed Alteration Agreement from the CDFG (per Section 1600 of the Fish and Game Code), and

incorporate the biological resource related terms and conditions into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities requiring such authorization, the Project Owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement.

Regional Water Quality Control Board Certification

BIO-T-9 The Project Owner will acquire any required Regional Water Quality Control Board Section 401 state Clean Water Act certification, and incorporate the biological resource related terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities requiring such authorization, the Project Owner will provide the CPM with a copy of the final Regional Water Quality Control Board's certification.

Federal Biological Opinion

BIO-T-10 The Project Owner shall provide final copies of the Biological Opinion per Section 7 of the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the Project Owner shall submit to the CPM a copy of the U. S. Fish and Wildlife Service's Biological Opinion.

U. S. Army Corps of Engineers Section 404 Permit

BIO-T-11 The Project Owner shall acquire any required permit from the U.S. Army Corps of Engineers Section 404 of the federal Clean Water Act permit. The biological resources related terms and conditions contained in the permit shall be incorporated into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities requiring such authorization, the Project Owner shall submit to the CPM a copy of the U.S. Army Corps of Engineers permit.

Preventative Design Mitigation Features

BIO-T-12 The Project Owner shall modify the Project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources.

Protocol: The Project Owner shall ensure that:

1. transmission line poles, access roads, pulling sites, and storage and parking areas are designed to avoid identified sensitive resources;
2. the water intake pipes that use natural waterways are screened in a manner to avoid entrainment;
3. wetland loss is avoided; and
4. transmission lines and all electrical components are designed and constructed to reduce the likelihood of electrocutions of large birds.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP.

Construction Mitigation Management to Avoid Harassment or Harm

BIO-T-13 The Project Owner shall manage their construction site, and related facilities, in a manner to avoid or minimizes impacts to the local biological resources.

The Project Owner shall ensure that:

1. All avoidance and minimization measures will be in place, inspected, and approved by the Designated Biologist before site mobilization activities that may impact the sensitive areas and wildlife;

2. Pre-construction surveys for Project facilities (the main site, satellite parking, and construction staging areas) will be clearly defined and agreed upon in advance with input from USFWS and CDFG. All surveys will be conducted prior to any site mobilization;

3. Pre-construction surveys for the endangered Morro shoulderband snail in compliance with all measures established in the USFWS Biological Opinion will be completed prior to any site mobilization;

4. Pre-construction surveys for California red-legged frog on the MBPP Site, at Camp San Luis Obispo, and at the Satellite Parking area (as required by the USFWS) will be completed prior to any site mobilization;

5. Pre-construction surveys for burrowing owl on the Project site and at off-site storage and parking areas will be completed prior to any site mobilization, followed by avoidance or passive relocation, if owls are observed;

6. Pre-construction surveys for raptor nests and all sensitive and special status species animals (including bats) and plants on the project site and at off-site storage and parking areas will be completed prior to any site mobilization;

7. This item has been deleted.

8. A sound wall proposed by the applicant will be constructed to reduce noise impacts to riparian areas and other ESHAs during operation of the MBPP;

9. Pruning, tree removal, or ground disturbance in ESHAs is prohibited without biological surveys and consent of the Designated Biologist in consultation with the City of Morro Bay, USFWS and CDFG as needed;

10. Construction area boundaries are clearly marked with stakes, flagging, silt fencing, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization;

11. All equipment storage will be restricted to designated construction zones or areas that are currently not habitat for special status species;

12. A speed limit of 20 miles/hour at all project locations including the construction access road will be enforced;

13. Wildlife-safe rodenticides and high specificity herbicides will be used on-site and along linear facilities as feasible. Use all pesticides in accordance with USDA label requirements;

14. Dust control measures will be implemented during construction and operation;

15. Shielded and down-facing lighting will be used at all appropriate locations to protect sensitive biological resources from exposure to bright night lighting;

16. All food-related trash will be disposed of in closed containers and removed at least once a week, and that feeding of wildlife shall be prohibited;

17. Hazardous debris and waste will be cleaned up on-site and along linear facilities;

18. An erosion prevention and control plan (see Soil and Water Resources Section) will be implemented on-site and along linear facilities;

19. Traffic access will be restricted to existing roads, designated access roads, construction storage and staging areas, and parking areas;

20. Construction activities which create high noise levels (i.e. >70 dbA) will be restricted to 7 a.m. to 7 p.m. on weekdays, and 9 a.m. to 5 p.m. on weekends, to minimize impacts to wildlife;

21. Construction will be limited to daytime at all drainages and drains to avoid impacts to special status reptiles, amphibians, and mammals;

22. Construction activities near ESHAs will be conducted with an appropriate buffer area and/or outside the sensitive courtship and breeding season of songbirds, amphibians, and other sensitive wildlife;

23. Temporary fencing and wildlife escape ramps will be provided for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. If a temporary fence is used, it will be hardware cloth or similar materials that are approved by USFWS and CDFG;

24. Open trenches will be inspected for wildlife each morning prior to start of daily construction activities. Any wildlife observed will be allowed to escape on its own if possible prior to commencement of construction. Otherwise, the Designated Biologist will contact the appropriate agency for assistance;

25. All construction pipes, culverts, or similar structures will be inspected prior to pipe burial. Pipes to be left in trenches overnight will be capped;

26. Non-security related firearms or weapons will be prohibited from the site;

27. All pets will be prohibited from being brought to the site;

28. All inadvertent deaths of sensitive species will be reported to the appropriate project representative. Injured animals will be reported to CDFG, and the Project Owner will follow instructions that are provided by CDFG;

29. Project Owner will revegetate and maintain all linears, construction, staging, temporary parking, and equipment storage areas with appropriate native plant species; and

30. Project Owner will provide a post-construction compliance report, within forty-five (45) calendar days of completion of the project, to the Energy Commission CPM.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP.

Habitat Compensation

BIO-T-14 To compensate for impacts to sensitive habitats that lie west and northwest of the Project site, and for impacts to riparian habitats in the ESHA on the north and northeast side of the Project site, and for impacts to upland habitats at Camp San Luis Obispo, the Project Owner will implement the following terrestrial compensation:

1. All Compensation Funds (Funds) shall be provided to the Morro Bay National Estuary Program to be used or directed in a "Morro Bay Power Plant Mitigation and Conservation Plan" (MBMCP). The MBMCP will be created under the auspices of the Energy Commission to guide the spending of the compensation funds so that the greatest benefit to wildlife results while maintaining a nexus between impacts and mitigation. The intent of the MBMCP is to implement an aggressive conservation program that includes acquiring fee interests, conservation easements, or management agreements on lands.

2. The MBMCP will be implemented by the MBNEP with oversight from the Energy Commission.

3. The Plan shall be approved by Energy Commission in consultation with an Advisory Committee with participation from USFWS, CDFG, CCC, MBNEP, City of Morro Bay, the Project Owner, and other stakeholders as appropriate. The Advisory Committee shall not exceed 12 representatives so that progress is not impeded.

4. The MBNEP is authorized to spend 10% of the Funds for management and administrative costs incurred by the MBNEP while administering the MBMCP.

5. The MBNEP may use Funds for approved projects in cooperation and coordination with other conservation organizations and may use the Funds to secure matching grants for the benefit of the Morro Bay watershed. This objective is included to clarify that the

leveraging of Funds is permitted to obtain additional benefits for the Morro Bay watershed.

6. The Energy Commission and MBNEP shall enter into a Memorandum of Understanding (MOU) as to the authority to spend the Compensation Funds. No Funds will be spent prior to completion of the MOU, unless an exceptional opportunity has arisen, in which case, the Energy Commission CPM may authorize expenditure of Funds.

7. $1,000 has been required for each Compensation Acre for use in a long-term management and maintenance endowment. The MBNEP shall maintain this endowment for the Compensation Acres. The principle will remain invested in a CPM and MBNEP approved investment in perpetuity.

8. The Conservation Funds shall be spent on projects focused on the following habitats and species and for the amounts indicated below.

    a. The amount of $162,120 is required to compensate for loss of approximately 3.33 acres of dune habitat. These Funds will be used to acquire and/or restore coastal dune scrub habitats with Morro shoulderband snail present, or a strong potential to be present.

    b. The amount of $14,850 will be applied to compensate for the loss of approximately 1.35 acres of riparian habitat. Riparian habitats supporting California red-legged frog should be acquired and/or restored.

    c. The amount of $62,500 is required to compensate for the temporary loss of approximately 25 acres of upland habitat. Upland habitats supporting (or demonstrating the potential to support) Morro shoulderband snails and California red-legged frog should be acquired and/or restored.

    d. The total amount of the Funds will total $239,470, not including payments for snowy plover fencing.

Some funding or acreage levels may change pending receipt of needed information and completion of environmental analysis.

Verification: Not less than 15 days after project certification the Project Owner will provide to the CPM, a copy of the check and verification that the check was provided to the MBNEP in the amount of $239,470 payable to the MBNEP. The Advisory Committee must complete a MBMCP and have it approved by the CPM within one year of certification of the proposed project.

Mitigation for Impacts to Snowy Plover

BIO-T-15 The Project Owner will contribute funds of no more than $10,000/yr (adjusted for annual inflation rates) for annual installation of protective fencing for nesting snowy plover and monitoring of plover populations. The placement and timing of the fencing, and the specific annual monetary contribution from Duke Energy to DPR in support of the fencing program, shall be determined in consultation with the City of Morro Bay, USFWS and DPR. During pre-construction and construction of the project, the Project Owner or its authorized agent shall submit to the CPM a monthly status report of all fencing and monitoring activities. Upon commencement of commercial operation, the Project Owner or its authorized agent shall submit to the CPM in the Annual Compliance Report information on all fencing and monitoring activities. This fencing and monitoring program (and its associated Duke Energy monetary contribution to DPR) may be terminated by the Project Owner, in consultation with USFWS and CEC, after ten years, if it is not effective in encouraging plovers to nest on Morro Strand Beach.

Verification: Prior to the start of site mobilization in preparation for the installation of the permanent bridge over Morro Creek, the Project Owner will provide a copy of the checks to the CPM. The Project Owner will also provide a letter from the land management organizations and agencies involved stating the amount of funds received.

BIO-T-16 This Condition has been deleted.

Mitigation for Impacts to Morro shoulderband Snail and Snowy Plover

Along the Construction Access Road

BIO-T-17 The Project Owner shall provide protective measures to mitigate for potential impacts to the Morro shoulderband snail, snowy plover, as well as dune scrub habitats, along the construction access road. All of the measures and plans shall be developed in consultation with the City of Morro Bay, USFWS, CDFG and DPR.

1. Prior to any site mobilization in preparation for installation of the permanent bridge over Morro Creek, the Project Owner shall install pre-approved protective and permanent fencing/railing, an informational kiosk, and educational signs (materials) along Hwy 41 north of Morro Creek;

2. A detailed Management Plan shall be required for the roadway, north and south of the bridge as well as management of the fencing, kiosk(s), and educational displays;

3. The road management plan will be developed, approved, and implemented to protect natural resources along the road for the life of the project; and

4. After construction of the Project is complete, only emergency vehicles will be authorized to use the bridge crossing Morro Creek during the life of the Project.

Verification: Not less than 90 days prior to the start of site mobilization for installation of the Morro Creek bridge, the Project Owner shall provide to the CPM an agency approved design for installation of the fence, the kiosk, and all signs and educational materials. The Management Plan shall also be due at that time. All designs and plans must be approved by the CPM in consultation with the City of Morro Bay, USFWS and CDFG prior to installation of any structures.

Not less than 30 days prior to the start of site mobilization for installation of the Morro Creek bridge, the Project Owner shall provide to the CPM photographic evidence that the fencing has been successfully installed, and that the kiosk(s) and educational materials are available.

BIO-T-18 The Project Owner shall submit construction plans for Embarcadero Road, bike paths and pedestrian paths, if any, that avoid impacts to coastal dune scrub habitat to the maximum extent feasible.

Verification: Six months prior to the installation of the permanent bridge over Morro Creek, the Project Owner shall submit construction plans to the CPM for review and approval. The plans shall also be submitted to the City of Morro Bay and the Executive Director of the Coastal Commission for review and comment.

BIO-T-19 The Project Owner shall prepare a Fluid Monitoring Plan for horizontal directional drilling (HDD) activities under Willow Camp Creek. No toxic compounds, such as diesel pills or chrome-based lignosulfonates, shall be added to drill mud. Any drill muds and cuttings shall be disposed of at an approved off-site location. The Applicant shall also maintain adequate spill response equipment on-site in the event that drilling fluids are discharged into the creek.

Verification: At least 30 days prior to any site mobilization in preparation for horizontal directional drilling activities under Willow Camp Creek the Project Owner shall submit the HDD monitoring and spill response contingency plan, to the CPM, the California Department of Fish and Game, and Executive Director of the Coastal Commission for review and comment.

B. AQUATIC BIOLOGICAL RESOURCES

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

To address these impacts, the Commission's examination of aquatic biological resources focuses upon impacts to state and federally listed species, species of special concern, Morro Bay Estuary wetlands, and other areas of critical biological interest in the Project vicinity. In this section we summarize the potential impacts to aquatic biological resources due to the Project and its related facilities, and address the ability of the Project to comply with applicable laws. The feasibility of various alternatives to the Project's proposed once-through ocean cooling system is examined in a separate section of this Decision, which follows.

In addition to formal testimony from the parties, the detailed evidence of record submitted in this case was developed in consultation and cooperation with the California Regional Water Quality Control Board-Central Coast Region (RWQCB or Regional Board), the California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Coastal Commission (CCC), and the Technical Working Group (TWG)[1]

[1] The Technical Working Group was formed by the RWQCB in 1998 to oversee the design, implementation, and analysis of the thermal discharge and entrainment and impingement studies. Members of the TWG included RWQCB staff, Energy Commission staff, the Applicant, the Applicant's consultant Tenera, and independent marine biology consultants. The independent marine biology consultants include Dr. Peter Raimondi of the University of California, Santa Cruz and Dr. Greg Cailliet of Moss Landing Marine Laboratory both of whom were hired by the CCRWQCB, and Dr. Michael Foster of the Moss Landing Marine Laboratory who was hired by the Energy Commission. Additional participants were representatives of the California Department of Fish and Game (CDFG), California Coastal Commission (CCC), and the National Marine Fisheries Service. Intervenors and other interested stakeholders were able to observe and make comments at working group meetings. Observers of the TWG included representatives from the Morro Bay National Estuary Program (MBNEP), the Coastal Alliance on Plant Expansion (CAPE), the Environmental Defense Center (EDC), the Sierra Club, and the City of Morro Bay.

SUMMARY OF THE EVIDENCE

1. Setting

The Project setting includes Morro Bay and its State and Nationally designated estuary, Estero Bay which receives the outflow from the Morro Bay Estuary, and the immediate area surrounding the Project and its cooling water intake facility near the mouth of Morro Bay.

a. Morro Bay Estuary

The Morro Bay National Estuary Program's Comprehensive Conservation and Management Plan[2] (MBCCMP) states that the Morro Bay ecosystem supports one of the most important wetland systems on California's coast (Ex. 284.). The natural communities of Morro Bay and the associated estuary were designated as California's first State Estuary in 1994. The following year, Congress designated Morro Bay a "National Estuary", in order to acknowledge and protect the bay's natural diversity. Morro Bay is one of 28 estuaries in the United States to be classified as a National Estuary. It is also part of the Pacific Flyway, which provides critical habitat for migrating shorebirds and waterfowl. (Ex. 197, p. 2-4.)

Morro Bay and its estuary covers approximately 2,300 acres and is sheltered from the open ocean by a sand spit and man-made breakwater. When intertidal and wetland areas are included, the acreage increases to 2,600 acres. (Ex. 284.) The bay is characterized by tidal marshes, mudflats, open water, and rocky intertidal zones, which provide highly productive, diverse, and dynamic habitats. (Ex. 4, pp. 6.6A-17 to 21.) Morro Bay and its estuary supports a wide diversity of biological communities and species. In addition, the ocean shore, dunes, and undeveloped upland areas, as well as wetlands in the region, support many

[2] The MBCCMP (Ex. 284.) is the result of a three-year cooperative effort of local citizens to carry out the provisions of section 320 of the federal Clean Water Act by promoting effective

sensitive and listed species including invertebrates, amphibians, reptiles, passerines, raptors, shore birds, waterfowl, and small to medium-sized mammals. (Ex. 4, pp. 6.6B-6, 6.6A-51 to 65; Ex. 284.) The estuary also provides resident and nursery habitats for a variety of fish, including steelhead trout (Ex. 4, pp. 6.6A-61 to 63.) In addition to saltwater and tidal influence, Morro Bay and its estuary receives freshwater from a 48,000-acre watershed drained by Los Osos, Chorro, and Warden Creeks. (Ex. 284.)

Morro Bay is a shallow, seasonally hypersaline barrier lagoon, with an average depth of 4 feet below mean tide level. The bay was formed behind a natural sand spit, which resulted from littoral transport north from the region near Point Buchon. Today, the sand spit separates the bay and the delta of Chorro and Los Osos Creeks from the comparatively open waters of Estero Bay on the north side of Morro Rock. Freshwater enters the bay from the seasonally flowing Chorro and Los Osos Creeks. (Ex. 4, p. 6.6A-18.) Material from tributary creeks has caused considerable shoaling of the delta and backbay areas over the last 120 years. (Ex. 266, p 15.)

Morro Bay also has been altered by human activities such as dredging of a navigation channel and jetty construction along its shores. (Ex. 4, p. 6.6A-18). In addition, the land that now connects Morro Rock to the mainland was constructed to close a historic natural entrance to the bay from the north. (Ex. 197, p. 2-5.) Shoaling has occurred in the Chorro and Los Osos creek drainage basins related to agriculture. There has also been a loss of freshwater input and water quality impairment, the estuarine impacts of which have not been quantified. (Ex. 266, p. 18.) The navigational and urban development and sediment deposition have decreased the surface area of the bay and decreased water depths in most of the bay. The total area lost has been about 500 acres, or about 20 percent of the original 1883 surface area. (*Id*, p. 20.)

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management of the Morro Bay Estuary and to restore and maintain its water quality and natural resources.

Morro Bay/Estuary has been described as containing four distinct zones, based on their tidal influence:

- **Entrance channel and upper bay**. This area is characterized by rapid tidal flow and active sediment movement. The MBPP cooling water intake is in this zone. The strong currents do not allow the accumulation of fine sediments to the degree observed in the rest of the bay. (Ex. 266, p. 17.)
- **Central bay**. This area has been heavily impacted by navigational development, and by land use on its shorelines and within the tributary drainage of Chorro and Los Osos creeks. (*Id*.)
- **Southernmost reaches of the bay**. This area has the longest flushing times and consists of mud flats, with limited open water and marsh areas. It accumulates fine sediments from Chorro and Los Osos creeks and suffers strong land use impacts. (*Id*.)
- **Deltas of the Chorro and Los Osos Creeks**. This is mostly mudflats with marsh encroaching as the deltas trap sediment. The area is highly impacted by land use in the watershed of the two tributary creeks. (*Id*.)

The diverse aquatic habitats of Morro Bay support marine and terrestrial food webs and provide critical migration, feeding, and breeding habitats for marine mammals, birds, fish, and invertebrates. The ecological integrity of Morro Bay and its associated watershed have been strained by many significant manmade impacts. The Morro Bay CCMP identifies seven of these impacts as "priority problems." They are: sedimentation, bacteria, nutrients, loss of freshwater flow during the dry season, heavy metals and toxic pollutants, loss or degradation of habitat, and loss of steelhead. (Ex. 284, p. 1-5.) All of these have affected and continue to affect the quality of the Morro Bay/Estuary.

Dominant ecological communities in Morro Bay include intertidal mud flats, eelgrass beds, and coastal salt marsh. (Ex. 4, p. 6.6A-23 Figure 6.6A-6, 6.6A-35, Fig. 6.6A-8e). The bay also contains habitats consisting of sandy subtidal, rocky intertidal, and brackish marshes. (Ex. 284.) These habitats support a diversity of aquatic vegetation. The estuary also accommodates a commercial shellfish lease. (Ex. 197, p. 2-6.)

There are several sensitive habitats in Morro Bay including: saltwater marsh, freshwater marsh, eelgrass beds, rocky intertidal zones, and tidal mudflats (Ex. 4, p. 6.6A-21 to 64). Several of these habitats are considered Essential Fish Habitat (EFH) by the National Marine Fisheries Service. (Ex. 197.)

The AFC identified two special status fish species as inhabiting or potentially inhabiting the Morro Bay/Estuary. (Ex. 4, p. 6.6A-61-65.) These are the federally endangered tidewater goby *(Eucycloglobius newberryi)* and the steelhead trout *(Oncorhyrnchus mykiss).* The tidewater goby inhabits bays and lagoons to the north and south of Morro Bay. While there is suitable habitat for the tidewater goby within Morro Bay/Estuary, no individuals were identified during surveys for the 316(b) assessment. (Ex. 197, 2-6.) Likewise, California steelhead trout were not detected in Morro Bay during surveys, nor were they detected as being impinged or entrained at the existing power plant.[3](*Id*.) Morro Bay also supports a diversity of fish, invertebrates, and many other organisms (i.e. phytoplankton, zooplankton, jellyfish, crabs, mussels, clams, worms, etc.) which form the basis of the ecosystem food web.

b. Estero Bay

Estero Bay is a semi-protected coastal reach extending from Point Estero in the north to Point Buchon in the south. It is situated on a prominent extension of the continental shelf and is an important fishing ground. The bottom is primarily sand and silt, although there are also significant areas of subtidal and intertidal rock reefs. Currents offshore of Morro Rock act to enhance thermal plume dispersion from the existing MBPP. (Ex. 266, p. 25.) The open waters of Estero Bay are highly productive, especially during spring months when strong coastal winds induce upwelling and increase nutrient concentrations in surface waters. Rock

[3] Numerous other sensitive species listed in AQUATIC BIOLOGICAL RESOURCES Table 1 also inhabit and rely periodically on the project area.

habitat at Morro Rock and the harbor entrance breakwaters support diverse communities of algal and invertebrate species. Kelp beds on subtidal inshore reefs include giant kelp and bull kelp which support numerous species of bivalves, sponges, and crabs. Common fish species associated with shallow rock reefs and kelp beds include many types of rockfishes, surfperches, clingfish, and others. (*Id.* 27.)

c. Project Site and Vicinity

The proposed Project would continue to use seawater for its once-through cooling system, as has the existing MBPP for nearly 50 years. This would involve both the intake of cooling water from Morro Bay and the subsequent discharge of the warmed cooling water into Estero Bay. For cooling water, Applicant has proposed a permitted cap of an annual average of 370 million gallons per day (mgd) and the Project has a maximum daily pumping capacity of 475 mgd. Intake velocities at the bar rack will be reduced from 0.5 fps to 0.33 fps. (Ex. 266, p. 28.) Keeping the power plant's cooling water intakes free of obstructions requires regular dredging in the vicinity of the intake structure, which is located adjacent to the navigation channel near the entrance to Morro Bay. (Ex. 197, p. 2-6.)

AQUATIC BIOLOGICAL RESOURCES Table 1
Terrestrial and Marine/Estuarine Special Status Species
Likely to Occur within One Mile of MBPP

Occurs within one mile	Scientific Name	Common Name	Legal Status Federal/State Other
Fish			
D	*Oncorhynchus mykiss*	Central California coast steelhead trout	FT
D	*Eucyclogobius newberryi*	Tidewater goby	FE/CSC
Mammals			
D	*Enhydra lutris*	Southern sea otter	FT

Source: Exhibit 4, Table 6.6B-2.
D = documented to occur historically within 1 mile radius of MBPP site.
N = Not documented to occur historically within 1 mile radius of MBPP site.

2. Applicable Laws, Ordinances, Regulations and Standards (LORS)[4]

a. Federal

- **The Endangered Species Act** of 1973 (16 USC, §1531 et seq., provides for protection of threatened and endangered plants and animals and their critical habitat.
- **Marine Mammal Protection Act** (16 USC Chapter 31 §1361-1375) provides protection for marine mammals.
- **Clean Water Act of 1972** (33 USC §404 et seq.) requires issuance of permits to dredge or fill waterways. Effluent discharge must be permitted by the National Pollution Discharge Elimination System Program (NPDES). The Central Coast RWQCB is authorized to issue the NPDES permit in this case. Under Section 316(b) of the Clean Water Act (CWA), the Applicant must utilize best technology available (BTA) to minimize any adverse impacts to biological resources due to the use of a once-through cooling water system. The 316(b) study results assist in the determination of BTA for the proposed project. In addition, thermal discharge is subject to the requirements of the California Thermal Plan as an "existing" discharge.
- In 1987, Section 320, was added to the Clean Water Act to establish the National Estuary Program (NEP). The goal of the NEP is to identify, restore, and protect nationally significant estuaries of the United States. Morro Bay is

[4] See Appendix A of this Decision for a complete lists of applicable laws, ordinances, regulations, and standards.

one of 28 designated estuaries nationwide under this program. Section 303(d) allows for the designation of impaired water bodies and results in Total Maximum Daily Load (TMDL) requirements for the estuary and watershed. Morro Bay has been placed on the impaired water body list due to declining quality and health of the system and is afforded extra protection due to this designation.

- **Magnuson-Stevens Fishery Management and Conservation Act, as amended (16 U.S.C. 1801 et seq.)** The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act set forth a number of new mandates for the NMFS, regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat.

b. State

- **California Environmental Quality Act** (CEQA), PRC §21000 et seq. Mandates protection of California's environment and natural resources to develop and maintain a high-quality environment now and in the future.
- **California Endangered Species Act** of 1984 (Fish & Game Code, §2050 et seq.) protects California's endangered and threatened species.
- **California Coastal Act** of 1976 (PRC §30000 et seq.) requires the protection of coastal waters from adverse impacts of wastewater discharges and entrainment.
  - Section 30230 of the Coastal Act states that marine resources shall be maintained, enhanced, and, where feasible, restored.
  - Section 30231 of Coastal Act requires actions that minimize adverse impacts to biological productivity of coastal waters, including: minimization of discharge and entrainment.
  - Section 30240 of Coastal mandates protection of environmentally sensitive habitats from the degradation of habitat value.
- **Warren Alquist Act** Section 25527 mandates that certain areas, such as estuaries, state parks, wilderness, scenic or natural reserves, and areas for wildlife protection, are prohibited areas as sites for facilities, unless consistent with the primary uses of such areas, and where there will be no substantial adverse impacts.
- **California Porter-Cologne Water Quality Control Act 1972**; California Water Code §13000-14957; Division 7, Water Quality. The administering agency for this law is the Central Coast RWQCB. The act establishes the framework for regulation of activities affecting water quality in the state, as well as policies for the water quality control program. Section 13142.5 (b), establishes a state policy that new or expanded powerplants proposing to use seawater for cooling: shall implement the best available site, design,

technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

- The California Thermal Plan requires that "existing" thermal discharges ensure protection of beneficial uses. The beneficial uses of concern are included in Duke Energy's NPDES permit from the Regional Water Quality Control Board. The main beneficial use of concern is marine habitat.
- **Fully Protected Species** (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.

3. Project Impacts

Power plant once-through cooling water systems impact aquatic organisms by thermal discharge effects, impingement, and entrainment. Thermal discharge is heated water from the cooling water system that is discharged into Estero Bay. This heated discharge water can cause impacts to biological resources. Impingement of aquatic organisms results during cooling water intake as organisms are pulled into contact with the intake screens, and are held there by the velocity of the water being pumped through the cooling system. Unless the organisms are able to escape, they perish. Entrainment occurs when small aquatic organisms (fish and clam larvae, etc.) are carried through the intake screens (screen mesh size is usually 5/16 or 3/8 of an inch) and through the remainder of the cooling system. (Ex. 197, pp. 2-10 to 2-11.)

The plant's impact upon aquatic biological resources is governed by two primary statutory schemes: the California Environmental Quality Act (CEQA) and Sections 316(a) and 316(b) of the Federal Clean Water Act.[5] The significance of impacts is measured very differently under these two schemes. CEQA measures impacts against a baseline of the current environment including the operation of

[5] There are, of course, other statutes applicable to this topic as set forth above and in Appendix A of this Decision.

the existing power plant.[6] The purpose of this approach is to inform the decision-maker of the environmental consequences of the change to the *status quo* represented by the proposed Project. Sections 316(a) and 316(b) of the Clean Water Act are Federal laws enforced by the Regional Board. These statutes measure impacts absolutely (i.e., against the baseline of zero impact). Section 316(a) requires the protection of a balanced indigenous community of organisms in the receiving waters of the cooling system discharge. The primary concern is therefore the heated cooling water or thermal discharge from the Project. Section 316(b) requires the use of the "Best Technology Available" to minimize any adverse environmental impacts resulting from operation of the cooling water intake system. The intake system is the source of impingement and entrainment impacts.

a. CEQA

In order to evaluate the impacts of the Project under CEQA, the Commission must identify an appropriate baseline for cooling water use against which to measure future likely impacts from the Project. The Committee assigned to review Duke's application initially directed that parties address an environmental baseline consisting of the five-year period of cooling water use for the existing power plant during the years 1997-2001. That results in an average of 437 million gallons per day (mgd). (8/16/02 RT 168.) In response to subsequent motions and responses from the parties, and to ensure an even more conservative analysis under CEQA, the Committee directed the parties to use as a baseline the historical water use of the existing MBPP from the five-year period 1996-2000. (Committee Order dated 8/30/02.) The average water use for this period is 387.2 mgd. (Ex. 197, table 8, p. 2-25.) The subject of the appropriate

[6] CEQA Guidelines section 15125 provides: "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

CEQA baseline in this case is discussed in more detail in the section of this Decision entitled *Soil and Water Resources*.

Applicant presented evidence that the Project will reduce the impacts to aquatic biological resources in the estuary compared to the existing plant. With regard to impingement, Duke and the Regional Board staff (in conjunction with the Technical Working Group) concluded that these impacts were not significant, whether compared to the existing plant or in the absolute sense. (6/6/02 RT 10-12.) The witnesses testified that relative to the existing plant, Project impingement impacts will be reduced because design approach velocities of intake will be slowed from .5 ft/sec to .3 ft./sec. (Ex. 266, p. 43.)

With regard to thermal impacts, the Regional Board staff, Duke and the Technical Working Group concluded that these impacts would not be significant in the absolute sense. (6/6/02 RT 10-12.) Duke's witnesses testified that in comparison to the existing plant, the maximum thermal heat load in the discharge waters would be reduced 35%, from 85.2 million Btu/min to 55 million Btu/min. (Ex. 188.) In comparison with historic existing plant operations, the modernized plant will not increase its temperature differential. (*Id*.) Due to the reduced cooling water throughput, absolute temperatures and reduced heat loads in the discharge, Duke argues that thermal impacts will be reduced. (Ex. 177, p. 12.) The witnesses from the Regional Board testified that the Project is not expected to increase historic thermal discharge effects. (6/6/02 RT 257-258.)

Applicant also presented evidence that the Project will reduce entrainment impacts on both a short-term and long-term basis. On a short-term basis, the existing plant's maximum cooling capacity of 668 mgd is 41% greater than the proposed Project's maximum capacity of 475 mgd. On a long-term basis, Duke has proposed an annual daily average permit limit of 370 mgd, which is below

the 387 mgd baseline 5-year average determined by the Commission.[7] Duke's position is that the Project will not create any significant, adverse impacts pursuant to CEQA from once-through cooling and that the Project will actually lower water use and related impacts substantially, compared to those of the existing plant.

Duke argues that the existing power plant has been operating at the MBPP site for approximately 50 years with cooling water withdrawals at levels far greater than those of the proposed Project. Applicant points out that, in spite of this historic use of estuary waters, diverse species remain in the estuary. Duke also points to the Comprehensive Conservation and Management Plan for the Morro Bay Estuary (Ex. 284.), prepared after years of study by the Morro Bay National Estuary Program and completed in July of 2000. The MBCCMP is a comprehensive review of the health of the Morro Bay National Estuary, the key problems affecting it and proposed solutions to those problems. Despite the fifty years of once-through cooling operations described above, the MBCCMP does not identify the Morro Bay Power Plant as a problem. (*Id*.)

Commission Staff has generally joined the Regional Board and Applicant in considering the amount of cooling water use by the existing plant and by the Project as a reasonable measurement of historical and future impacts, respectively. (Ex. 197, pp. 2-26, 2-39 to 2-40.) However, while Staff did not oppose Duke's 370 mgd annual average cap, Staff advocated that CEQA impacts be measured against the 475 maximum daily pumping rate. The Staff position amounts to effectively assuming Project operation at that maximum rate at all times. (Ex. 197, Table 8, p. 2-25; 6/6/02 RT 271.) However, the Staff witness was not aware of any power plant that pumps cooling water at the maximum rate for months at a time. (6/6/02 RT 301.) Nevertheless, Staff voiced its concern that a pumping limit of 370 mgd as a long-term annual daily average

[7] The section of this Decision on Soil and water Resources gives a detailed discussion of the CEQA baseline issue in this case and provides a table comparing the Project's 370 mgd annual

would not prevent the Project from operating at rates above that average for months at a time. (6/6/02 RT 271.) Since such high operating rates could coincide with high rates of spawning and other life-cycle events for marine creatures in the estuary, Staff argues that the 370 mgd annual average cap is not sufficient to avoid significant CEQA-type impacts to aquatic biological resources in the Morro Bay Estuary.

CAPE presented a panel of scientists who generally rebutted Applicant's position and tended to agree with that of Staff. (Exs. 274, 275, 276, 277, 278, 279.) Concerning CEQA impacts, one CAPE witness testified that he did not disagree with Duke's claim that there exists no evidence of adverse impact due to 50 years of power plant operation. However, he stated that there have been no measurements made over that half century against which to compare current impacts. (6/6/02 RT 366.)

Pursuant to CEQA, Staff also addressed the Project's potential to cause indirect and cumulative impacts. The Staff witness testified that both entrainment impacts (which constitute a direct significant impact) and impingement effects (which are not directly significant) cause indirect effects that are significant when placed in the context of their contribution to degradation of the ecosystems' structure and productivity. Staff believes it is appropriate to treat the indirect impacts of entrainment and impingement as potentially significant because, in the view of Staff, they contribute to a cumulative biological problem by destroying many larval and small fish, invertebrates, and other organisms that are prey species for other species in Morro Bay. Staff witnesses testified that this degradation is a significant cumulative impact, and that the proposed Project's indirect impacts contribute to that degradation. (Ex. 197, 2-28 to 2-29.)

Applicant countered that the Project will have no indirect or cumulative impacts under CEQA, pointing out the Project's reduction of impacts from the existing

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daily average to various other historical baselines.

levels. These reductions are the result of changes to the existing plant which involve lowering cooling water pump capacities, enabling the adjustment of pumping relative to plant loads, lowering intake velocities, and significantly lowering permitted cooling water withdrawals and discharges. (6/6/02 RT 73-74.) Duke believes that Staff claims a significant "cumulative" impact by combining the impacts of the Project with either other Project impacts or other impacts to the estuary, such as on-going sedimentation. Applicant argues that these are not separate projects within the meaning of CEQA. (Ex. 197, p. 2-28 through 2-29, 6/6 RT 282:22 through 288:12.) Duke charges Staff with incorrectly saddling its Project with significant impacts through an analysis that is inconsistent with the legal requirements of CEQA.

CAPE argues that Applicant has failed to analyze numerous indirect impacts of the Project on the Morro Bay Estuary. (Opening Brief, Group IV, pp. 3-4; Ex. 27, p. 2.) CAPE's Dr. Henderson testified that species in the estuary will be indirectly effected, with longer-lived slower growing species tending to be more heavily impacted, thus changing the diversity and balance of the estuary's ecology. (Ex. 276, p.3-4.) CAPE also argues that impacts of the Project must be added to the various existing stressors within the Morro Bay Estuary's to determine the cumulative impact of the Project.

b. Clean Water Act

To assess the impacts by the Clean Water Act standards, the Regional Board convened a Technical Working Group (TWG) that included various agency staff as well as independent scientists hired by the Regional Board, the Commission and by Duke. The TWG directed the studies of thermal discharge, impingement and entrainment impacts conducted by Applicant's independent consultants. The TWG also reviewed the study results with the help of Scripps oceanographer and

resource population expert from UC Santa Cruz to advise the Regional Board and other agencies regarding impacts.

Based on these studies and the Technical Working Group review, Applicant and the Regional Board staff agree that neither the thermal discharge nor the impingement impacts are significant either against the "zero-baseline" standards of the Clean Water Act, or compared to the existing plant operations. Duke and the agency staff also agree that the entrainment impacts are sufficient to trigger the "Best Technology Available" (BTA) requirement of Section 316(b) of the Clean Water Act. These conclusions are shared by Dr. Raimondi, the independent scientist testifying on behalf of both the Energy Commission staff and the Regional Board. However, members of the Commission staff have identified the impingement effects as contributing to a significant cumulative effect under CEQA. (Ex. 197, p. 2-28; 6/6/02 RT 283-287.)

Another significant agreement among Duke, the Regional Board staff, Dr. Raimondi and Staff is that entrainment principally impacts larvae and that there is no scientific basis for drawing any conclusions regarding these impacts on adult populations. However, there was disagreement among the TWG experts as to the degree of entrainment risk and extent of entrainment impacts on these populations of larvae.

1) Thermal Discharge

Based upon the studies directed by the Technical Working Group, the Regional Board staff and the Duke Energy experts agree that thermal impacts from modernization of the Morro Bay Power Plant will not be significant pursuant to the Clean Water Act[8]. As the Regional Board staff commented:

[8] The Thermal Discharge Assessment Report (Ex. 160.) describes the numerous long-term temperature recording stations and periodic temperature surveys conducted from small vessels and overhead aircraft.

> "Thermal impacts occur along approximately 600 feet of rocky intertidal habitat on north Morro Rock. Other habitats do not appear to be affected, except in the immediate area of the discharge. The Board asked staff to consider the possibility of moving the discharge structure partway offshore, to the northwest end of Morro Rock. This option may reduce impacts on north Morro Rock, but would likely increase the thermal impacts along the west side of Morro Rock, and therefore would likely have no net benefit[9]. (Ex. 267, p. 3.)

Applicant testified that compared to the existing MBPP, the Project will, under weighted maximum load conditions, decrease heat load by about 53 percent and reduce discharge water volume by 45 percent. (Ex. 266, p. 71.) The Regional Board witness stated that during operation there would not be a difference between the thermal discharge of the existing plant and the Project. (6/6/02 RT 256.) Applicant argues that therefore, under CEQA, there would necessarily be no significant impacts. The witness for the Regional Board agreed that the thermal impacts from the Project are "not unreasonable", and that the Regional Board does not foresee a thermal increase for the Project. This complies with the Clean Water Act as well. (6/6/02 RT 256-258.)

Energy Commission staff, however, found that while not biologically significant to populations of special status species, the thermal impacts are "undesireable", though not significant under CEQA. (Ex. 197, p. 2-23; Opening Group IV Brief, p. 17.) CAPE takes a similar position to that of Staff regarding thermal effects. (CAPE Opening Brief Group IV, p. 8.)

2) Impingement

The 316(b) study also included an analysis of impingement impacts. With the exception of the Energy Commission staff, expert witnesses agreed that impingement impacts from the Project are not significant, under CEQA or against

[9] This is consistent with the findings contained in the Draft NPDES permit, dated March 21, 2003. (Ex 312.) That document states that the Project will not increase thermal impacts, that therefore no further mitigation is required, and that there exist no reasonable alternatives to reduce thermal impacts of the Project. (Ex. 312, pp. 7-8.)

the “zero baseline” of the Clean Water Act. The Regional Board staff considers impingement impacts to be of relatively minor importance. The amount of fish impinged is about 1.4 tons per year, and these are mostly northern anchovies (74% by number). About 850 pounds of invertebrates are also impinged annually. (Ex. 267, p. 3; 6/6/02 RT 253-254.) Regarding the design of the proposed Project, Applicant’s witness testified that the Project will result in a 40 percent reduction in approach velocity to the intake screens from 0.5 to 0.3 feet per second, which should reduce future impingement. (Ex. 266, p. 43.)

At the hearing, Regional Board witness Thomas confirmed that the Regional Board staff and its consultants had concluded impingement was of “relatively minor importance.” (6/6/02 RT 253-254.) Duke experts concurred in these results and noted additionally that the draft NPDES permit requires Duke Energy to minimize the amount of cooling water used by shutting down circulating pumps during periods of low power demand, which will also help minimize impingement rates. Applicant noted too that the draft NPDES permit requires Duke Energy to periodically dredge the area in front of the intake structures to minimize water intake structure approach velocity, further reducing impingement rates. (Ex. 266, p. 43.)

Energy Commission staff took the position that though impingement impacts are not themselves significant, when combined with the Project’s entrainment impacts they become part of a significant cumulative impact. (Ex.197, p. 2-28 to 2-29; 6/6/02 RT 285-287.) CAPE also follows this Staff approach. (CAPE Opening Brief Group IV, p. 8.)

3) Entrainment

All the expert witnesses in this proceeding agree that there is a sufficient impact on certain fish larvae due to entrainment to trigger the requirements of Section 316(b) of the Clean Water Act. Because it is infeasible to measure the entrainment effect on the larvae of every effected species, the TWG used the

entrainment data collected for the 316(b) study to establish estimates of proportional mortality (PM), for a combination of all species. PM is therefore a measure of the risk of entrainment for those species susceptible to entrainment. However, it is not a measure of entrainment impacts on either the adult or the overall population of the species susceptible to entrainment. It is also not a measure of entrainment impacts on all species in the estuary.

Applicant argues that the proposed Project will reduce the existing plant's impact substantially. Nonetheless, measured by the "zero impact" baseline of Section 316(b), this impact requires that the Morro Bay facility be equipped with a cooling system using the "best technology available." Duke's witnesses testified that approximately 9.1 percent of those fish larvae vulnerable to entrainment should be assumed lost. Staff and the Regional Board experts estimate the proportional mortality as ranging from 16.2 to 30.8 percent[10].

Duke's position is that whichever percent loss figure the Commission determines is correct, the figures represent larval loss only and do not represent the proportional loss of adult populations or commensurate loss to the overall productivity or health of the estuary. Duke based this argument on several factors: first that the assumptions regarding entrainment impacts apply only to those species that are vulnerable to entrainment, while many fish species are not. (6/6/02 RT 14-15.) Thus, there is a category of estuarine fish species that are not entrained at all. The proportional mortality assumptions apply only to those larval fish that are vulnerable. Second, even for species whose larvae are vulnerable, the expert witnesses agree that there is no substantial evidence or sound scientific basis for establishing what, if any, relationship exists between larval losses and the health of adult populations of those species. (Ex. 197, p. 2-11; 6/6/02 RT 18.)

[10] These figures are revised to reflect the 370 MGD annual average limit on pumping.

Applicant argues that while no study exists proving a relationship between entrainment losses of larvae and effects on adult populations, the existing power plant has operated at higher pumping levels than that of the Project for the last 50 years without any documented impacts to adult populations in the estuary. The Regional Board witness acknowledged that if annual adult losses actually matched those of proportionate larvae mortality, adult populations would rapidly decline to zero. (6/6/02 RT 288-290, 320.) Staff believes that the lack of historical data makes it impossible to determine that post entrainment has not had a significant effect on estuarine species. (6/6/02 RT 270.)

Duke also presented evidence that due to the location of the intake near the mouth of Morro Bay, a very high percentage of the larvae entrained by the facility would have been swept out of the estuary by the tides even if the existing MBPP were not there. Applicant's witnesses stated that approximately 54 percent of the water and organisms which are entrained would have otherwise been naturally discharged out of Morro Bay and into the ocean by the outgoing tides.

> The persistence of these species in Morro Bay after more than 40 years of plant operation suggests that the linkage between entrainment losses and Morro Bay fish populations is negligible, and that it is unlikely that the MPBB intake flow has much effect on population size or trajectory through time. (Ex. 266, p. 65-66.)

Both witnesses for Duke and the Regional Board also noted that massive mortality of larvae in nature is normal even without the power plant. (6/6/02 RT 202, 291-292.) Additionally, Duke pointed out that some natural predation of larvae happens through "cropping." This occurs when predators eat larvae as they pass through the cooling system. (6/6/02 116-117.) One commenter spoke to having observed abundant predator fish gathered at the outfall of the existing plant. (6/5/02 353-354.) This was confirmed by the witness for the Regional Board who testified that all entrained species are consumed by other marine creatures after being discharged from the outfall. (6/6/02 RT 321-324.)

AQUATIC BIOLOGICAL RESOURCES - Figure 1
Locations of Morro Bay and Estero Bay Sampling Stations
Source: Exhibit 266, Fig. 3, following p. 44.

AQUATIC BIOLOGICAL RESOURCES Table 2

Relative Percentage of Fish Species Found at Five Different Source Water Sampling Locations (#1-5) at Morro Bay

Fish Species	1 Harbor Mouth	2 Intake	3 Mid Bay	4 Back Bay	5 Offshore
Unidentified Gobies	79%	75%	83%	76%	35%
Shadow Goby	5%	3%	11%	20%	1%
Northern Lampfish	-	3%	-	-	12%
Pacific Staghorn Sculpin	4%	4%	-	-	1%
Jacksmelt	1%	1%	-	-	1%
Unidentified Blennies	-	2%	-	-	1%
Northern Anchovy	-	-	-	-	9%
All other species	10%	11%	7%	4%	10%
Additional species found offshore	-	-	-	-	30%

Source: Exhibit 197, Table 4, p. 2-14.

i. Common Assumptions for Calculation of Proportionate Mortality

Witnesses for Duke, the Regional Board, and Staff agreed on several assumptions used in all the analyses. As discussed below, the three agreed upon assumptions are: 1) that there is no survival of entrained larvae, resulting in 100 percent mortality; 2) that the plant operates at 100 percent of its lawful capacity all the time; and 3) that there is no compensatory response among populations of entrained species. Duke argues that these assumptions likely overstate impacts and provide a significant safety margin to account for data uncertainties and other factors.

Concerning the first assumption, Applicant's witness testified that in calculating the estimates of PM, Duke and the TWG have conservatively assumed that 100

percent of the organisms die, despite documentation via intensive through-plant entrainment survival studies at power plants across the U.S. that survival of larval fish and invertebrates can be very high[11]. The witness testified that mean survival rates for most taxonomic groups have exceeded 50 percent, the only major exceptions being the relatively fragile herrings and anchovies, which have mean survival rates around 25 percent. Survival rates of 88 percent and 98 percent were reported for naked goby (*Gobiosoma bosc*) in entrainment survival studies at the Calvert Cliffs power plant in southern Maryland. Gobies make up nearly 81 percent of the larval fish entrained at MBPP. (Ex. 266, p. 68.)

Staff, and the Regional Board disagree that the 100 percent mortality assumption represents a conservative assumption, arguing that Applicant's claim focuses only on survival of fish species while ignoring or downplaying other species. (6/6/02 RT 115.) The Regional Board witness stated that there exists no evidence of effective survival and that survival studies that retain discharged species in a lab do not duplicate natural settings. (*Id.* RT 33-34, 310; Ex. 272, p. 4.)

Duke argues that another "very conservative" assumption used by all witnesses is that the plant will withdraw the maximum amount of cooling water allowed by law all the times. The Regional Board Staff Report assumption of 17-33 percent proportional mortality assumes 427 mgd average daily cooling water use perpetually. (6/6/02 RT188-189; Ex. 267, p. 6.) This is approximately 90 percent of the 475 mgd maximum for the Project. Applicant argues that in fact, the plant will not operate at even this reduced limit all the time, citing testimony by its own witness that the plant will likely operate at 328 mgd average, even using conservatively high projections. (Ex. 186; Ex. 200A, p. 4; Ex. 266, p. 31.) Thus, Duke argues, the assumption of near-maximum power plant operation further overstates entrainment impacts.

[11] Duke's testimony displays a figure showing the results of survival data from a review of entrainment studies encompassing the years 1970-2000 for various fish species/groups. (Ex.

Staff disputes that this assumption is a true conservatism since Staff recommends that analyze of Project impacts analysis assume the maximum pumping rate of 475 mgd. Staff points out that the 427 mgd assumption is actually a 90 percent, rather than a 100 percent operating assumption. (Reply Brief, Group IV, p. 13.)

The third assumption is that no compensatory response occurs among species entrained by the power plant. Mechanisms of compensatory mortality act to increase the growth rates, survival and reproduction by those members of a population that survive. (Ex. 266, p.70.) Duke argues that the PM calculation, which assumes no compensatory response, is a particularly unlikely and therefore conservative assumption to make, especially in the circumstances of the Morro Bay Estuary. Duke notes that CAPE witness Dr. Henderson confirms in his testimony that compensation is a well-demonstrated principle, although Dr. Henderson also states that it should not be assumed to compensate for all losses or to apply in all circumstances. (Ex. 276.)

Applicant claims that there is considerable evidence that the major constraining factor on adult populations of entrained species is the amount of available habitat and that this fact is borne out in the National Estuary Program Comprehensive Conservation and Management Plan. (Ex. 284.) Thus, in habitat-constrained environments such as the Morro Bay Estuary, compensation for entrainment losses can occur in part due to decreased competition for available habitat. Regional Board witness Dr. Raimondi discussed compensation at some length. (6/6/02 RT 40-48.) Ultimately, Dr. Raimondi acknowledged a compensatory response is a legitimate concept but testified that the TWG elected not to factor in the concept in order to be conservative, given insufficient information specific to this estuary. Dr. Raimondi stated that this approach is “absolutely a conservative estimate.” (6/6/02 RT 54: 12-13.) Applicant concludes that while neither Duke nor the agencies adjusted their results to account for compensation,

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266, Figure 11, following p. 68.)

the failure to do so makes the final PM calculations "very conservative". Applicant argues that this assumption provides a safety margin against the uncertainty of the information that is available.

Staff counters that while compensation is a valid concept, there is no way to calculate it since the evidentiary record contains no accurate determination of carrying capacity for the estuary and no data to determine whether the estuary has a constant carrying capacity. (6/6/02 RT 40, 43.) The Regional Board witness stated that if there exists a compensatory buffer of larvae, it is a valuable resource which protects against natural or man-made perturbation. (Ex. 272, p. 5.)

Duke's expert witnesses accept each of the three assumptions described above. However, they find them to be conservative, and to offer a safety margin that Applicant claims is appropriate given data uncertainties and the importance of protecting the Morro Bay National Estuary. In Duke's view, when all three of the issues described above are considered in combination, the safety margin they represent is very large. (Opening Brief, Group IV, p. 29.) By contrast, Staff argues that, rather than creating a large safety margin, the agreed-upon assumptions are merely prudent and sound ecological science.

ii. Disputed Assumptions

However, Staff and the Regional Board made three additional assumptions in their PM calculations. Duke argues that the additional assumptions substantially overstate entrainment impacts. These are: 1) the use of weighted versus simple averages; 2) a separation of ocean and estuarine species; and 3) the assumption of maximum versus mean exposure times for larvae at risk. The evidence on each is discussed below.

a. Weighted versus Simple Averages

Proportional mortality estimates were calculated individually for each of the proxy species that the Technical Working Group agreed should represent entrainment effects. These species-specific PM figures were then averaged to find an overall proportional mortality rate. At issue is whether this should be a simple average or an average weighted by the abundance of the different species. Duke argues that the contribution of very low-abundance larvae should not be given the same weight as that of very abundant species in assessing potential entrainment effects on the bay's fish community and ecosystem. Their witness described this issue as follows:

> And so in this case, some of the fish were collected in orders of magnitude of more abundance than others. And the weighted process just takes those means for which most of the information was derived and weights them and estimate the overall mean impact. And that's essentially what was done by Duke. It's essentially the means were weighted by abundance. So abundance means it counts more in the overall average. (6/6/02 93:17-94:1.)

Applicant's calculation, using a weighted average method, results in a proportional mortality for the proxy species of 9.1 percent. Duke argues that this is appropriate, since a combination of several species which amounted to only 7 percent of total larvae entrained, should be weighted less than say, unidentified gobies, which made up 77 percent of total entrainment. (Ex. 299, p. 50, Fig. 5.) In comparison, the simple average advocated by Staff, results in overall proportional mortality of 16.2 percent. Staff witnesses Dr. Raimondi explained the different positions as follows:

> In my opinion it's a matter of the question that you're asked. If the question is what is the larval loss for fish, if that's the extent of your question, you should use weighted averages. I have no disagreement with that. … [I]f, on the other hand, you're taking the approach as we were doing, that these things we were counting in the target organisms were proxies for all the organisms that we could not sample, those things like invertebrate larvae, other than crabs, algaspore, seagrass seeds, zooplankton, phytoplankton, anything else that could have been entrained,

> then our approach has been to use simple averages. So, it's really a matter of the question. (6/6/02 RT 236-237.)

Staff points out that one of the underlying assumptions of the 316(b) analysis was that the identified fish species would serve as a proxy for all other entrained species that could not be identified. (Ex. 197, p. 2-11.) In Staff's view, weighting averages to reflect relative abundance of only the identified fish species ignores all the other unidentified species that suffer losses due to entrainment. However, Duke counters that this concept is inconsistent with the idea of using the correct proportional mortality of the abundant species as a proxy for the PM all species.

b. Separation of Ocean and Estuarine Species

The second disputed issue is whether it is appropriate to separate proportional mortality calculations for ocean and estuarine species. Applicant's witness described the issue this way:

> Calculations for the ocean species assume that Morro Bay is connected to the ocean, and I think the animation that Dr. Mayer showed pretty clearly indicated that to be the case. And essentially these populations are assumed to be open.
>
> However, the calculations for the bay species assume that Morro Bay is more like a lake. In other words, it's closed, and its source water volume is much smaller, in relation to the other species of interest. And the PMs for these bay species are higher because of these assumptions. When you calculate a proportion of mortality (sic), the entrainment losses are estimated proportionate to some number in the source water. And if that source water is smaller, it's likely that the PM estimates will go up. …I would argue that all species are part of larger coastal populations. Bay species spawn in-shore and are delivered to the ocean in large numbers. … I would suggest that if we are making the argument that Morro Bay has value to a coastal ocean ecosystem, you can't assume that it's like a lake when you make the PM calculations. There's a logical disconnect for me there, and I think the reason why some of the bay species estimates are higher is because of this logical disconnect.

> So the solution, in my opinion, would be to calculate the PM the same way for all entrained species and use all species to estimate the overall average effects. (6/6/02 RT 94-96.)

On the other hand, Staff for the Commission and for the Regional Board believe the important question concerns the impacts of the Project on the Morro Bay Estuary. Therefore, Staff separated estuarine and coastal taxa in order to estimate losses from the estuary alone, rather than from both. Staff argues that Duke's approach ignores the fact that coastal and estuarine species spawn in different places and that entrainment impacts on the species in each place vary. (Ex. 267, p. 5.) Dr. Raimondi testified that, for example, it would be nonsense to argue that larval production from rockfish was lost to Morro Bay, because rockfish larvae are produced in the ocean, not in the estuary. (Ex. 272, p.3.) In Staff's view, by separately calculating PM for estuarine species, the Commission and the public will better understand what proportion of larvae produced in the estuary are actually destroyed by the Project. (*Id*.)

However, Dr. Raimondi also noted that this disagreement goes away when evaluated in terms of the amount of habitat needed to compensate for entrainment losses, since either position results in the equivalent effect of 380 acres of habitat and about two miles of coast equivalent. (6/6/02 RT 237-239.)

CAPE's witness, Dr. Stephens stressed that a major function of the estuary is exporting larvae to the coastal zone. (*Id.* RT 346.)

c. Maximum versus Mean Exposure Times

The most significant of the three disputed issues in the proportional mortality calculation concerns whether to use the mean or maximum exposure value. Exposure is a key variable that represents the number of days that larvae are vulnerable to entrainment. (6/6/02 RT 98-101.) The 316(b) study results included an identification of the average age of the fish larvae that were entrained, as well

as an identification of the maximum age of entrained larvae. (Ex. 66.) Applicant argues that vulnerability to entrainment is a function of two things: 1) the age of the larvae (because at some point they grow too large to be entrained); and 2) their likelihood of coming into contact with the intake system. (6/6/02 RT 98-101.) In other words, for a larva to be entrained it must be small enough to be vulnerable to entrainment and it must pass near enough to the intake to be drawn into the plant. (*Id*.)

The age distribution of larvae actually entrained by the existing plant is shown in in Figure 2 which follows. (Exhibit 266, Fig. 9 p. 59.) This exhibit from Applicant's testimony shows that essentially the oldest fish larvae entrained was 20 days old. About one-tenth of one percent (0.1% or .001) of the larvae entrained were 20 days old. (6/6/02 RT 106.) This is the exposure time used by Staff to represent vulnerability to entrainment. Duke's witness called doing so "a relatively extreme safety margin". (6/6/02 RT 107:17.) He analogized the Staff approach to be like someone saying that the life expectancy of all human beings is equivalent to that of the oldest surviving one. (*Id*.)

AQUATIC BIOLOGY - Figure 2
Cumulative Age Distribution for Larval Gobies at Entrainment Stations
(M2, M3 and M4)

Source: Ex. 266, Fig 9, following p. 58.

Figure 2: Cumulative age distribution for fishes sampled from January through December 2000 at a) entrainment station (2) (N = 1,043) and b) bay stations (3 & 4) (N = 2,223). Age calculated using a constant growth rate of 0.27 mm/day.

Duke argues that the vast majority of species are not vulnerable to entrainment for nearly as long as 20 days. That is because the tidal flushing patterns of Morro Bay create a very high probability that larvae are carried out to sea within that period of time. (Ex. 256.) Duke also notes the great difference between the fast tidal flushing speeds and the slow intake velocity at the Project intake. (6/6/02 RT 101-102.) Applicant urges that a fairer estimate of true susceptibility to entrainment would be to take the mean age of the species entrained, which is 4.25 days, and captures 77 percent of the entrained larvae based on the data. (Id. RT 106.) Duke is critical of the Staff approach as unrealistic due to its calculation of maximum exposure times and its reliance on a small sample size. (Ex. 269, p. 4.)

The Staff acknowledges that the risk of entrainment goes down as larvae age. (6/6/02 RT 240-242.) However, data is only available for one specie – gobies. Since the best estimate for gobies is one that is similar to the estimate derived using the maximum age of entrainment, Staff and the Regional Board argue that the use of maximum values is the only reasonable approach to estimating entrainment risk. (*Id.* RT 243.)

4. Agency comments

a. Coastal Commission

On December 12, 2002, the California Coastal Commission (CCC) approved a report to this Commission regarding the Project pursuant the Coastal Act §30413(d). The CCC report (Ex. 320.) made recommendations regarding the Project in four areas, including marine biological resources.[12] The report found that since the Project is being reviewed by the Energy Commission and the Regional Board as an expansion of an existing coastal dependent industrial

[12] Other areas in the report addressed visual resources, coastal dune habitat, and public access and recreation.

facility in a site appropriate for such facilities, the Project, regardless of design alternatives of dry cooling or once-through cooling, will be consistent with the site's coastal dependent zoning designation. (Ex. 320, §3.1.10.)

However, the CCC report found that the Project, as proposed with once-through cooling and a Habitat Enhancement Program (HEP), does not conform to the marine resource policies of the Coastal Act and the ESHA policies of the LCP. The report finds that "based on available information," only the use of a dry cooling system would conform to those policies. (*Id*.)

The determinations in the CCC report raise a number of legal questions. First, while the report states that its findings are based on available information, it is clear that the report has relied heavily upon the FSA sections on Aquatic Biological Resources prepared by Energy Commission staff. (Exs. 197, 198; see Ex. 320, §3.1.9.) On the other hand, the Energy Commission in adjudicating the issues regarding the Project's impact on marine biological resources, conducted a thorough and rigorous quasi-judicial proceeding, receiving evidence from all parties in the case. The evidence was heard and judged by the two members of the Commission assigned to conduct the AFC case. The Staff FSA constituted an important part of our evidentiary record, but only a part. Substantial evidence was presented by Duke Energy in the form of pre-filed testimony and the oral testimony of expert witnesses. However, the CCC report does not appear to have considered the testimony of Duke.

In our adjudication of the complete body of evidence we have found that many of the positions taken in the FSA are not supported by substantial evidence and therefore, we have not adopted findings consistent with those positions. Key among these is the Staff position stated in the FSA that the Project with once-through cooling will have a significant effect on the aquatic environment of Morro Bay and its estuary. We have found that this position is not supported by

substantial evidence and have determined that the Project will not have a significant impact upon the bay and estuary.

Pursuant to CEQA, the lack of a significant impact obviates the need for mitigation. Thus, while we discuss the various cooling alternatives in the next section of this Decision, none of them are appropriate as mitigation for the Project's once-through cooling impacts. Similarly the HEP proposals are later discussed not as mitigation of a significant impact pursuant to CEQA, but rather as part of the "best technology available" evaluation pursuant to the Clean Water Act, section 316(b).

b. National Marine Fisheries Service

The National Marine Fisheries Service (NMFS) is obliged under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801, et. seq.) to provide recommendations to federal and state agencies that permit projects with the potential to adversely impact essential fish habitat. Morro Bay is considered essential fish habitat for a number of federally managed fish species included in the Pacific Groundfish and Coastal Pelagics Fishery Management Plans (FMPs). A NMFS representative pointed out that Morro Bay, a national and state designated estuary, is officially listed as an impaired water body under section 303(d) of the Clean Water Act due to factors such as sedimentation, metals, pathogens, bacteria, agricultural runoff, urban runoff, and periodic dredging. For this reason NMFS urges that all feasible measures should be taken to avoid impacts to the estuary. NMFS emphasises avoidance over mitigation and supported the Staff FSA analysis and recommendation for the use of a closed cooling system, if found feasible. If not feasible, NMFS seeks to be involved in any mitigation steps. (6/6/02 RT 385-388.)

Public Comments

Richard Smith addressed the importance of estuaries to the coastal and marine environment and expressed his fear that impacts from the Project's once-through cooling system could lead to simplification the estuary's ecosystem, making it less robust. (6/6/02 RT388-393.) **Stephen Pryor** of San Luis Obispo questioned the accuracy of some of the surveys and analysis presented by witnesses at the hearing. He stated that surplus larvae in the ecosystem serve the purpose of providing a buffering capacity which he believes help guarantee adequate adult populations in the estuary. (*Id*. RT 397-400.) **Mandy Davis** believes that once-through cooling has a significant adverse impact on the estuary and should be avoided. (*Id*. RT 400-403.) **Nelson Sullivan** stated that while rowing in Morro Bay he has observed a great many jellyfish, which he believes are impinged in large numbers at the existing plant, but which were not reflected in the various impingement studies. (*Id*. RT 403-404.) **Pat Henshaw** identified herself as a local resident involved in efforts to reestablish and replant eelgrass in the estuary. She voiced opposition to the proposed once-through cooling system. (*Id*. RT 408-410.)

Walter French, a business agent with the Plumbers and Pipefitters Union of San Luis Obispo County argued that, since the Project will have lower cooling water demands than the existing plant, it will reduce aquatic mortality. He also termed as "common sense" the observation that the existing plant cannot be killing one-third of aquatic life, since such life continues to exist in the estuary. (*Id*. 393-395.) **James Wood**, who serves on the Morro Bay Harbor Advisory Board, favored a habitat enhancement approach over the dry cooling alternative. He also stressed the difficulty in securing money to dredge the harbor, though the dredging aids waterfront commercial business and supports flushing of the bay. **John Barta,** who serves on the Morro Bay Planning Commission, stressed the large amount of community involvement in preparing the MBCCMP for Morro Bay as part of the National Estuary Program. He stated that as a result of a four-year long process,

seven priority problems were identified, none of which include power plant entrainment. In addition, the plan identified 61 actions to benefit the estuary, with $45 million of the highest priority items still not funded. He argued that Duke's proposed habitat enhancement program could greatly help fund efforts to improve the estuary environment. (*Id.* 404-408.)

Commission Discussion

The environmental importance of the Morro Bay Estuary is undisputed. The Morro Bay ecosystem supports one of the most important wetland systems on California's coast. Morro Bay and the associated estuary were designated as California's first State Estuary in 1994. The following year, Congress designated Morro Bay a "National Estuary", in order to acknowledge and protect the bay's natural diversity. Its importance to the coastal environment and to the people of Central California and the City of Morro Bay cannot be overstated.

The record is also undisputed that the bay is suffering from a variety of problems. The Morro Bay National Estuary Program has identified in its MBCCMP seven problems that require priority attention.[13] (Ex. 284, p. 1-5.) The estuary has been identified as an impaired water body under section 303 of the Clean Water Act. For these reasons we are particularly attuned to the need to protect the Morro Bay Estuary from significant impacts.

The proposed Project has the potential to impact aquatic biological resources in the estuary through its continued use of the once-through cooling water system currently in use at the existing MBPP. For fifty years the existing MBPP has withdrawn ocean water from an intake structure near the mouth of Morro Bay and discharged warm water into Estero Bay on the north side of Morro Rock. These existing conditions form the baseline against which impacts from the proposed Project must be compared, pursuant to CEQA.

1. CEQA

To evaluate the Project's impacts under CEQA we determined the appropriate baseline. By Order dated August 30, 2002, the Committee ruled that the appropriate base is the average cooling water use by the existing plant over the five-year period 1996-2000. The average use during those years was 387.2 mgd. (Ex. 197, Table 8, p. 2-25.) This provided a recent picture of the existing environmental setting without allowing water use during a single year to distort the baseline unrealistically.[14] We have rejected Staff's attempt to argue a baseline determined from a ten-year annual average. (Ex. 197, 2-25.) We find that a ten-year period does not accurately reflect the existing environment, as required by CEQA Guidelines. However, Staff later appeared to abandon this baseline, or any quantitative estimates, in favor of an ill-defined "qualitative discussion." (Staff Opening Brief p. 20.) We reject this approach as well, in favor of the quantitative estimates of past water use based on Regional Board records, (Ex. 187.) and the reliance of expert testimony upon water use as a measure of entrainment impacts. (6/6/02 RT 16.)

We have also rejected Duke's argument that the baseline should be the period from market restructuring and Duke's acquisition of the MBPP in 1998 until filing the AFC in 2000. (Ex. 266, p. 103.) We have favored a longer horizon over which to average the baseline water use. However, we note that this injects a level of conservatism by "burdening" Duke with responsibility for MBPP water use figures for the years 1996 and 1997. In those years the existing plant was owned by PG&E, a regulated utility, not then subject to the current regulatory environment. Since water use by the MBPP was far lower in those two years, their inclusion reduces the average figure for the baseline. However, this is just one of many conservative steps we have taken in evaluating potential Project impacts on the important aquatic resources of Morro Bay.

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[13] The CCMP priority problems are: sedimentation, bacteria, nutrients, loss of freshwater during dry season, heavy metals and toxic pollutants, loss or degradation of habitat, and loss of steelhead.

The established baseline of the existing MBPP is an annual daily average of 387.2 mgd, compared to the proposed Project's permit limitation of 370 mgd, a 4 percent reduction in cooling water use on a long-term basis. Applicant's expert witness testified that a more realistic estimate of actual annual daily average is likely to be 328 mgd. This estimate was not persuasively rebutted by other parties and based on the evidence of record, we find it to be reasonable. The 328 mgd level represents a 15 percent reduction of water usage relative to the baseline. Peak short-term use of the existing plant is based on the capacity of the existing pumps at 668 mgd. Maximum capacity of the pumps for the Project will be 475 mgd, a 29 percent capacity reduction. The proposed Project also will have a slower water intake velocity and a greater ability to control pumping levels, matching pumping to electric loads. Thus, the weight of evidence establishes that the Project will have a reduced impact on once-through cooling water use compared to the existing plant.

Furthermore, the weight of expert testimony established that it is appropriate to correlate water use and entrainment impacts over time. The more water pumped by the Project, the greater the entrainment impacts upon small aquatic organisms. This is consistent with the experts' use of goby larvae as a proxy for all impacted species, since these larvae were found to be ubiquitous in the cooling intake water. Expert testimony established this relationship and Conditions of Certification limitations to pumping on a maximum daily, and annual daily average, basis provide an enforceable means of regulating both peak and long-term entrainment impacts.

Staff, however, was not satisfied that these limits would reduce aquatic impacts to below that of the existing MBPP and argued that long-term assessments of water use do not capture seasonal spawning peaks and valleys of various species.

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[14] Our determination of the appropriate CEQA baseline is discussed in greater detail in the section of this Decision entitled Soil and Water Resources.

> "Significantly, the proposed daily cap is the stated capacity of the new pumps, which could, under applicant's proposal, be operated all day, for weeks, for even months, including at periods of time when organism concentrations are very high. The unpredictability of natural phenomenon (spawning, egg laying, transport events, etc.) surrounding the Morro Bay ecosystem does not allow for confident forecasting of the higher or low concentration periods for lower power plant entrainment opportunities. Any responsible assessment will therefore use the maximum daily pumping capacity for determining impacts." (Ex. 198, p. 9.)

Thus, because the plant may be running at its maximum capacity during a key spawning event, Staff argued that the maximum capacity is the appropriate measure of impacts, at all times. We agree that it is appropriate to compare the Project's maximum capacity of *short-term* impacts to the maximum *short-term* capacity of the existing plant; in this case the proposed 475 mgd compared to the existing 668 mgd. However, Staff seeks to compare the proposed Project's *maximum short-term* water use to the *long-term average* water use of the existing plant. The two measurements are not appropriately comparable and we reject the analysis as an "apples to oranges" comparison.

Furthermore, there is no evidence supporting an assumption that the new plant maintenance schedules, outages or other operational changes will correlate differently with spawning events than those of the existing plant. Staff's own witnesses testified that there is no meaningful or predictable correlation: "[b]oth power plant operation and bay/estuary species life cycle events vary annually, and when considered together, they vary to an unpredictable degree." (Ex. 197, 2-26.) We recognize that it would be informative to correlate evidence of a significant and predictable seasonal spawning peak with evidence of a predictable period of maximum operation for the Project's cooling system. However, Staff has not provided substantial or pursuasive evidence of such a correlation. To the extent that spawning and peak generation have coincided in the past, a comparable correlation at the new Project is likely to reveal reduced impacts.

However, the Staff position involves speculating a worst-case scenario wherein the Project operates at full load throughout a spawning peak. Yet, the record lacks evidence of when the Project would operate at maximum load, for how long it would maintain that level, and whether or not such a level of operation would correlate with a significant peak in spawning. The weight of evidence requires us to reject the Staff theory.

We must also reject Staff's attempt to find a significant cumulative impact by combining Project impacts due to entrainment, impingement, and existing stressors in the estuary. These elements are not separate "projects" as required for a cumulative CEQA analysis. Staff has clearly failed to follow CEQA guidelines in this regard. (CEQA Guidelines Sections 15355, 15130(a)(1); 6/6/02 RT 285-287.) Furthermore, since the effects noted by Staff are all part of the existing baseline, the reduced impacts of the Project will result in fewer combined impacts than now exist.

Thus, we find that compared to the existing plant, the Project will have fewer impacts involving entrainment. Its variable pumping capacity and reduced intake velocities will reduce impingement impacts. Furthermore, expert testimony establishes that the Project will present no increase in thermal impacts from its discharge water. In addition, it will not contribute to any significant adverse indirect or cumulative impacts.

2. Clean Water Act

Under Section 316(b) of the Clean Water Act [33 USC, §§316(a) and (b)], enforced by the Regional Board, Project impacts are measured against a zero impact. Section 316(a) requires the protection of a balanced indigenous community of organisms in the receiving waters of the cooling system discharge. Section 316(b) requires the use of best technology available BTA to minimize environmental impacts of operating the cooling water intake system. The

Regional Board has determined that the Project is a new source as defined in the Clean Water Act section 306. (33 U.S.C. 1316) For the purpose of making its required determinations under CEQA, the Regional Board as a responsible agency, will rely on environmental decisions by the Energy Commission, as lead agency. In addition to determining the environmental impacts of the Project, the Commission must also determine whether the Project complies with applicable LORS, including those of the Clean Water Act. In order to determine compliance, we must adjudicate the evidence which forms the basis of such compliance.

The evidence establishes that overall the thermal effects from the Project will not be a significant factor on the marine environment. (Ex. 266, p. 70-71.) The maximum permitted temperature difference between outlet and receiving waters will drop from the present 30 degrees F to 20 degrees F. (6/6/02 RT 257.) The Project will cause no increase in thermal discharge and is deemed "not unreasonable" by expert witnesses for the Regional Board. (*Id*. RT 256.) The Project's thermal discharge will also comply with the California Thermal Plan, as interpreted by the Regional Board staff. (Ex. 312.)

We also find that impingement effects of the Project are very low. The proposed new plant will reduce intake approach velocities by 40 percent and will shut down circulating pumps during periods of low power demand, further contributing to lower impingement. (Ex. 266, p. 43.) Periodic dredging in front of intake structures, required by the Regional Board NPDES permit, may further reduce impingement rates. (Ex. 312, p. 13.) Thus impingement impacts, which are relatively low at the existing plant, will be further reduced at the Project and will comply with the requirements of the Clean Water Act.

To determine the Project's impact due to entrainment, the Technical Working Group designed an entrainment study which sampled the organisms found in the

intake waters throughout Morro Bay.[15] The majority of fish (approximately 75 percent) were unidentified gobies and 71 percent of invertibrates were identified as brown crabs.[16] The TWG determined that based on the information available to them, the appropriate method to interpret the gathered data was to use proportionate mortality or PM. The estuary contains a multitude of species, but the TWG was unable to calculate estimates for all species. Therefore, a target species was identified and the assumption was made that mortality calculations for the target species can be applied to other species as well. (6/6/02 RT 16-20.)

The parties used the PM method applying several different assumptions to determine a PM of 9.7 percent for Duke and 16.2 to 30.8 percent for the Regional Board staff.[17] However, these estimates of PM do not represent commensurate losses to adult populations or to overall productivity in the estuary for several reasons. First, not all species are vulnerable to entrainment. (6/6/02 RT 14-15.) Second, no evidence exists of a relationship between the number of larval losses and the health of adult populations. (Ex. 197, p. 2-11; 6/6/02 RT 157.) In fact, if PM estimates were commensurate with adult population losses then, assuming the Regional Board staff's PM estimates of 30.8 percent, the estuary would theoretically contain none of the species vulnerable to entrainment after little more than a dozen years. However, after experiencing the existing plant's cooling water withdrawal for 50 years, it is clear the estuary has not suffered this fate. (6/6/02 RT 288-290.)

A third factor that distinguishes PM mortality in larvae from the number of healthy adults in the estuary is that massive mortality of the vulnerable larvae is normal,

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[15] Aquatic Biological Resources Figure 1 shows the locations of the five sampling stations for collecting larvae.

[16] The TWG was unable to derive estimates for other invertebrates or zooplankton or phytoplankton or algal spores or other non-fish. (6/6/02 RT 17.)

[17] These values have been adjusted to account for a 370 mgd annual average daily intake. They correspond to the unadjusted calculations of 8.9 percent for Duke and 17 to 33 percent for the Regional Board staff. (Duke Opening Brief, Group IV, App. A.)

whether the power plant exists or not. (*Id*. RT 202, 291-292.) Finally, the location of the plant's intake structure is near the mouth of Morro Bay, where tides sweep out of the estuary a high percentage of larvae otherwise subject to entrainment. (Ex. 266, p. 65-66.) For these reasons it would be misleading to equate proportional mortality of larvae with a comparable effect on species in Morro Bay. (6/6/02 RT 319-320.) Nevertheless, all expert witnesses agreed that even the lowest estimates of PM for larvae show a sufficient Project impact due to entrainment to trigger the requirements under section 316(b) of the Clean Water Act that require the use of BTA at the Project's cooling intake.

Three of the assumptions used to calculate PM were agreed upon by the parties. The only dispute concerning these assumptions is whether they represent an accurate or a conservative approach. The first assumption is that of 100 percent mortality due to entrainment. The Duke witnesses submitted testimony regarding power industry studies showing entrainment survival rates for larval fish and vertebrates exceeding a mean average of 50 percent and total survival rates of 88-98 percent for naked goby. (Ex. 266, p. 68.) While the Regional Board staff witness pointed out that none of these studies followed surviving organism in open water following entrainment, we find the fact of survival at such high rates adequately establishes that 100 percent mortality of entrained species is an unquantified conservatism in the PM analysis for this Project.[18]

The second agreed-upon assumption is the analysis by the Regional Board staff which assumes 427 mgd average daily cooling water use at all times. This represents approximately 90 percent of the Project's maximum pumping capacity during duct firing. We believe that market conditions and maintenance outages

[18] The Federal Register discusses environmental impacts of cooling water intake structures and makes clear that the assumption of 100 percent mortality due to entrainment is a conservative assumption: "The mortality rate of entrained organisms varies by species; mortality rates for fish can vary from 2 to 97 percent depending on the species and life stage entrained. Naked Goby larvae demonstrated mortality rates as low as 2 percent whereas bay anchovy larvae mortality rates were as high as 97 percent. Macroinvertebrate mortality ranged from 0 to 84 percent for several species evaluated, but rates were usually less than 29 percent. (Environmental Impacts Associated With Cooling Water Intake Structure, 67 Fed. Reg. 17136 (Apr. 9, 2002).)

will actually reduce this to a capacity no greater than the 80 percent testified to by Applicant's expert as a conservatively high likely operating percentage. Thus, we find that the assumption used in the calculations for operating the plant is conservatively high.

The experts also assumed that no compensatory response was taking place in the estuary. Mechanisms of compensatory mortality work to increase growth rates, survival and reproduction among the reduced number of surviving members of a species. Several of the expert witnesses agreed that this is a well demonstrated principle, although not quantified for Morro Bay. (Ex. 266, p. 70; Ex. 276.) The witness for the Regional Board staff testified that the effect could not be quantified due to both an inability to determine the carrying capacity of the estuary and the lack of data needed to establish the constancy of that carrying capacity. While these factors make quantification problematic, they do not, in our view, obviate the fact that this too is a conservative assumption in the PM analysis.

i. Disputed Assumptions

The foregoing discussion accepts that the three assumptions which are agreed upon by the parties collectively provide some degree of a conservative buffer against uncertainty. We believe that this is appropriate given data uncertainties and the importance of protecting the Morro Bay National Estuary. The effect of each assumption is to create a tendency towards increasing the proportional mortality calculation. (6/6/02 RT 199.) Duke experts agreed with this approach as to the three assumptions discussed above. However, they disagreed with other assumptions and testified that different, and in their view, "more reasonable" assumptions are appropriate for the remaining three factors in the PM calculation. Duke urges that this is needed in order to not overstate Project impacts and thereby distort reality. On the other hand, Staff for the Commission and the Regional Board has adopted the position that maximizes assessments of

mortality for each of the disputed assumptions. (*Id*. RT 200.) The three assumptions involve 1) the use of weighted versus simple averages for the abundance of species at risk, 2) whether to analyze separately or combine the ocean and estuarine species and, 3) the use of mean as opposed to maximum exposure times for larvae subject to entrainment.

For each of the species that the Technical Working Group agreed should represent entrainment effects, PM figures for the specific specie were averaged to find an overall proportional mortality rate. Duke's expert testified that some fish species "... were collected in orders of magnitude of more abundance than others." (6/6/02 RT 93:18-19.) Duke argues logically that the contribution of very low abundance larvae should be given less weight than that of the high abundance species in assessing PM. In the opinion of Applicant's witness, weighting the averages based on the abundance of data is in accordance with commonly accepted statistical principles. (6/6/02 RT 94.) Staff's witness accepted this approach for determining larval fish loss, but points out that the fish larvae are merely proxies for many other organisms that were not included in the calculation for overall PM but are likely to experience impacts. (Ex. 197, p. 2-11.) Staff believes weighted averages essentially ignore the impacts on all the unaccounted for, yet impacted, species.

While we recognize the logic of Applicant's position concerning the appropriateness of weighting averages based on the most abundant data, we are concerned with the necessary limits on the constructs applied in the section 316(b) analysis. Some calculations simply do not accurately reflect the percentage impacts upon certain species, such as Combtooth Blennies, which show larval losses of 72 percent. (Ex. 272, p. 5.) We find that the limitations of the available data coupled with the importance of the Morro Bay Estuary and its status as an impacted water body compel us to apply Staff's very conservative approach of using simple averages.

The second disputed calculation for PM is whether it is appropriate to separate proportional mortality calculations for ocean and estuarine species. Duke argues a broader environmental view, evaluating both the estuary and ocean together. This is because larvae exported from the estuary by tidal forces serve an important function in the ecosystem outside the estuary. The value of this estuary-ocean exchange has been acknowledged by the Regional Board staff. (Ex. 267, pp. 5-6.) Duke criticizes the Staff approach which says on the one hand that Morro Bay has value to the ocean ecosystem, while simultaneously treating it like a lake for purposes of the PM calculations. Staff counters that to determine Project impacts on the estuary, it is necessary to separate the calculation for estuarine and ocean species, since by far the greatest impacts are to estuary species. Furthermore, Staff argues that the vast difference in the amount of source water for the ocean versus the confines of Morro Bay causes the lower impact figure for ocean species to artificially depress the PM calculation for estuary species.

This part of the debate appears to us to be one of focus; that is, whether to examine the big picture or one more attuned to local impacts of the Project on the estuary and potential mitigation for those impacts. Duke's approach reflects the reality of the exchange between the bay and ocean. However, as will be discussed later in this Decision in the section on the Habitat Enhancement Plan (HEP), all of the steps necessary to support a HEP which is adequate for a BTA determination, must take place inside the estuary. In a sense, when the Commission and the Regional Board consider what constitutes an adequate Habitat Enhancement Program for compliance with BTA, there is no proposal which addresses impacts to ocean species. Rather, all HEP projects would be completed within and for the benefit of the estuary. While these projects may also improve the estuarine environment for some ocean species which use the estuary temporarily, the benefit or enhancement must take place within the estuary. The importance of protecting the impaired and valuable estuary causes

us to support the Commission and Regional Board staff's approach and base PM calculations upon estuarine species alone.

The final dispute concerning PM calculations is whether to use the maximum rather than the mean exposure times. Consultants for Duke sampled species coming into the existing plant and identified the size and age of the species.[19] This resulted in an identified group of individuals that were actually taken into the plant, and another potential group that could be entrained because they are small enough, although they were not drawn into the plant.[20] (*Id*.) The evidence shows that using a mean of exposure times, as Applicant recommends, results in an age for larvae of 4.25 days, which captures 77.6 percent of all entrained larvae. Commission and Regional Board staff urge the use of the maximum age of 20.7 days. While this latter figure captures data for all exposed larvae, only about one-tenth of one percent of the larvae entrained were 20 days old. (6/6/02 RT 106.) The witness for the Regional Board acknowledged that this is the source of the greatest discrepancy between the analyses of Duke and those of the Commission and Regional Board staffs, and represented, "a valid difference of opinion." (*Id*. RT 12, 31:10.) It also results in vastly different estimates for the loss rate of individuals. (*Id*. RT 23.)

Several factors cause us to find that the mean exposure time more accurately represents the actual entrainment risk to larvae. Staff urges that evidence of 20-day old larvae is proof that larvae are at risk for that full 20-day period. However, this age is represented by only 0.1 percent of larvae. We are also concerned that the Staff recalculation method emphasizes a maximum rather than a reasonably accurate figure. This calculation is made all the more suspect because of the extraordinarily small size of the sample on which the calculation

[19] Witness for the Regional Board and the Commission staff, Dr. Peter Raimondi said about this data collection, "That was an immense amount of work, and I think that they did that very well." (6/6/02 RT 21:14-15.)

must rely. Finally, we are convinced that the tidal flow is sufficiently rapid in the area of the cooling water intake to overcome much of the effect of the reduced-velocity intake flow for the Project. Thus, because the risk of entrainment involves both the age/size of the organism and the possibility of contact with the intake structure, we believe the latter risk is considerably reduced by tidal currents. In addition, the evidence shows that the concentration of larvae in the water at the intake is less than at other points surveyed deeper in the estuary. (Ex. 197, Table 4, p. 2-14.)

We have found that the undisputed elements of the proportional mortality calculation are each conservative steps. In addition, our determinations to use simple rather than weighted averages, and to include only estuarine species in the calculation, while supported by substantial evidence, are clearly a nod towards a conservative analysis which is more protective of the estuary. However, we find that the use of maximum exposure time, as recommended by Energy Commission and Regional Board staff, is not justified and overstates the actual PM impacts of the Project. Therefore, based on the weight of evidence, we find that the Project will have a proportional mortality due to entrainment of 16.2 percent of larvae. Under the Clean Water Act such an effect requires the use of Best Technology Available. Our discussion of measures to meet that requirement is found in the Habitat Enhancement Program section of this Decision.

As noted above in our discussion of Project impacts pursuant to CEQA, we have found that, when properly compared to the baseline of the existing plant, the Project will have no significant adverse environmental impact on aquatic biological resources. As a result, no mitigation is required to reduce a significant impact. Nevertheless, in the following section we address the feasibility of alternative cooling proposals which were explored as potential mitigation

[20] The elaborate calculations for determining the number of larvae at risk but not actually entrained were explained by Dr. Raimondi at the evidentiary hearing. (6/6/02 RT 23-31.)

measures pursuant to CEQA and as possibilities to meet BTA requirements of the Clean Water Act.

In addition, we have included a condition similar to one adopted in the Moss Landing Power Project decision.[21] The condition, BIO-2, requires Applicant to identify space on site for the use of a marine mammal urgent care facility.

We invite the parties to offer revisions to the Conditions of Certification which follow. All recommendations for revisions shall be based on this Decision and upon the evidentiary record.

FINDINGS OF FACT

1. The existing Morro Bay plant has operated at the same location for fifty years using once-through cooling with intake volumes significantly greater than those proposed for the modernized Project.

2. In 1987 Congress created the National Estuary Program (NEP), funded in part by the Environmental Protection Agency (EPA). In 1995 Morro Bay was designated as one of the 28 estuaries in the United States to be classified as a National Estuary. The goal of the NEP is to identify, restore, and protect nationally significant estuaries of the United States.
3. Section 303(d) of the Clean Water Act allows for the designation of impaired water bodies and results in Total Maximum Daily Load requirements for the estuary and watershed. Morro Bay has been placed on the impaired water body list due to declining quality and health of the system and is afforded extra protection due to this designation.
4. Although USEPA administers the National Estuary Program, program decisions and activities are carried out by committees of local government officials, private citizens, and representatives from other federal agencies, academic institutions, industry, and estuary user-groups. These stakeholders work together to identify problems in the estuary, develop specific actions to address those problems, and create and implement a formal management plan to restore and protect the estuary. A Comprehensive Conservation and Management Plan (MBCCMP) has been prepared for Morro Bay. The MBCCMP identifies the priority problems facing the estuary as sedimentation, bacterial concentrations, nutrient concentrations, fresh water flow reductions,

[21] Commission Discussion on Moss Landing Power Project, Docket no. 99-AFC-4, Nov. 2000, pub no. P800-00-008. Condition B10-8, p. 199.

heavy metals and toxics, habitat loss (through sedimentation primarily), and steelhead loss. It does not identify the existing power plant as a problem.

5. Once-through cooling has the potential to impact aquatic biological resources through thermal impacts, impingement and entrainment.
6. The record shows that the modernized plant will not have a significant thermal impact on these resources either in the absolute sense pursuant to the Clean Water Act or relative to the existing plant, pursuant to CEQA.
7. Current cooling water intake velocities of the existing plant are .5 ft/sec. As a result of modernization, these velocities will be reduced to .3 ft./sec, a 40% reduction. The evidence supports the conclusion that impingement impacts of the Project are not significant either in the absolute sense or relative to the existing plant.
8. Entrainment primarily increases or decreases as a function of the amount of cooling water withdrawn. Therefore, the amount of cooling water usage is an appropriate measure, and based on this record, the best evidence of the impacts of entrainment effects.
9. Not all species in Morro Bay are affected by entrainment. However, both the existing plant and the Project will expose some fish and crab larvae to a risk of entrainment until they achieve a certain size. The record lacks scientific basis for determining the impact of larval entrainment on adult populations of the susceptible species.
10. The intake structure of the power plant is located near the entrance to the estuary where tidal action is substantial. It is undisputed that larvae exposed to the intake structure are also exposed to tidal forces that would likely carry many of these larvae out of the estuary absent entrainment.
11. Entrained larvae are subject to mortality within the cooling intake structure due to temperature, pressure and consumption as food by predatory organisms living within the cooling water system.
12. No legally protected species were identified among samples of entrained larvae.
13. For the purpose of comparing the impacts to larvae of the existing plant against those of the proposed Project, it is reasonable to make separate comparisons of each plant's respective peak cooling water usage and of each plant's respective long-term cooling water usage.
14. As regards peak usage, Duke proposes to replace the existing 668 mgd capacity pumps with pumps having a maximum capacity of 475 mgd. This represents a 29% reduction in maximum cooling water capacity. In addition, the new pumps will have variable speed capability that will further reduce cooling water usage for given plant output. Therefore, the Project will substantially reduce peak cooling water use, and thus likely reduce peak entrainment impacts, compared to the existing environment.

15. As regards long-term usage, the Committee has determined that the appropriate baseline under CEQA for measuring impacts relative to the existing plant is the existing plant's average annual cooling water use during the years 1996 through 2000. The annual average during those years was 387.2 mgd. The Committee evaluated other reasonable baselines and made its selection in part to enhance a conservatively protective analysis of Project impacts on the Morro Bay National Estuary.

16. Applicant has proposed an annual daily average of 370 mgd that we adopt as a Condition of Certification. Applicant will, therefore, be required to achieve at least a 4% reduction in long-term cooling water withdrawals relative to the Committee's adopted CEQA baseline. Therefore, the Project is likely to reduce long-term cooling water withdrawals and associated entrainment impacts relative to the existing environment.

17. To determine compliance with section 316(b) of the federal Clean Water Act, it is relevant to determine whether the entrainment impacts of the proposed plant will be significant relative to no cooling water use at all.

18. For this purpose, the record contains estimates of proportional mortality (PM), a measure of the risk of entrainment for those species susceptible to entrainment.

19. As regards PM assumptions, it is appropriately conservative to assume that all entrained larvae do not survive, notwithstanding substantial evidence of survival. This assumption is appropriate to provide a safety margin and to err on the side of environmental protection.

20. It is also appropriately conservative to assume that the plant will operate at 100% of its maximum daily annual average capacity (370 mgd) notwithstanding evidence that the plant will operate less. We do this to provide a safety margin and to err on the side of environmental protection.

21. It is also appropriately conservative to assume there is no compensatory response by species that are subject to entrainment. This conservative assumption is appropriate to provide a safety margin and to err on the side of environmental protection.

22. It is appropriate to use simple averages rather than weighted averages in calculating PM because simple averages capture more effectively the impact of entrainment on the widest range of species, even where some species have been sampled in low abundance. Using simple averages will also tend to produce a more conservative estimate of PM than will a weighted average and is reasonable and appropriate in light of the need to provide a safety margin and to err on the side of environmental protection.

23. It is appropriate to calculate PM by separating ocean and estuarine species because the greatest entrainment impacts occur to species that spawn in the estuary, rather than the ocean. Separating ocean and estuarine species is reasonable and appropriate in light of the need to apply the most conservative

assumptions which can result in analyses that provide a safety margin and err on the side of environmental protection for the impaired estuary.

24. It is appropriate to calculate PM using the mean time of exposure to entrainment (4.25 days) rather than the maximum (20 days) because the data show that only one-tenth of one percent of entrained larvae were 20 days old. It is not reasonable nor appropriate to assume that all susceptible larvae are exposed to entrainment based on a characteristic which actually represents only a miniscule fraction of larvae.

25. The mean exposure time of 4.25 days corresponds to evidence in our record showing that larvae are typically flushed from the estuary by tidal forces within 5 days.

26. The power plant uses less than 10 percent of the water in the estuary for cooling and takes this water from a location where larval densities are generally comparable or lower than at other measured locations within the estuary.

27. Based on the foregoing findings regarding assumptions, as well as the evidence of larval densities and cooling water withdrawals, we find that an estimated PM of 16.2% for the modernized plant's entrainment effects is both environmentally protective and plausible given the continued abundance of larvae in Morro Bay notwithstanding 50 years of plant operations.

28. This amount of entrainment is potentially an adverse and important impact relative to no cooling water use and requires, pursuant to the Clean Water Act, the use of the best technology available to reduce, eliminate or compensate for the entrainment.

CONCLUSIONS OF LAW

1. Modernization of the Morro Bay Power Plant with reduced use of once-through cooling and the Conditions of Certification proposed herein will not cause any significant, direct, indirect or cumulative adverse impacts within the meaning of CEQA.

2. There is no need to consider alternatives to once-through ocean cooling pursuant to CEQA because such cooling will not have a significant, adverse environmental impact pursuant to CEQA.

3. Entrainment of certain larvae in and of itself is a potential adverse impact requiring the use of the "best technology available" as defined by Clean Water Act section 316(b).

4. Modernization of the Morro Bay Power Plant with reduced use of once-through cooling and the Conditions of Certification proposed herein will comply with all applicable laws, ordinances, regulations and standards

including, but not limited to, sections 316(a) and 316(b) of the Federal Clean Water Act.

CONDITIONS OF CERTIFICATION

BIO-1 Following the certification of the Morro Bay Power Plant project, the project owner will provide payment for a habitat enhancement program to a dedicated account (established with the Central Coast Regional Water Quality Control Board or a suitable Foundation. According to the terms set forth by the CCRWQCB, the amount and timing of such payment shall be identified in the NPDES permit for the Morro Bay Power Plant Project.

Verification: [Parties to propose language]

BIO-2 The project owner will:

- Identify space or a portion of the plant site for the Marine Mammal Center (MMC) to operate a "triage unit" for the care of marine mammals in need of medical assistance;

- Identify the potential to 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 Morro Bay Power Plant Project.

Verification: The project owner shall provide confirmation of the Marine Mammal Center's relation to the MBPP in an annual report to the CPM.

BIO-3 Cooling water flow shall not exceed 475 mgd at any time, and shall not exceed 370 mgd on an annual daily-average basis (the average of the daily average flows for a year).

Verification: [Parties to propose language]

BIO-4 The project owner shall minimize cooling water flows to the greatest extent possible by managing cooling water flows and effluent temperature relative to power output. Whenever possible, the project owner shall maintain effluent temperatures near the NPDES permit limit, without exceeding the temperature limit, and shut down cooling water pumps to minimize cooling water flow. That is, only the amount of cooling water necessary to maintain a given power output at or near the effluent temperature limit shall be used.

Verification: The project owner shall send to the CPM copies of the project's quarterly reports to the RWQCB including average-hourly power generation, average-hourly flow volume, and average-hourly effluent temperature data to verify that cooling water flow volumes were kept at minimum levels. The

C. ALTERNATIVE COOLING OPTIONS

Early in the AFC process, Staff became concerned regarding potential impacts of the Project's once-through cooling system on aquatic biology. Therefore, Staff began to examine options to reduce the Project's impacts caused by the use of estuarine waters for cooling. At the request of the Executive Director of the Regional Board, Staff undertook a large-scale analysis of dry and hybrid cooling options. This began with the basic information contained in the 316(b) study (Ex. 66.) and involved exchanging information with Duke, which increased in detail as the analysis evolved.[1] The analytical process has been deliberative and comprehensive, involving the Staff of the CEC, an independent consultant from the Regional Board, an engineer from CAPE, and a representative from GEA Power Systems, a principal vendor and builder of dry cooling and hybrid cooling systems. Thus, by the time of our evidentiary hearing on cooling options, the parties had been looking at the possible options for up to two years, in increasing levels of design detail.

First of all, the controversy concerning dry cooling is not in regard to the technology itself. It is undisputed that dry cooling is feasible and has been used in many applications around the world. In fact, one of Duke's witnesses testified that in the appropriate location it not only works, but that Duke has experience with the technology and is currently building a project using dry cooling, in Moapa, Nevada. (6/5/02 RT 31.) Furthermore, it is undisputed that the use of closed-system cooling would greatly reduce, if not eliminate impacts to aquatic biological resources from impingement, entrainment, and thermal discharge. What is at issue is whether the various cooling options, and in particular that of dry cooling, are feasible at this particular power plant site.

[1] A summary of the extensive record analyzing various cooling options is found in Exhibit 228, pp. 65-68. This summary does not, however, include the 14 exhibits offered at the evidentiary hearings of June 5 and 6, 2002.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Staff analyzed three different cooling options: 1) wet cooling towers, 2) hybrid-cooling systems and, 3) dry cooling. Wet cooling was rejected early on due to the limited amount of freshwater and treated water from the Morro Bay water treatment plant. Ocean water for use in cooling towers was rejected largely due to the concern from salt air emissions in cooling tower drift. (Ex. 197, App. A, p. 23.) Duke points out that the Morro Bay area contains insufficient emission offset credits to compensate for the estimated 500 pounds per day of saltwater drip particulate that would come from salt water cooling towers. (6/5/02 RT 16.)

Staff analyzed a parallel condensing hybrid cooling tower system using treated reclaimed water that would use both dry and wet cooling tower technologies. (Ex. 197, App. A, p. 23, 31-37.) Applicant's analysis of this proposal demonstrated a lack of sufficient fresh water or wastewater available, as well as serious noise and visual impacts. (6/5/02 RT 26-28.) Staff acknowledged that the hybrid option could not meet local noise standards and was therefore not feasible. (*Id*. RT 164.) Thus, the analysis focused on dry cooling proposals.

Potentially, there are two legal bases for examining dry cooling alternatives. The first is as a means to avoid a potential significant environmental impact within the meaning of CEQA and the second is for such a system to serve as "best technology available", or BTA, under section 316(b) of the Clean Water Act.

1. CEQA

In the previous section of this Decision which addresses aquatic biological resources, we found that the proposed Project with its once-through cooling system operating at lower levels than that of the existing plant, will have no significant impact on aquatic resources, pursuant to CEQA. There is no legal basis for mitigation of insignificant impacts under that act. Thus, none can be required. However, in a situation where such mitigation or alternative is

appropriate as mitigation for a significant impact, the CEQA guidelines require that the alternative must feasibly attain most of the basic objectives of the project while avoiding or substantially lessening any of the significant effects. [CEQA Guidelines § 15126.6(a)] As we discuss further *infra,* the Staff dry cooling proposal eliminates the less-than-significant impacts of once-through cooling while imposing new and significant noise, land use, and particularly visual impacts on the Morro Bay community.

The proposal also fails to meet several legitimate objectives of the Project. The first of these is the objective of reducing the visual impacts to the community of the existing power plant. Duke presented a Project to the Commission in its first AFC filing on August 31, 1999. That application was withdrawn and the Project totally redesigned in consultation with the City, largely to achieve the objective of demolishing the entire existing power plant and replacing it with a much smaller facility further removed from the Embarcadero. (Ex. 4, p. 1-17.) Thus, achieving a dramatically reduced visual impact is an important objective of the Project, and is arguably the most important objective to the local community. CAPE argues that no substantial evidence exists for the central nature of this objective (CAPE Reply Brief, p. 16.) However, we note that Applicant's withdrawal of its AFC and refiling it a year later for the purpose of meeting local community objectives is unprecedented. We can reasonably assume that the refiling, largely in response to concerns about visual impacts of the existing plant, is a major, if not a fundamental project objective.

Duke's proposed Project also includes the addition of approximately 200 megawatts of duct-fired peaking capacity. Applicant has optimized this feature and states that achieving peaking capacity is a fundamental objective of Duke's proposed Project. (Ex. 228, p. 6.) However, Staff conducted its analysis regarding the feasibility of dry cooling and hybrid cooling based on designs not optimized for the Applicant's proposed use of duct firing. (Ex. 197, App. A, p. 131.) As shown in Duke's testimony, the difference between Staff's and Duke's proposed performance criteria is dramatic, even when applied to baseload

operation and ignoring the use of duct firing. Staff's smaller condensers used in the Staff analysis would cause a loss in output for both baseload and duct-fired operation. (Ex. 228, Figure 1, p. 7; 6/5/02 RT 60.)

Staff argues that the assumptions for its dry cooling design merely relied on design parameters provided by Duke, while Applicant argues that Staff erred in its assumptions. We do not address this dispute, but rather focus on the fact that Staff's proposed design with duct firing would cut the peaking capacity of the plant in half (from 200 megawatts to 100 megawatts) at the 64 degree temperature of a typical summer afternoon in Morro Bay. (Ex. 198, p. 12; Ex. 228, Figure 1, p. 7; 6/5/02 RT pp. 169-170.) Staff's alternate proposed design without duct firing would eliminate all of the peaking capacity of the proposed Project. (*Id*.) Furthermore, this loss in peaking capacity would occur on summer afternoons, when it is most needed and valuable. Staff has attempted to restate the objectives of the Project to eliminate or severely reduce duct-firing capacity. (Ex. 197, App. A, p. 2-3.) We reject this approach and find that the Staff alternative has failed to meet a legitimate and significant Project objective.

2. Clean Water Act

While CEQA requires a determination of a Project's significant environmental impacts compared to the existing environment, requirements under the Clean Water Act are less relativistic and more absolute. The NPDES permit for the Project must contain a finding that the cooling water intake structure (CWIS) constitutes "best technology available" (BTA) for minimizing adverse environmental impact. The BTA finding must be supported by substantial evidence in the record, such as the results of impingement and entrainment studies of the plant's discharge or other relevant information relating to aquatic biological resources potentially affected by the plant's intake. The BTA must also be available commercially at an economically practicable cost. Relevant factors include capital costs, operation and maintenance costs, energy costs, costs of

delay, debt service, costs of reengineering studies, costs to rate payers, etc. Consideration of economic practicability is done on a case-by-case basis. Technologies whose costs are determined to be "wholly disproportionate" to the environmental benefit to be gained are not considered feasible, and thus not BTA. (65 Fed. Reg. 49060, 49094, Aug. 10, 2000.)

In addition to cost, section 316(b) requires analysis of the non-water quality-related impacts, including energy costs, associated with alternative cooling technologies as well as environmental considerations such as noise, visual, land use, and cultural resources. Section 316(b) has also been interpreted by EPA to allow restoration or habitat enhancement programs (HEP) to be implemented as BTA in lieu of alternative cooling technologies.[2] Applicant's HEP proposal is addressed in the next section of this Decision.

Applicant testified that dry cooling at Staff's Alternative Site No. 1 would require an additional capital cost of $196 million. (Ex. 228, p. 46.) At Alternative Site No. 2, it would require an additional capital cost of $106 million. (*Id*.) Applicant's testimony adds that dry cooling also degrades the efficiency of the power plant and thus requires additional fuel to achieve the same nominal output. Duke notes that additional operations and maintenance costs will be incurred as well. The testimony concludes that when these additional costs are added to the increased capital cost, the overall lifetime cost on a present-value basis of dry cooling at Alternative Site No. 1 is $253 million. At Alternative Site No. 2, the overall present-value cost is $163 million. (Ex. 228, p. 47.)

Duke points out that at least $110 million of the total capital cost estimates for Alternative Site No. 1 would result directly from the physical constraints at the site, which add substantial costs during construction. The largest of these costs involves the 14 to 18-month additional schedule delay required because the dry

[2] *See* 66 Fed. Reg. 65256 (December 18, 2001), at pps. 65280-65281and 65314--65315; *See also* 67 Fed. Reg. 17122 (April 9, 2002), at pps. 17146-17148 and 17168-17173.

cooling facilities must be built after the new power block construction is essentially completed. These additional expenses arise from added interest costs resulting from the extended construction schedule. (6/5/02 RT 31; Ex. 232, p. 8.)

The witness for the Staff opined that Duke's cost estimates are overstated. (6/5/02 RT 159.) However, Applicant countered that in fact, its estimates are conservative and likely understate the true costs. As an example, Duke notes that it has not assumed any costs related to avoiding the existing underground cooling water discharge tunnels because it has not yet determined what steps would be required to deal with the tunnels. In addition, the representative from GEA Cooling Systems testified that, based on current industry standards, both Staff's and Duke's designs are undersized by 30%. (6/5/02 RT 120.) Presumably, proper sizing would add additional costs.

Duke's position is that the costs of dry cooling are so high that even without a detailed economic analysis, Applicant knows it would not build the proposed power plant project if dry cooling was required. (Ex. 228, p. 60; Ex. 267, p. 2; 6/5/02 RT 138-139.) Applicant's testimony states that for the purposes of any "best technology available" analysis pursuant to Section 316(b) of the Clean Water Act, these costs are wholly disproportionate to the benefits of the cooling alternatives. Furthermore, Duke argues that the costs of dry cooling are also wholly disproportionate to a habitat enhancement approach that would provide a greater ecological productivity benefit to the estuary over the long term. (Ex. 267, p. 16-19.) Of particular note in this regard is the fact that the Regional Board staff has relied upon the FSA determination that dry cooling is feasible at the Project site. Yet even relying on this assumption, which we find is not supported, the Regional Board staff recommends that, "the watershed and Estuary would realize a greater long-term benefit through habitat enhancement." (Ex. 267, p. 2.)

Pursuant to the Clean Water Act, the Regional Board is the proper body to determine whether the costs associated with dry cooling alternatives are "wholly disproportional" to their potential benefits. However, for our part, we find that the weight of evidence supports Applicant's cost estimates and that these costs represent close to 25 percent of the entire estimated cost of the $800 million proposed Project.

3. Constructability Issues

Cost, however, is not the only recommendation against the use of dry cooling at this particular site. Applicant's witnesses also testified about numerous issues concerning the constructability of any of the dry cooling proposals. While Duke owns property in Morro Bay amounting to 107 acres, only a 20 acre site is available to construct the proposed Project. Any dry cooling facility would have to fit into to this area, along with the proposed power plant and related facilities. The site boundaries are made up of the existing PG&E transmission switchyard, the Morro Creek riparian corridor, Willow Camp Creek, a requisite transmission corridor, and surrounding roads. (6/5/02 RT 14-15; Ex. 228, p. 79, sheets 1-6.)

The space limitations of the site mean that dry cooling Alternative 1, suggested by Staff, would require the demolition and relocation of existing equipment and buildings.[3] However, Staff's analysis did not address the cost or feasibility of relocating these facilities or of additional facilities related to any dry or hybrid cooling system. (Ex. 168, pp. 137-138.) Furthermore, it is necessary to maintain operation of the existing facility during construction of the new units and many of these ancillary facilities are essential to operation and maintenance of the old plant. This is an added cost not considered by Staff. (6/5/02 RT 179.)

[3] Dry Cooling Alternative 1 would require the demolition of the following existing facilties: Peregrine Building, fire house #2 building, fire water tank, pump station, berm, and oily water separator. (Ex.168, Fig. 7, p. 39.)

The Staff cooling alternatives also eliminate all construction staging and lay-down areas adjacent to the site. This would make construction activities more difficult. (Ex. 228, p. 32.) In addition, the alternative cooling structures could not be built until after the majority of the power block is completed and all large cranes are removed from the area, creating the primary reason for the 14 to 18 month estimated delay in Project construction due to the addition of dry cooling. Duke witnesses also noted that the closed-cycle cooling structures could not be built directly over the existing underground seawater discharge tunnels without impacting costs and the schedule. This could result in the premature shutdown of existing Units 1 through 4. (Ex. 228, p. 33.)

These and other problems cited by Duke in its testimony would force a significant extension to the construction schedule amounting to 14 to 18 months.[4] In addition, once the plant is constructed, the location of the closed-cycle condensers would greatly complicate maintenance of the power plant. (Ex. 228, p. 34.) While Staff suggested gantry cranes could eliminate some of site constrain problems concerning maintenance; such cranes would increase the height of plant structures by 25-35 feet. Increases in the height of plant buildings would not only create additional visual impacts, but can effect air quality requirements as well. The Staff analysis did not address this fact. (6/5/02 RT 57.)

The size of the dry cooling facilities at the limited site could also require that transmission lines, which access the switchyard, be placed underground. If required, it would significantly increase costs and further delay the schedule. (Ex. 228. p.33.)

[4] Reducing the length of the Project's construction period was of "great importance" to City of Morro Bay representatives. (6/5/02 RT 133:12-17.)

Staff's alternative 2 would require extending steam duct lines, thus effecting plant performance. (Ex. 228, p. 35.) The construction schedule for Alternaitve 2 would extend the project construction schedule by four to six months.

It is also clear from the record that, at least in terms of analyzing the environmental impacts of dry cooling, the Staff did not consider maintenance and access requirements for the project. (6/5/02 RT 174.) Applicant's witnesses testified that Staff's alternative could not be properly maintained at the site due to space limitations which would prohibit required access for large cranes used in periodic maintenance. (Ex. 228, p. 34.)

The witness from GEA Systems, who testified on Duke's behalf, stated that the site was not large enough to accommodate any of the dry cooling alternatives presented. (6/5/02 RT 65-68.) He also pointed out that building air-cooled condensers next to the operating PG&E high voltage switchyard would present an "undue risk" to his company. (*Id*. RT 119.) The witness stated that in his professional opinion, dry cooling is not feasible at the Morro Bay site. (*Id*. RT 65-68.) Later, during cross-examination he elaborated:

> "In my opinion, this site does not have the available space to support a dry cooling system for the size combined-cycle power plant." (*Id*. RT 117:20-24.)

We are particularly persuaded by this testimony because the same witness testified that, based on current industry standards, even the larger dry cooling facility analyzed by Duke is undersized by 30 percent. (*Id*. 120:13-17.)

In addition, the cooling options present problems due to a lack of site control. Properly sized dry or hybrid cooling equipment will encroach upon the PG&E switchyard property, which Duke does not own. (Ex. 228, p. 10.) Even the smaller dry cooling design proposed by Staff may not fit on the site when the two units that house the cooling fans are sufficiently separated to accommodate pipe racks and other equipment. (*Id*.)

Furthermore, the Morro Bay City Council and Planning Commission have concluded that these dry cooling options "would adversely affect the City's beauty and uniqueness, would cause or exacerbate adverse effects on visual, noise, air quality, health, socioeconomics, hazardous materials, traffic and transportation, and other local natural resources, compared to the proposed Project." (6/5/02 RT 282: 18-24.) Based on these concerns, the City testimony states that the City will not permit Duke to have the site control necessary for construction of a dry or hybrid-cooled plant. (Ex. 239, p. 14.)

Applicant has set forth a detailed and persuasive set of problems which make construction of adequate dry cooling at the Project site extremely expensive, time consuming, unsafe, and fundamentally infeasible. The response of witnesses for both the Staff and for CAPE was to generally challenge the conclusions of Duke's witnesses and argue that Applicant should focus its expertise more on optimizing its design for dry cooling than on trying to prove it infeasible. (6/5/02 RT 258.) However, Staff failed to provide any analysis regarding some of the specific constructability problems identified by Applicant. For example, with respect to relocation of existing ancillary facilities, Staff acknowledged that it had done no engineering study to determine whether these facilities could feasibly be relocated while maintaining the continued operation of the existing power plant. (6/5/02 RT 17.) Similarly, while Staff's rebuttal testimony suggests that crane access could be provided by temporarily displacing existing berms, on cross-examination Staff acknowledged that it had not made any attempt to review property ownership in the area to determine whether any permission from the City would be required. (*Id*. 181-182.) In fact, the Staff witness acknowledged that many of its recommendations had not been analyzed for feasibility but rather that the Staff was "tossing out possibilities". (*Id*. 183:2-6.) Staff acknowledges that its dry cooling analysis is a conceptual one. Yet dry cooling, as a technical concept is not at issue here. Rather we are concerned with the feasibility of dry cooling for a particular project at a particular site.

We find this approach by witnesses for both Staff and CAPE to be unconvincing and lacking in specificity. Applicant has met its burden of proof in establishing that in order to construct an adequate dry cooling facility at the MBPP site, constructablity issues alone indicate that the dry cooling alternatives are not feasible.

4. Environmental Issues

The alternative cooling proposals also present significant environmental challenges, some of which render the alternatives infeasible. The primary problems arise regarding visual, noise, and land use impacts.

Visual: A dry cooling design which meets Duke's peaking requirements would require a structure 110 feet or more high and be larger than two football fields. The Staff's smaller proposal for a noise-mitigated dry cooling design is 426 feet long, 200 feet wide and 115 feet tall. These structures would both be about 11 stories high. In either case they would impose a significant visual impact on the City of Morro Bay and views of the coast and Morro Rock from Highway 101. Both Staff and Applicant agree that the proposed Project with once-through cooling will have far less visual impact than any of the dry cooling alternatives. (Ex. 197, App. A p. 107; Ex. 228, p. 11.) Whether properly sized to meet Project objectives or sized for the noise-mitigated design used in the FSA Appendix A, the addition of the dry cooling or hybrid structures will have significant visual impacts on the coast that cannot be adequately mitigated. The mass of the dry cooling units is too great to realistically expect that Staff's proposals for landscape mitigation would reduce the visual impacts of dry cooling to a level of insignificance. [5]

Furthermore, there are additional negative visual impacts from the pipe racks for Dry Cooling Alternative 2. These pipe racks, carrying 19-foot diameter pipelines,

would rise 80 feet above sea level and/or 60 feet above the environmentally sensitive habitat area for a distance of approximately 300 to 400 feet. (Ex. 228, p. 12.)

Staff and CAPE argue that the dry cooling proposals are a visual improvement over the existing plant. However, we have determined that pursuant to CEQA, the once-through cooling would not have a significant impact. Thus, dry cooling is not required for CEQA mitigation and a comparison of the visual impacts of dry cooling structures to the existing plant is not relevant. Pursuant to the Clean Water Act, an analysis of dry cooling as BTA must weight the significant visual impacts of dry cooling against the lack of visual impacts of the proposed Project with once-through cooling system and a HEP. While the proposed Project will impose a large industrial element on the Morro Bay viewscape, it is a significant improvement over the existing power plant with its 450-foot stacks. However, to add dry cooling structures to the proposed Project would greatly enlarge the industrial imprint and significantly degrade the viewshed beyond any impacts of the proposed Project. It would be as if, in addition to the proposed power plant, several "big box" warehouse stores were constructed at the site, blocking or dominating the view of the coast from many vantage points. (Ex. 228, pp. 94-95; 6/5/02 RT 275-276, 295.) The visual impact of dry cooling would be sufficiently great to undercut the goal of the local community in the negotiated redesign of this proposed Project. That goal is to reduce the existing power plant's negative visual impacts.

Noise: The City of Morro Bay's noise ordinance requires, among other things, that noise from the facility not exceed 45 dBA at the nearest residential receptor at night. (Ex. 197, App. A, Table 12, p. 82.) Staff's analysis estimated that, for its smaller cooling design, the estimated (but not guaranteed) noise level data for a maximum noise mitigated configuration would produce the cumulative noise level for dry cooling Alternatives 1 and 2 of 45 dBA. (*Id*. RT 80-84.) For the hybrid

[5] Proposed Conditions of Certification VIS-1, VIS-2, and VIS-3.

cooling options, Staff concluded that noise levels would probably exceed legal limits at the nearest residences. (Ex. 197, p.87; 6/5/02 RT 164.) Because this likely LORS violation was not disputed, we have found the hybrid cooling proposals to be infeasible.

Duke argues that noise levels for the Staff design are exactly at the 45-dB limit with no margin for error. (6/5/02 RT 184.) In fact, Staff acknowledged that even a tenth of a dBA increase in actual noise above its estimates would cause the Project to be out of compliance with the City's noise ordinance. (6/5/02 RT 198.) Applicant points out that both Staff's and Duke's analyses were based upon noise estimates provided by the vendor, GEA Power Systems, and are not commercially guaranteed. (6/5/02 RT 185.) Thus, given the extremely small margin for error, it is unlikely that Duke could obtain a commercial guarantee assuring compliance. If the Project with alternative cooling was built and then failed to meet the noise ordinance, there would be no reasonable method of significantly reducing the noise that would not also reduce the cooling system performance. (*Id*. RT 68-69.) Duke thus argues that Staff's determination that Staff's smaller design for alternative cooling is "feasible" with respect to noise, is theoretical and that Applicant cannot feasibly risk an $800 million facility on achieving non-guaranteed estimates to within a tenth of a decibel.

CAPE's witness testified that if the dry cooling alternatives were optimized it would be possible to achieve a 10 dB noise reduction without adding cooling cells to the structure. (*Id*. RT 243.) However, the evidence from GEA Systems shows that legal noise limits could not be guaranteed. As a result, the record shows that the ability of a dry cooling system at the site to meets LORS has not been adequately demonstrated and remains in doubt, even for the smaller design advanced by Staff.

Land Use: Applicant's position is that Staff's dry or hybrid cooling designs are also infeasible because they 1) violate the primary zoning for the site, and 2) do

not comply with various city ordinances and standards. (Ex. 228, pp. 13-19.) The City of Morro Bay also offered testimony showing that the dry cooling and hybrid cooling alternatives are inconsistent with the City's ordinances and standards. (6/5/02 RT 280-285.) As a result of the City's concerns about the size, height, location restraints, and serious environmental impacts presented by the air cooling alternatives, the City has adopted several resolutions in opposition to the dry and hybrid alternative cooling proposals.[6]

A significant land use inconsistency concerns conflicts with Morro Bay's zoning of the site. Program LU-39.1 in the City of Morro General Plan and Policy 12.06 in the Coastal Land Use Plan (CLUP) require that the plant site be designated for coastal-dependent industrial use. Consistent with these plans, the property is zoned M-2, coastal-dependent industrial. (Ex. 228, p.14.) The CLUP defines the term "coastal-dependent industrial" consistent with Section 30101 of the Coastal Act, as an area for uses that must be "located on or adjacent to the sea in order to function." (*Id.*) The FSA acknowledges that elimination of the seawater cooling system would make the Project inconsistent with the base planning and zoning designations for this property. (Ex. 197, pp. 75-77.) Originally Staff recognized that this would require an override by the Commission of the City's zoning ordinance. However, revisions in the final FSA found that the zoning inconsistency might be avoided by reference to the Marine Resource Protection Policies of the Coastal Act.[7] This position was rejected by both Duke's expert witnesses and, apparently, even by the Staff's own land use expert. (6/5/02 RT 188-191.)

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[6] City Council Resolution No. 57-01 opposed methods that would exacerbate environmental impacts compared to the proposed Project. Planning Commission Resolution No. 01-01 (Ex. 242.) found that dry cooling could cause an unsightly and unnecessary [visual] blight on the community, may cause unnecessary noise, and would use prime land on the Embarcadero. City Council Resolution No. 20-20 found that alternative cooling as set forth in the Staff 's draft report would adversely affect the City's beauty and uniqueness.

[7] The FSA states: "A reasonable reading of the Coastal Act and the MBLCP that harmonizes these different sections suggests that the requirements for coastal-dependent industry should not prevent mitigation of adverse impacts from an expansion of an existing coastal-dependent power plant." Appendix A, p. 77.

The Duke witnesses testified that the FSA analysis improperly confuses the separate roles of the City of Morro Bay and the Coastal Commission in the CEC process. The zoning in question is a local matter within the jurisdiction of the City. The Coastal Act delegates to local agencies the interpretation and enforcement of the local coastal plans once they have been certified by the Coastal Commission. The City is free to adopt more restrictive provisions than the Coastal Act. The City of Morro Bay's LCP was certified by the Coastal Commission. Thus, the Duke witness testified, the City has the primary authority to interpret its zoning ordinance and has determined that the Staff's proposed cooling options would not be consistent with the M2 zone. In the face of this determination by the City, Duke and the City argue that the CEC may not approve Staff's proposed cooling options without an override finding under Public Resources Code section 25525. (Ex. 228, pp. 14-15.)

Staff's own witness, on cross-examination, acknowledged that to be coastal-dependent, a facility would have to be of a technology that must be located on or adjacent to the sea in order to function, and that a dry cooled facility does not meet that requirement. (RT 6/5/02 at p. 188-189.) The Staff witness also agreed that in this siting case, the Energy Commission, and not the Coastal Commission, would be the appropriate body to determine Project compliance with the Morro Bay zoning requirement. The witness acknowledged that this should be done by relying upon the plain meaning of the ordinance while placing great weight on the opinion of the City that would ordinarily enforce the ordinance. (RT 6/5/02 at pp. 189 -190.)

Thus, we have at issue the interpretation of the City's CLUP, approved by the Coastal Commission and fully protective of coastal resources. Commission staff states that it is troubled by any interpretation of the CLUP's definition of "coastal-dependent industrial" that might prohibit the use of a technology that minimizes or avoids adverse marine impacts that the Coastal Act is designed to prevent. (Staff Opening Brief, p. 30.) However, as applied to this Project, the Staff

concern is misplaced. We have determined that, pursuant to CEQA analysis, the Project will not have a significant impact on marine resources. On the other hand, although the cooling alternatives would certainly further reduce or eliminate the remaining aquatic impacts of the proposed Project, all of these alternatives would also impose numerous other significant environmental impacts in the areas of visual, land use, and probably noise. Thus, imposing either of the dry cooling alternatives would cause greater harm to the overall environment in Morro Bay than would the proposed Project. Furthermore, the fact that the cooling alternatives would themselves result in LORS violations would require the Commission to make "override" findings which cannot be made in this case. This problem is addressed later in the discussion.

In addition to zoning, the use of closed cycle cooling for this Project would violate many other local land use policies of the City of Morro Bay. The height and size of the closed cycle cooling structures conflicts with Morro Bay General Plan Policy LU-15 [requiring that the present human scale and leisurely, low density appearance of Morro Bay should be maintained through careful regulation of building height, location and mass]; Policy LU-38 [requiring small, high-quality, nonpolluting industrial development should be encouraged – such development should be an extension of existing development of this nature]; and Policy LU-39 [requiring "power plant expansion shall be limited to small facilities"]. (Ex. 228, p. 15; Exs. 226, 227.) Furthermore, the elevated noise level of the alternative cooling facilities will likely conflict with several objectives of the City's General Plan noise element. (Ex. 228, p. 16.) The visual impact of the closed cycle cooling structures also creates land use inconsistencies. (*Id.* 16-18.) In addition, Staff's Alternative Site Number 2 would be located in an environmentally sensitive habitat area (ESHA) in violation of numerous City land use policies and would create cultural resource impacts that violate other land use policies. (*Id.* p. 18-19.)

Because of the violations of numerous City of Morro Bay local zoning and land use laws described above, the Commission could not certify this Project with

closed cycle cooling unless it could "override" all of the non-conforming ordinances. To carry out such an override pursuant to Public Resources Code section 25525,[8] the Commission would have to find that that "there are not more prudent and feasible means of achieving such public convenience and necessity." Since Duke's once through cooling system for the proposed Project complies with all applicable ordinances and standards, there does exist a more prudent, feasible means of achieving the public convenience and necessity of this Project. As such, the Commission could not lawfully find that the Project, which fully complies with applicable laws, is not more "prudent and feasible" than an alternative cooling design involving numerous environmental impacts and LORS violations.

In sum, the weight of credible evidence clearly establishes that specific problems including site constrains, prohibitive costs, legal issues of non-compliance, and significant visual, land use and likely, noise impacts render the proposed cooling alternatives not feasible for use at the Project site.

Public Comment

During the public comment period, **Dan Chia** of the California Coastal Commission stated that if the City of Morro Bay issues a coastal development permit for the Project, that permit would be subject to the Coastal Commission's appeals jurisdiction. (6/5/02 RT 316.) He also commented that the local coastal program or LCP includes applicable zoning ordinances. Finally he pointed out a letter dated May 29, 2002 sent to Commissioners Keese and Boyd from Peter Douglas, executive Director of the Coastal Commission. The letter was in support of the dry cooling proposal and stated the Coastal Commission's reliance

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[8] Public Resources Code Section 25525 provides that the Commission "shall not certify any facility…when it finds, pursuant to Subdivision b of Section 25523, that the facility does not conform with any applicable state, local, or regional standards, ordinances or laws, unless the Commission determines that such facility is required for the public convenience and necessity

on the CEC staff's FSA and that FSA's determination that dry cooling is feasible. (*Id.* RT 317.)

Comments in support of Staff's dry cooling proposal came from **Laura Hunter** of San Diego, **Leslie Neely-Smith,** and City Council Member **Colby Crotzer** of Morro Bay. **Nelson Sullivan,** and **Mandy Davis** stated their disagreement with City Council opposition to dry cooling. **Pam Soderbeck** expressed the view that the Planning Commission was ill informed when it supported the proposed Project. **Richard Smith** and **Colleen Johnson** each stated their belief that if another local referendum were conducted on the power plant proposal, it would not pass as it did before. **David Nelson** told of personally observing an abundance of fish life at the outfall for the existing plant.

John Hammond, representing the 19,000 members of the Plumbers and Pipefitters Union Local 409, expressed support for the Project without dry cooling and with a habitat enhancement plan. **Bill Olson** delivered a letter expressing the same position and signed by 169 local citizens. **Kim Kimball** expressed a similar view in support of Duke's proposal on behalf of the Morro Bay Chamber of Commerce. City Vice Mayor **William Pierce** referenced two resolutions from the Morro Bay City Council and one from the Planning Commission, all opposed to the dry cooling proposal. Former City of Morro Bay Mayor **Bill Yates** stated his view that industry and the bay are coexisting in the Morro Bay harbor and that the bay teams with life. Current Mayor **Roger Anderson** stated that the estuary is best protected through up-stream mitigation projects identified by the NEP in the MBCCMP. He sees Duke's HEP proposal as a way to fund this protection for the estuary. Both he and **Jim Wood** expressed their opinion that most citizens would prefer keeping the existing power plant rather than submit to a new one that included dry cooling. Mr. Wood also gave his opinion that the CEC staff analysis is biased. City Planning Commissioner **John Barta** opined that the

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and there are not more prudent and feasible means of achieving such public convenience and necessity."

CEC staff had “double-crossed the citizens” of Morro Bay concerning dry cooling. (*Id.* RT 360:15.)

FINDINGS OF FACT

1. Closed-cycle cooling is an alternative to once-through ocean cooling that consists of three basic types: 1) cooling towers; 2) hybrid cooling; and 3) dry cooling.

2. A determination of feasibility of an alternative must be made in the context of the specific project and specific site at issue and not merely on the conceptual feasibility of a technology generally. A conceptually feasible technology may or may not be feasible for a specific project at a specific site.

3. Both cooling towers and hybrid cooling require fresh water that is not reasonably available at this site. These technologies, therefore, are not feasible at this site. In addition, the noise impacts of hybrid cooling at this site are significant and not mitigable.

4. Dry cooling is a technology consisting of large radiator-like structures that dissipate heat from the plant into the atmosphere without the use of ocean water. Dry cooling would have the benefit of eliminating all intake of ocean water and associated entrainment effects and therefore merits the careful consideration the Commission has given it in this record.

5. The record contains substantial evidence of Staff’s extensive conceptual analysis of alternative proposals using hybrid cooling and dry cooling technologies, as well as expert testimony from Applicant and other parties commenting upon and critiquing the Staff conceptual proposals.

6. The Applicant has proposed duct firing to provide 200 megawatts of additional peak capacity from this Project. This provision of additional peaking capacity is reasonable and constitutes an important objective of the Project.

7. Both Staff and CAPE have proposed dry cooling alternatives for this Project that are not sufficiently sized to accommodate the peak capacity objective of the Project. The dry cooling alternative proposals from Staff and CAPE would cut the peaking capacity of the Project in half (by 100 megawatts) on a typical Morro Bay summer day. We find

that loss of peaking capacity constitutes a substantial failure to meet a key objective of the Project.

8. Staff's proposed noise-mitigated dry cooling design is 426 feet long, 200 feet wide and 115 feet tall. A design that meets the peaking requirements of Duke's Project would measure 640 feet by 185 feet by 110 feet - approximately 40% larger. These structures are the equivalent of a building eleven stories tall and covering more than two football fields.

9. Installation of these large structures would have substantial adverse visual impacts relative to the proposed facility and would eliminate one of the principal benefits and objectives of the modernization Project from the perspective of the City residents.

10. The Morro Bay site contains only 20 acres available for new power plant construction. This is a tightly constrained area for the construction of a power plant.

11. Dry cooling at Staff's Proposed Alternative Site No. 1 would require an additional capital cost of $196 million. At Alternative Site No. 2, it would require an additional capital cost of $106 million. The overall lifetime cost on a present-value basis of dry cooling at Alternative Site No. 1 is $253 million. At Alternative Site No. 2, the overall present-value cost is $163 million.

12. Hybrid cooling at Alternative Site No. 1 would require an additional capital cost of $201 million, and additional overall life cycle present-value cost of $261 million. At Alternative Site No. 2, the total capital cost increase would be $111 million, and the overall present-value life cycle cost would be $171 million.

13. These costs are much higher at this site than for other power plant sites due to the size of the site and related constraints. At least $110 million of the total capital cost estimates for dry cooling at Alternative Site No. 1 result directly from such constraints. These include the costs of dealing with the variety of site constraints, and most significantly, the costs of the 14 to 18 month additional schedule delay required because the cooling facilities must be built after the new power block construction is essentially completed.

14. Installation of closed-cycle cooling will increase the noise from the power plant due to the noise generated by the cooling fans. The City of Morro Bay's noise ordinance requires, among other things, that noise from the facility not exceed 45 dBA at the nearest residential receptor at night. Staff concluded that all variations of closed-cycle

cooling would violate this requirement with the possible exception of Staff's smaller, "noise-mitigated" design at Alternative Site No. 1 and its undersized hybrid cooling design at Alternative Site No. 2. For these designs Staff concluded that the noise would exactly equal the 45dba standard. However, these noise estimates are not commercially guaranteed and there is no evidence of reasonable means for reducing the noise from the closed-cycle facilities should the standard not be met. Accordingly, we find there is a substantial and unmitigable risk of non-compliance with applicable noise standards for any closed-cycle cooling alternative.

15. The Morro Bay site is zoned M-2, coastal-dependent industrial. The City's conclusion that a dry-cooled facility would not be "coastal dependent" and would therefore violate the City of Morro Bay's zoning ordinance is reasonable.

16. The height and size of the closed-cycle cooling structures conflict with Morro Bay General Plan Policy LU-15 [requiring that present human scale and leisurely, low-density appearance of Morro Bay should be maintained through careful regulation of building height, location and mass]; Policy LU-38 [requiring small, high-quality, nonpolluting industrial development should be encouraged – such should be an extension of existing development of this nature]; and Policy LU-39 [requiring "power plant expansion shall be limited to small facilities"]. Closed cycle cooling at Staff's Alternative Site Number 2 would be located in an environmentally sensitive habitat area (ESHA) in violation of numerous City land use policies. Use of this site would also create cultural resource impacts that violate various land use policies.

17. Properly sized dry or hybrid cooling equipment will encroach upon the PG&E switchyard property, which Duke does not own. In addition, if either dry or hybrid cooling were required for the Project, Duke would lose access to property of the City of Morro Bay which Applicant asserts is necessary for construction and operation of the facility. Accordingly, it is unlikely that Duke could obtain the site control necessary for a dry or hybrid-cooled facility.

18. The Morro Bay City Council and Planning Commission have concluded that the closed-cycle cooling options "would adversely affect the City's beauty and uniqueness, would cause or exacerbate adverse effects on visual, noise, air quality, health, socioeconomics, hazardous materials, traffic and transportation, and other local natural resources, compared to the proposed Project." Because of these concerns, the City testimony makes clear that the City will not permit Duke to have the site control Applicant believes is necessary for construction of a dry- or

hybrid-cooled plant. Accordingly, it is unlikely that Duke could obtain the site control necessary for a dry- or hybrid-cooled facility.

19. The PG&E property immediately adjacent to construction area of the modernized plant contains PG&E's existing high-voltage substation. There are significant safety and liability issues associated with using large cranes and other construction or maintenance equipment within or immediately adjacent to such a substation.

20. Closed-cycle cooling would make construction and maintenance of the power plant at this site considerably more complicated and expensive than the proposed Project.

21. Installation of closed-cycle cooling structures at Staff's Alternative Site No. 2 will have significant, adverse impacts to environmentally sensitive habitat, and cultural resources.

22. The vendor of closed-cycle cooling systems has concluded that, at the Morro Bay site, such systems are not feasible and the vendor would not recommend them.

23. The use of either dry cooling alternative at the Project site would cause greater harm to the overall environment of the Morro Bay community than would the proposed project.

24. Based on the combination of costs, delays, impediments and risks associated with closed-cycle cooling at this site, we find this alternative is not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors. Therefore, we find that this alternative is not feasible for this project at this site.

25. For the same reasons, we find that the costs of this alternative are disproportionate to its benefits and are prohibitive. Imposition of these costs would likely result in a decision by the Applicant to abandon the modernization Project and continue operation of the existing once-through cooled facility.

CONCLUSIONS OF LAW

1. The specific dry-cooling alternatives of Staff and CAPE, fail to satisfy the requirement of CEQA that an alternative meet most of the key objectives of the project.

2. Closed-cycle cooling, including dry-cooling as proposed by Staff and CAPE or adjusted in size to meet the objectives of the project, is not feasible at the Morro Bay site within the meaning of CEQA or the Clean Water Act.

3. For the purposes of exercising our responsibilities under the Warren-Alquist Act, we conclude that closed-cycle cooling does not constitute the "best technology available" for this power plant within the meaning of Clean Water Act section 316(b) because it is not feasible at this site and because the costs are wholly disproportionate to the benefits.

D. HABITAT ENHANCEMENT PROGRAM

Compared to the existing power plant, the proposed Project will have more variable control over the amount of intake cooling water withdrawn from the estuary and will have reduced pumping maximums. Nevertheless, the pumps for the proposed Project will still entrain a substantial number of small aquatic organisms. Based on a conservative evaluation of the evidence, we have determined the maximum proportionate mortality resulting from this entrainment will be 16.2 percent. In order to minimize the effect of the entrainment losses on the estuarine environment, Duke has proposed a Habitat Enhancement Program (HEP) which is designed to fund restoration and conservation projects in the estuary. The conservation projects are intended to extend the life of the estuary by reducing the rate of sedimentation. (Ex. 287.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant presented its HEP as a means to comply with the Best Technology Available (BTA) requirements of the federal Clean Water Act. However, Staff and CAPE additionally evaluated Duke's HEP proposal as a potential mitigation measure under CEQA. This approach is consistent with the position of Staff and CAPE, who assert that the Project's once-through cooling system would impose a significant environmental impact as defined by CEQA. At the time of the evidentiary hearings on the HEP proposal the Committee had not issued a decision on whether or not the impacts of the Project will be significant pursuant to a CEQA analysis. Thus, in a pre-hearing order, the Committee directed the parties to include an evaluation of Applicant's HEP pursuant to CEQA Guidelines. (Committee Schedule for Review of Applicant's HEP, dated June 28, 2002.) Subsequently, the Committee determined that impacts from the Project's once-through cooling system will be lower than those of the existing plant.[1]

[1] Our determination regarding the Project's impacts on the estuary are fully discussed in the section of this Decision entitled *Aquatic Biological Resources*.

Therefore, pursuant to CEQA, the Project will not have a significant adverse impact on the existing estuarine environment.

Staff and CAPE have attacked Applicant's HEP and the representative projects contained in the HEP as inadequate mitigation under CEQA. However, in light of the evidence, and our determination of no significant impact, the position of Staff and CAPE is inapposite and not supported by law. CEQA requires a finding of potentially significant impacts before allowing the imposition of mitigation measures.[2] Thus, CEQA and the CEQA Guidelines do not require mitigation measures where there are no significant impacts: "Mitigation measures are not required for effects which are not found to be significant." [14 CCR 15126.4(a)(2).] Because we have found that the Project will have no significant impact on aquatic resources, it is not appropriate to analyze the Applicant's HEP in terms of mitigation for a CEQA-related impact. (See 11/4/02 RT 167:2-4.)

Nevertheless, the Commission must not only evaluate environmental impacts of the Project, but must also determine whether the Project complies with applicable LORS - in this case section 316(b) of the Clean Water Act. The Regional Board is the lead agency for the purpose of implementing section 316(b) of the Clean Water Act, and we will defer to their judgment on the technical aspects of the HEP.[3] However, it is appropriate for the Commission to examine the HEP proposed by Duke and the approach of the Regional Board staff for the potential of each to comply with the applicable law.

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[2] 14 CCR 15041(a): "A lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the "nexus" and "rough proportionality" standards established by case law (Nollan v. California Coastal Commission (1987) 483 U.S. 825, Dolan v. City of Tigard, (1994) 512 U.S. 374, Ehrlich v. City of Culver City, (1996) 12 Cal. 4th 854.). (14 CCR 15041(a).

[3] Regional Board staff witness Michael Thomas stated that his agency will primarily rely upon the PMPD to determine the site specific availability and feasibility of closed cooling systems. (11/4/02 RT 141-142.)

1. Section 316(b) of the Clean Water Act.

Section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect "the best technology available for minimizing adverse environmental impact." The starting point in any BTA analysis is whether the cooling water intake structure at a particular facility is causing an "adverse environmental impact." If not, the cooling water system can be said to represent BTA as designed and operated, and no upgrades or other modifications are necessary. However, if the permitting agency believes that the cooling water intake structure is causing an adverse environmental impact, the analysis must proceed to the next stage and determine whether the facility is using BTA to minimize these impacts.

Under section 316(b), "adverse environmental impact" has principally been considered to be that which results from impingement and entrainment of fish and shellfish. Determinations of adverse environmental impacts are generally made on a case-by-case basis using best professional judgment, and are based on the magnitude of impingement and entrainment that is occurring.[4] Unlike the analysis carried out pursuant to CEQA, the magnitude of an environmental impact under the Section 316(b) is evaluated in absolute terms, without reference to an existing baseline. In this case, based upon our analysis of the evidentiary record, we have determined that once-through cooling by the proposed Project will result in a 16.2 percent proportional mortality[5] of entrained bay species, and

[4] Factors relevant to a determination of adverse environmental impact include the absolute number of organisms lost, percentage (or proportional) losses, population level impacts, ecosystem level impacts, and losses of threatened, endangered, recreational, or commercially important species.

[5] Proportional mortality is an estimate of the risk of entrainment at the power plant. It is derived by an estimate of the number of entrained organisms as compared to the number of organisms of the same species in the source water of Morro Bay. (11/5/02 RT 212.)

that this level of entrainment will have an adverse impact.[6] Impingement levels are not significant.

EPA interprets section 316(b) to require consideration of both technological and economic feasibility, as well as non-water quality-related impacts, in determining BTA for a given facility. Alternatives whose costs are "wholly disproportionate" to the environmental benefits to be gained, or whose non-water quality-related impacts cannot adequately be addressed, are considered "infeasible" or "not available" and thus do not qualify as BTA. [Hudson Riverkeeper Fund v. Orange & Rockland Utils. 835 F. Supp. 160 (S.D.N.Y. 1993)]. The kinds of non-water quality-related factors that are required to be considered include air quality, noise, visual impacts, and compatibility with local land uses, constructability, and energy requirements. BTA determinations are site-specific, and what may be feasible for one facility may not be feasible for another facility. The record in this case establishes that the alternative closed-cycle cooling methods recommended by Staff in the FSA are not feasible for the Morro Bay Project. In addition, the Regional Board staff concludes in its draft permit that these technologies are not available due to costs which are wholly disproportionate to the benefits of the technologies. (Ex. 312, pp. 17-18.)

Under the case-by-case approach to section 316(b), EPA has allowed the use of HEP, or "restoration projects" as an innovative approach to minimizing adverse environmental impacts at existing facilities where the cost of alternative cooling technologies is determined to be wholly disproportionate to the environmental benefits to be gained. This approach has evolved so that EPA now believes that restoration measures may be considered BTA, or a component of BTA, irrespective of the cost or feasibility of alternative cooling technologies. This

[6] Duke asserts that the MBPP (including the existing plant) is not causing an "adverse environmental impact" as that term is used in section 316(b) due to the lack of evidence of localized population-level impacts caused by impingement or entrainment. Nevertheless, the Duke experts have acknowledged a proportional mortality due to Project entrainment of 10 percent. The Regional Board's independent scientists have estimated the proportional mortality to be 17-33 percent.

policy shift is reflected in both EPA's final 316(b) rules for new facilities (Phase I rules) and in the proposed rules for existing facilities (Phase II rules).

Neither the Phase I nor the proposed Phase II rules are legally applicable to the proposed Project. Nevertheless, the preamble discussions in both of the final and proposed rules contain extensive discussion under section 316(b) that provides useful and instructive insight into EPA's interpretation of this statutory requirement. Furthermore, in the absence of a legally adopted standard, it provides a logical and protective method by which to evaluate a HEP.

In its testimony, Duke cites several examples of power plant licensing cases in which habitat enhancement and restoration programs have been incorporated into recently-issued NPDES permits for plants that use once-through cooling.[7]

An additional requirement of the Clean Water Act is that a habitat enhancement proposal must demonstrate an adequate nexus between entrainment effects and the proposed mitigation measures.[8] EPA has stated that a proper nexus exists where the mitigation measures maintain fish and shell fish at a comparable or substantially similar level as would exist without once through cooling.[9] However, the "comparable or substantially similar" test does not require a perfect match between the impacts imposed and the benefits conferred by the HEP.[10] Rather, EPA has made clear that a qualitatively comparable benefit is acceptable.[11]

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[7] These include 1) the Salem Nuclear Generating Station in Lower Alloway Township, Salem County, New Jersey; 2) the San Onofre Nuclear Generating Station near San Clemente, San Diego County, California and, 3) the Mirant Delta, LLC's Contra Costa and Pittsburg Power Plants. (Ex. 287, Appendix A.)

[8] 66 Fed. Reg. 65281 (Dec. 18, 2001); 67 Fed. Reg. 17146 (Apr. 9, 2002).

[9] 66 Fed. Reg. 65281 (Dec. 18, 2001); 67 Fed. Reg. 17146 (Apr. 9, 2002).

[10] Exhibit 312, pp. 20-21; Exhibit 298, pp. 12-13.

[11] 66 Fed. Reg. 65315 (Dec. 18, 2001) ("Despite such limitations, EPA believes that there are situations where a qualitative demonstration of comparable performance can reasonably assure substantially similar performance"); 67 Fed. Reg. 17147-148 (Apr. 9, 2002).

Moreover, EPA guidance in its proposed regulations for existing facilities suggests that "comparable or substantially similar" is satisfied by a 60-90 percent offset of entrainment impacts.[12] The nexus is further established by HEP projects that:

1) preserve and restore the type of habitat critical for most entrained species,[13]
2) preserve and restore the habitat in the same area relied upon by the entrained species;[14] and,
3) provide benefits during the same time frame as the entrainment impacts.[15]

2. Duke's Approach

Duke's proposal for a HEP will provide a guarantee of $12.5 million for preservation and restoration of Morro Bay habitat to offset entrainment effects of the proposed Project. The HEP is intended to preserve and restore the Morro Bay ecosystem by undertaking specific measures that will (1) minimize entrainment mortality associated with the new power plant Project; (2) increase the quality and quantity of aquatic habitats in the Morro Bay Estuary; (3) reduce sediment transport to Morro Bay and sand transport within the bay; and (4) facilitate implementation of projects identified by the National Estuary Program's (NEP) Morro Bay Comprehensive Conservation and Management Plan (MBCCMP), the Regional Board, and the U.S. Army Corps of Engineers to preserve the long-term health of the Morro Bay Estuary. (Ex. 287.)

Both Duke and the staff of the Regional Board analyzed the relationship between the HEP projects and entrainment impacts. However, they used different approaches and analytical tools. Duke applied the Habitat Equivalency Analysis

[12] 67 Fed. Reg. 17141, 17146 (Apr. 9, 2002).

[13] Exhibit 287, pp. 26-28; Exhibit 298, pp. 10-12; Exhibit 316 slides 12, 25.

[14] Exhibit 287, pp. 26-28; Exhibit 298, pp. 10-12; Exhibit 316 slides 12, 25.

[15] Exhibit 287, pp. 26-28; Exhibit 298, pp. 10-12; Exhibit 316 slides 12, 25.

(HEA) which is a method that was initially developed by the National Oceanic and Atmospheric Administration (NOAA) to quantify impacts associated with oil spills and to estimate the benefits of restoration actions taken in response to oil spills.[16] HEA has been used by the United States Department of the Interior, and the USEPA.[18] HEA has also been endorsed in several judicial decisions.[19] Duke applied the HEA to convert biomass lost to entrainment into an equivalent number of habitat acres. Based on the its application of the HEA, Duke concluded that the HEP benefits would equal production of 144.5 percent of the estimated entrainment losses of fish and crab larvae.[20]

Commission staff challenged many of the assumptions Applicant used in its HEA methodology arguing that a significant gap exists between the HEA assumptions and the empirical data contained in the 316(b) study regarding the number of fish in Morro Bay. Staff recommends that any reliance on the HEA be capable of independent validation.

As an example of how it's HEP could be implemented, Duke identified six representative projects that will provide in-bay restoration and preservation through watershed management. The six representative projects are intended to both preserve and enhance habitat vital to the entrained species. (Ex. 287, p. 73 *et seq*.) The representative projects are summarized as follows:

1. <u>Removal of Hoary Cress from Chorro Creek Delta</u>: Hoary Cress is an invasive herbaceous plant. The primary objective of this project would be to restore low

[16] Exhibit 287, p. 51.

[18] Exhibit 316 p. 40, 11/4 RT 200:17-22.

[19] For example, see *United States v. Fisher* [977 F.Supp. 1193 (1997)] and *United States v. Great Lakes Dredge and Dock Company* [259 F.3rd 1300 (11Circ.; 2001) Cert. Denied]. Many other judicial precedents are set forth in Exhibit 287 at Appendix F.

[20] Exhibit 287, Table 1 at p. 32 (as corrected by Exhibit 315 at p. 2).

marsh habitat for the purpose of increasing the production of marine biomass in the Chorro Creek delta. (Ex. 287, p. 73-76.)

2. Restoration of Mudflat and Eelgrass Habitats: The primary objectives are to use dredging to reestablish historical patterns of mudflat drainage channels and to restore the bay bottom elevations in Zones 3 and 4 to support eelgrass habitat. This project was identified in the Phillip Williams and Associates (PWA) report. (Id, p. 76-78; Ex. 288.)

3. Sandspit Stabilization: The primary objective of the Sandspit Stabilization project is to preserve eelgrass and in-bay volume that is being lost due to infilling from migration of the sandspit dunes. Stabilization would be accomplished by implementing stabilization techniques, which include vegetation planting and management as well as construction of stabilization structures. (Id, p.78-83.)

4. Chorro Flats – Phase II: In 1996 the Resource Conservation District purchased 100 acres, of which 60 acres were used for the construction of the very successful Chorro Flats Sediment-Trapping Project. Chorro Flats II is a remaining, adjacent 40 acres that has not yet been scheduled for restoration. The primary goal of this project would be the capture and removal of stream borne sediments from the Chorro Creek watershed. Similar to the original Chorro Flats project, Chorro Flats II would include, at a minimum: 1) removal of existing vegetation, 2) dirt moving and grading of the existing elevations to construct a sediment trap, and 3) other associated activities needed to assist in directing watershed flow over the sediment trap. (*Id.* 83-86.)

5. Hollister Ranch Sediment Control Project: The Hollister Ranch site includes approximately 50 acres of historical floodplain habitat. The primary goals and objectives of HRSCP are to maximize the capture and removal of stream borne sediments from the Chorro Creek watershed, thus preserving the bay's volume for its plankton and fish populations. (*Id.*, p. 86-88.)

6. CalPoly-Walters Ranch Sediment Control: The primary goals and objectives of this project are to maximize the capture and removal of stream borne sediments from the Chorro Creek watershed, thus preserving the bay's volume for its plankton and fish populations. The NEP and PWA have both identified potential for significant reduction in the sediment load being transported from the watershed and deposited into Chorro delta and Morro Bay. (*Id.* p. 88-90.)

Applicant proposes that it's HEP would be administered by a qualified, private non-profit organization subject to primary oversight by the Regional Board. Duke suggests that this administering non-governmental organization (NGO) be a new 501(c)(3) non-profit corporation. The HEP recommends that the NGO's activities be conducted through an Executive Board of diverse membership[21]. (*Id.* p. 104.)

To fund the HEP, Applicant proposes a guaranteed $12.5 million of total funding to be disbursed in stages tied to Project construction and operation timelines. Of the guaranteed $12.5 million, $9.7 million is dedicated to funding mitigation project implementation, and $2.8 million is for a safety margin to address uncertainty, partial performance, or changes to underlying cost assumptions. (Ex. 287, p. 98.) Duke proposes disbursement of the funding as follows: twenty-five percent at the time the foundations for the modernized plant are poured, fifty percent upon commencement of commercial operation, and twenty-five percent two years after commencement of commercial operations. The remaining $2.8 million would be contributed on an as needed basis as determined by the Regional Board beginning five years after the first disbursement of initial funding. (*Id.*) Duke's proposed $9.7 million of project implementation funding is intended

[21] Applicant proposes that the NGO would have an Executive Board selected by the Regional Board and include representatives of the CEC, NEP, City of Morro Bay, Los Osos Community Services District and the County of San Luis Obispo with three additional, short-term, ad hoc members appointed by the Regional Board. Duke proposes being a non-voting advisory board member. (Ex. 287, p. 105.)

to provide for monitoring, adaptive management and administration.[22] (11/5/02 RT109.)

3. Regional Board Staff's Approach

In its draft NPDES permit (Ex. 312.) the Regional Board staff determined that the cost of implementing a HEP which could achieve 50 percent of the Regional Board's sedimentation reduction goals, (total minimum daily load, or TMDL) would cost between $12 and $25 million for one-time funding of various habitat enhancement projects. Their witness testified that such an approach could double the expected life of the Morro Bay Estuary (*Id*. p. 26; 11/5/02 RT 20.) Additional funds would be required for contingency projects, monitoring, and administration of the HEP. (*Id.* p. 24.) The Regional Board staff analysis concluded that the range of funding in its staff analysis could pay for projects which would produce up to an estimated 345,000 acre-years of benefit compared to a calculated 28,463 acre-years of losses due to power plant entrainment. (*Id.* p. 23.)

The Regional Board staff and their independent consultants developed their own method of converting entrainment impacts into equivalent habitat creation and restoration costs. The working assumption of it's method is that the whole of Morro Bay's marine habitat is required to produce the entirety of the platonic organisms that are subject to entrainment, and that the fraction of the base total larval production that is removed through entrainment is equivalent to the same fraction of the base habitat required to produce them. For example, if the power plant is entraining 10% of the larval fish and other organisms at risk for entrainment, then the method assumes an area equal to 10% of the base total habitat would need to be restored or preserved to replace this lost production.[23]

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[22] Duke's HEP proposes detailed baseline monitoring with $165,000 earmarked for the purpose. (Ex. 287, Appendix B.)

[23] Exhibit 287, p. 47; Exhibit 312, pp. 22-24..

The Regional Board staff's method differs from Duke's in several respects. First, the Regional Board staff's analysis used proportional mortality of the top 10 entrained species as a measure of entrainment, while Duke's analysis used the biomass of all entrained species measured through the 316(b) studies. Second, Duke relied upon the HEA to convert entrained biomass to habitat acres, while the Regional Board method assumes that the same number of habitat acres are needed as the percentage of proportional mortality. Finally, the Regional Board "acres" metric is based upon all Morro Bay acres (including open water habitats) while Duke's HEA metric is based upon high productivity eelgrass and marsh acres.

The sample projects selected by both the Applicant and the Regional Board staff are based on recommendations of independent consultants to the Regional Board.[24] Expert testimony established that if successful, these projects would help maintain habitat for and production of larvae similar to those entrained by the power plant. (11/5/02 RT 44, 49.) The Regional Board's expert expressed the opinion that more money should be available for monitoring projects than Duke has proposed. (*Id.* RT 67-68.) However, he agreed that it would not be appropriate to evaluate the success of a HEP program for Morro Bay by looking for an increase in larvae population, as opposed to maintaining existing population levels. (*Id.* RT 71.)

The Regional Board staff's upper bound figure of $25 million for HEP projects is based on an assumed proportional mortality of 33 percent.[25] Since Regional Board estimates for the cost of dry cooling ranged from $105 to $114 million, the Regional Board staff concluded that dry cooling as a replacement for the

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[24] Morro Bay Sedimentation: Historical Changes and Sediment Management Opportunities to Extend the Life of the Bay, Phillip Williams & Associates, Ltd. (Ex. 288.)

[25] However, we have determined that the weight of evidence supports a conservative finding that proportional mortality is at most 16.2 percent.

Project's once through cooling system was far more costly than the highest estimates for the HEP and that therefore, the cost of dry cooling was "wholly disproportionate" to the environmental benefits it conferred. (Ex. 312; 11/5/02 RT 22.)

The staff of the Regional Board examined several other methods of determining adequate funding for a HEP applicable to this power plant Project. One method converted larval loss to equivalent acres and estimated what it would cost to restore or purchase those equivalent acres based on actual historic projects in Morro Bay. This method leads to an estimated cost of $12 to $23 million, absent administrative and monitoring costs. (Ex. 312, p. 23.) Regional Board staff also used USEPA values for restoration projects and arrived at a similar cost range of $12 to $16 million. (*Id.*) When adjustments to these calculations are made for differing assumptions of proportional mortality, these various estimates are roughly comparable to Duke's proposal.

The staff witness from the Regional Board summarized its approach by stating that the Morro Bay Estuary is experiencing an exponential rate of loss through sedimentation. He noted that projects to successfully reduce this loss have been identified in the NEP for Morro Bay, through the Regional Board's TMDL order, and in the Phillip Williams & Associates report to the Regional Board. (Ex. 288; 11/5/02 RT 57-58.) However, he stressed that without major funding, such as that available through a HEP funded by Duke, these projects to save the Morro Bay Estuary are not likely to be carried out. (*Id.* RT 58.)

In our view the approach of either Applicant or the Regional Board staff provides a reasonable nexus between the HEP and the impacts of entrainment from the Project. Both approaches are likely to preserve and restore habitat that directly benefits the vast majority of species susceptible to entrainment. While it is not appropriate under the Clean Water Act to require a "larvae-for-larvae" level of detail in the compensation program, the HEP approaches of Applicant and of the

Regional Board staff will likely produce sufficient benefits to fully offset the larval losses due to entrainment. The success of the individual projects must be monitored and, if necessary, corrected to ensure success. Furthermore, the HEP will produce these benefits in the same estuary and over substantially the same period as the entrainment losses. We, therefore, find that, either the HEP proposed by Duke or that set forth by the staff of the Regional Board can comply with applicable LORS.

4. Funding

The CEC Staff testimony suggests that proper funding for a HEP would be $37.4 million rather than the $12.5 million proposed by Duke, or the $12 to $25 million found in the Draft NPDES permit. (Ex. 304, Table 1, p. 24.) The CEC staff amount is based on an estimate of $19.4 million for the construction costs of the mitigation projects, $6 million for contingency projects, $8 million for monitoring[26] and $4 million for administration.[27] Staff asks that all of this money be delivered in a "performance bond or similar arrangement" at the time of certification. (Ex. 304, p. 23.)

During cross-examination, Staff testified that the $19.4 million portion of its total estimate was exclusively for construction costs. (11/5/03 RT 122-123.) Staff also testified that the Philip Williams and Associates construction cost estimate, the high end of which is $4.8 million, is "reasonable." (11/5/02 85:4-5.) Furthermore, staff acknowledged that it performed no engineering feasibility or cost study comparable to that performed by Philip Williams and Associates or the NEP. (11/5/02 RT 86:7-21.)

[26] Baseline and project-specific monitoring funded at $250,000 per year from an $8 million monitoring endowment.

[27] $150,000 per year equaling a $4 million endowment.

In our view, Staff's cost figures are not well supported by the weight of evidence and appear to have substituted generous inflation of cost estimates for close analysis.[28] Nevertheless, while Duke has presented a framework for a HEP which could comply with LORS, the weight of evidence suggests certain shortcomings in its proposal. One of these is in the area of monitoring which Regional Board expert witness Dr. Cailliet referred to as "fairly weak." (11/5/02 RT 41:16.) Additional monitoring funding beyond that proposed by Duke is warranted and should be considered by the Regional Board.[29]

Both the Staff and CAPE argue in their briefs that restoration of the estuary is required by law and that therefore the additional money made available through Duke's funding of a HEP, is not required for the Regional Board to meet its TMDL standard. These two parties opined that because the Regional Board is under a legal mandate to implement the TMDL Program, it will in fact occur. However, while it is true that the Regional Board is required by law to create a TMDL program, it is not true that the specific components of the TMDL program must be funded by the Regional Board. In fact, the TMDL program is an "unfunded mandate" that in the absence of specific funding will not proceed. It is likely that without some form of private funding, the TMDL program projects will simply not go forward.

Neither CAPE nor Staff offered evidence of TMDL funding sources which would obviate the need for HEP funding, such as offered by Duke. However, Regional Board staff member Michael Thomas was very clear that large funding sources are not available. He also stressed that large funding sources such as Duke's HEP, not only provide resources not otherwise not available, but also create the possibility that money can be leveraged to attract more funding for HEP projects

[28] Staff notes in its reply brief, "…the funding level we identified -- $37.4 million – is an estimate, and that final costs could vary considerably." (Staff Reply Brief on HEP, p. 18.)

[29] Duke's HEP does call for spending up to $165,000 over five years for baseline monitoring in Morro Bay Estuary. (Ex.287, p. 34.) Proposed monitoring of specific projects within the HEP appear not to have funding estimates. (*Id.* p. 33-34.)

which benefit the estuary. (11/4/02 RT 58-59.) CAPE appeared to agree that funding can be leveraged to benefit the estuary. (11/5/02 RT 201.) There is simply no persuasive evidence that the TMDL program will be funded other than through the proposed HEP.

Another issue arises because of Staff's proposal that all HEP funding should be required at certification. However, in prior siting cases, the Commission has tied the funding of mitigation to either commencement of construction or commencement of operation, depending on the nature of the impacts.[30] There are a number of reasons the Commission does not require the payment of all mitigation-type funding at the time of certification. For one, every Commission Decision is subject to motions for reconsideration and to court appeals. Furthermore, any project permitted by the Commission can still be awaiting final permits required from federal agencies. Staff's proposal would require Duke to fund millions of dollars to mitigate its Project before it received clear approval to construct that Project.

In addition, even once all permits are final and cannot be appealed, Project construction may be delayed or the Project may not go forward at all for a variety of reasons. However, the most important problem with the Staff's proposal for the timing of funding is that it bears no relation to the impacts being mitigated. The impacts of entrainment will only occur from the modernized Project when construction has been completed and operations commenced. While it may make sense for the Regional Board to require some funding in advance of Project impacts to ensure that HEP projects are begun in a timely manner, there

[30] For example, in Duke's Moss Landing Modernization Project application, the Commission required funding of the $7 million HEP be 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 Units 1 and 2 ($1 million each). (Commission Decision on Moss Landing Power Project, Docket No. 99-AFC-4, Pub No. P800-00-008, BIO-7, pp. 193-194.)

is no justification for requiring Applicant to fund tens of millions of dollars in mitigation at the time of certification.

5. Aquatic Filter Barrier

One of the "building blocks" described in Applicant's HEP is a feasibility study of installing a pilot-scale aquatic filter barrier (AFB). An AFB is a form of physical barrier technology designed to reduce biological losses associated with the entrainment of marine life. The semi-porous barrier material is manufactured with small diameter perforations to screen out entrainment while allowing sufficient surface area for plant intake flows. The mat or net which extends the entire depth of the water column is deployed ahead of the cooling water intake structure with a large enough screening area so that water velocities through the screen are extremely low. The mat or net is maintained in position by an anchoring and mooring system. It is designed to serve as a physical barrier that substantially reduces the risk of marine larvae being drawn into the cooling water intake structure, thus preventing entrainment, while also preventing impingement of juvenile and adult fish and invertebrates. Duke proposes $125,000, separate and in addition to its HEP funding, to study the feasibility of the AFB. (Ex. 287, pp. 91-92.)

Duke's HEP proposal includes case histories where an AFB has been installed to successfully reduce entrainment at power plants on the east coast. (*Id.* pp. 92-93.) Applicant states that if it determines that a pilot-scale AFB is feasible, it will evaluate whether to proceed by seeking an amendment to its CEC license for the purpose of installing a pilot-scale AFB. Any required CEQA review would be conducted at that time. (*Id.* RT 95.)

Assuming the pilot AFB were successfully permitted, installed and demonstrated to be effective in reducing entrainment, Applicant would evaluate whether to seek

approval for installation of a full-scale AFB. Such a step would require further environmental and regulatory review. (*Id.*)

We think that examination of a pilot-scale AFB is a worthy goal and encourage Applicant to continue reviewing the feasibility of this technology. If successful in full-scale operation, an AFB could significantly reduce entrainment impacts at the proposed Project and serve as a valuable asset in Duke's combination of "NPDES building blocks" to offset entrainment effects.[31]

6. Conclusion

If aggressively pursued and accurately monitored for success, we believe the future data will demonstrate that this multi-staged approach to reducing and compensating for entrainment can fully achieve the levels of entrainment reduction or its equivalent which are called for in the proposed USEPA regulations.[32] In fact, both the approach of the Regional Board staff and that of Duke are designed to "over-shoot the mark" by aiming at habitat compensatory levels far above the minimum required in the proposed regulations. It is the responsibility of the Regional Board to identify the details of the HEP as well as other aspects of the NPDES permit. However, based on the evidentiary record before us, it is clear that an aggressive HEP, as a key part of Duke's "building-block" approach to its NPDES permit, will achieve greater environmental benefit for the Morro Bay Estuary than could any closed-cycle cooling system. This is because Applicant's Project would not only reduce the entrainment impacts of the existing power plant, but would bring major funding to address the most

[31] Duke's "NPDES building blocks" are identified as 1) technical upgrades to plant equipment, 2) permit limits restricting cooling water flows, 3) funding HEP projects in the Morro Bay Estuary and watershed, 4) study of AFB technology, and 5) incorporating various safety factors. (Ex. 287, p. 3.)

[32] The proposed regulations require any HEP approved in lieu of a closed cooling system to achieve the equivalent of between 60 percent and 90 percent of the entrainment reduction which closed cooling could achieve.

serious environmental assaults on the Estuary, as identified in the MBNEP.[33] In fact, based on the evidence in our record, we firmly believe that even if closed-cycle cooling were feasible and cost free, it would not offer the environmental benefits to the Morro Bay Estuary that a successful HEP will provide.

Public Comment

During two days of evidentiary hearings on Duke's HEP, the Committee heard from public agencies and from more than twenty different members of the public. **Debra Johnston** of the California Department of Fish and Game, summarized much of the evidence regarding Duke's proposed representative restoration and conservation projects in its HEP. She stated that some of the projects would not directly benefit species which will be entrained by the proposed power plant and, therefore, these projects lack a nexus to plant impacts. She specifically pointed out that the removal of hoary cress would not benefit some of the commercial species such as Dungeness crab, rockfish and cabezon. (11/4/02 RT 351.)

Bryant Chesney spoke on behalf of the National Oceanic & Atmospheric Administration (NOAA) Fisheries, National Marine Fisheries Service. NOAA Fisheries generally supports the CEC staff recommendation of dry cooling. He stated that if dry cooling is found to be not feasible at the Morro Bay site, NOAA Fisheries would support a habitat enhancement approach. However, his agency has determined the Duke HEP approach to be inadequate. He stated that the Duke HEP over states benefits and lacks sufficient monitoring. Nevertheless, NOAA would support an approach whereby a technical working group determined appropriate mitigation projects, and would like to be involved in determining such projects. (11/5/02 RT 136-139.)

[33] The major environmental stressors on the estuary identified in the MBNEP are sedimentation, bacteria, nutrients, loss of freshwater flow during the dry season, heavy metals and toxic pollutants, loss or degradation of habitat, and loss of steelhead. (Ex. 284, p. 1-5.)

Most of the members of the public offered comments in opposition to the Project, voicing concern about the impacts of once-through cooling on the estuary's marine life. Several people questioned the adequacy of Duke's HEP, questioning the relationship between the representative projects proposed by Duke and the impacts of the power plant on the estuary. One opponent pointed out that with its load-following capability, the existing power plant was still quite useful to the state electrical system and would likely have impacts on the estuary for a shorter time than would a new plant.

Comments in favor of the Project noted that sedimentation, not the existing power plant, is the biggest problem for the estuary and that a HEP that helped to reduce sedimentation would be good for the estuarine environment.

FINDINGS OF FACT

1. Applicant has proposed a Habitat Enhancement Program (HEP) as part of the proposed Project. Applicant proposes to provide $12.5 million to fund a variety of representative in-bay and watershed projects intended to preserve and/or restore habitat with the estuary.

2. The specific projects to be funded would be selected by a qualified, private non-profit organization (NGO) subject to primary oversight by the Regional Board. For the purpose of analyzing the effectiveness of the HEP, however, Applicant has presented evidence concerning six representative projects as examples. These projects are based upon work done by the Regional Board, the NEP and others and may, or may not be ultimately selected as part of the HEP.

3. Absent a major funding source such as the proposed Project and its HEP, the record does not contain evidence of sufficient funding available to proceed with projects identified by the Regional Board and the NEP as essential for preservation of the Morro Bay Estuary.

4. It is likely that the funding provided by Duke's HEP can be used to obtain matching funds or otherwise leveraged to produce additional funds for preservation and restoration of the Morro Bay Estuary. However, for the purpose of our analysis, it is appropriately conservative to ignore this leveraging possibility.

5. Applicant has proposed a total funding of $12.5 million in its HEP. The estimate of the construction costs for the representative projects is $4.7 million. The remaining $7.8 million is proposed to be available for administration, project-specific monitoring, adaptive management and contingencies. In addition, Duke has proposed $160,000 for baseline monitoring above HEP project monitoring.

6. The staff of the Regional Board has proposed funding for habitat enhancement projects of $12 to $25 million, with additional, undetermined amounts for monitoring and administration.

7. If properly implemented, the habitat that would be preserved or restored by appropriate HEP projects would support many aquatic resources in Morro Bay, including most of the species susceptible to entrainment. It is reasonable to conclude that preservation and restoration of this habitat will directly benefit the species being entrained by the power plant, because the benefit will occur in the same estuary and over the same time period as the entrainment effects of the Project.

8. The amount of this benefit has been addressed in this record using both habitat equivalency analysis (HEA) and an alternative method developed by the Regional Board staff.

9. HEA is an analytical method that was initially developed by the National Oceanic and Atmospheric Administration ("NOAA") to quantify natural resource service reductions associated with oil spills and services gains associated with restoration actions taken in response to those spills. HEA has also been used extensively in the natural resource damage assessment context to establish the value of natural resource service loss and to evaluate the value of restoration projects being considered as compensation to offset natural resource service losses. In addition to NOAA, HEA has been used and endorsed by the United States Department of the Interior, the United States Environmental Protection Agency, and numerous state agencies nationwide. HEA has also been endorsed in several judicial decisions.

10. Applicant's HEA analysis, using inputs provided by Applicant, concludes that the benefits of the HEP will compensate for at least 100 percent of the losses from Project entrainment, based on Applicant's estimates of losses. If achieved, this is consistent with the 60 percent to 90 percent offset that EPA has recently suggested is the appropriate standard under section 316(b) of the Clean Water Act. While this standard has not been adopted for facilities such as the Project, it is reasonable to consider this EPA proposal as a performance standard for Applicant's HEP, pending adoption of an official standard.

11. Although Staff and CAPE criticized some of Duke's assumptions in this analysis, neither elected to present an alternative HEA analysis suggesting that the HEP would not fully offset entrainment impacts. Having carefully considered both the criticisms and the responses, we find that the HEA analysis provides a reasonable and credible basis for concluding that the HEP proposed by Applicant has the potential to be implanted in compliance with section 316(b) of the Clean Water Act. The Regional Board will necessarily make its own determination on the adequacy of technical aspects Applicant's HEP to fully offset entrainment impacts.

12. The Regional Board Staff analysis concludes that a HEP of $12 to $25 million would produce 345,000 acre years of benefit compared to 28,463 acre years of losses due to entrainment. Having carefully considered the Regional Board Staff's analysis, as well as the evidence of other parties regarding it, we find that the analysis of the Regional Board staff provides an additional reasonable and credible approach for fully offsetting entrainment effects. However, the Regional Board staff has overstated entrainment effects through the use of a 33 percent proportional mortality assumption that we find is not supported by the weight of evidence.

13. A HEP based on the use of a 16.2 percent proportional mortality assumption is supported by the weight of evidence and provides a conservative margin of safety.

14. The approach of either Applicant or the Regional Board staff provides a reasonable nexus between the HEP and the impacts of entrainment based on the following: 1) the HEP will preserve and restore habitat that directly benefits the vast majority of species susceptible to entrainment; 2) the HEP will produce sufficient benefits to fully offset the larval losses due to entrainment; and 3) the HEP will produce these benefits in the same estuary and over substantially the same period as the entrainment losses.

15. Subject to our finding below, and our determination of proportional mortality, the Regional Board will determine the amount and timing of appropriate funding for the HEP in the conditions of its NPDES permit for the Project.

16. Staff's proposal that all HEP funding be required at the time of certification is not consistent with our prior decisions on similar issues and is not reasonable.

17. It is important that the HEP program include sufficient monitoring to provide information for adaptive management necessary to ensuring success of the HEP projects. The specific monitoring protocols should be developed by the NGO once the HEP projects are selected.

18. Most stressors upon the Morro Bay Estuary are not related to the existing or the proposed Project. Therefore, with the exception of initial baseline monitoring, funds designated for monitoring must evaluate the achievements of individual conservation/restoration HEP projects and avoid expenditures for monitoring the general estuarine environment since general monitoring will only divert funds from environmental protection projects.

19. It is not reasonable or appropriate to measure the success of the HEP projects based solely upon increases in larval populations for several reasons. These include that: 1) habitat preservation does not seek to increase populations but rather to preserve them; and 2) changes in estuary-wide larval populations may be caused by factors wholly unrelated to the success of the HEP projects or the effects of entrainment.

20. It is reasonable and appropriate to fix Applicant's HEP funding obligation at the time of permit issuance. Certainty of the funding is commercially necessary for the Project developer and may also assist the NGO seeking matching funds and trying to allocate its resources. Inherent HEP uncertainties should be addressed through the use of conservative assumptions, plus requiring contingency and adaptive management funds.

21. The Regional Board will determine whether Duke's proposed HEP funding of $12.5 million provides sufficient funding for construction, maintenance, administration, monitoring, adaptive management and contingencies of the HEP projects and is reasonable.

22. Staff's proposed funding of $37.4 million is not adequately supported by the evidence of record and is not reasonable.

23. We recommend that the Regional Board carefully consider the extensive hearing record underlying our decision, including the detailed evidence supporting Applicant's HEP and the critical analysis of the HEP by qualified expert witnesses sponsored other parties.

24. To ensure consistency between the decisions of our respective agencies, it is appropriate to defer to the Regional Board regarding the final HEP technical details, funding amount, and timing of payments. We intend to require funding of the HEP in an amount to be

determined by the Regional Board, provided it is supported by our evidentiary record. We, therefore, intend to require a HEP program consistent with the findings of the Regional Board as contained in its final NPDES permit for the Project.

25. The proposal for a pilot-scale AFB is a worthy objective and we encourage Applicant to continue reviewing the feasibility of applying this promising technology at the Project cooling water intake structure. However, we have not assumed a successful AFB as part of the HEP, for the purpose of determining whether the HEP approaches of Duke and the Regional Board staff meet LORS requirements.

CONCLUSIONS OF LAW

1. Modernization of the Morro Bay Power Plant with reduced use of once-through cooling and the Conditions of Certification proposed herein will comply with all applicable laws, ordinances, regulations and standards including, but not limited to, sections 316(a) and 316(b) of the Federal Clean Water Act.

2. Entrainment of certain larvae, as will occur as a result of the Project, is a potential adverse impact requiring the use of the best technology available as defined by Clean Water Act section 316(b).

3. For the purposes of exercising our responsibilities under the Warren-Alquist Act, we conclude that the proposed Project with reduced once-through cooling, lower capacity and separately operable pumps, binding limitations on cooling water use, a habitat enhancement program consistent with our findings, and the other requirements of our Conditions of Certification, is consistent with the best technology available requirements for this power plant within the meaning of Clean Water Act section 316(b). As the agency with responsibility for issuing an NPDES permit for the Project, the Regional Board will, necessarily, review these same issues with regard to that agency's decision on the NPDES permit.

E. 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.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soils

The MBPP site as well as the offsite parking and staging areas are located along the Santa Lucia Range immediately adjacent to Morro Bay. The power plant site is underlain by fill with an average depth of about eight feet. The fill is generally comprised of sand and gravel material. The alluvium and bay deposit material consists of sand, gravel and marine clay with underlying fractured sandstone and shale deposits. The current elevation of the Project site ranges from approximately 15 to 23 feet above mean lower low water level (MLLW). The existing elevation in the area of the proposed MBPP project site is about 23 feet above MLLW. Surface characteristics at the site of the new Project include areas of gravel and exposed soil with sparse vegetation. (Ex. 143, p. 4-11.)

The extreme western portion of the tank farm, including the area of the Den Dulk property where the discharge lines will interconnect, consists of the Dune Land soil type. These soils may contain thin layers of sandy loam, silt or gravel. The erosion hazard is classified as moderate. Because of the rapid permeability, low to very low available water capacity, and nutrient deficiencies associated with larger textured soils, this soil type poses limitations on vegetation establishment. The erosion hazard is high. Previous filling of the site and surrounding tideland flats by the U.S. Navy in 1941 and 1942 raised the surface to its current level.

Therefore, site conditions are not representative of the native soil conditions described in the soil survey. (*Id*. p. 4-12; Ex.177, p. 6.)

The soil type for the off-site staging areas and satellite parking is the Cropley clay soil type, which has slow surface runoff, with a low risk of erosion. The true soil horizons have been altered over the years at the Camp San Luis Obispo Staging Area and the Satellite Parking Area due to development and agricultural activities. (*Id*.)

Soil contamination by petroleum hydrocarbons is evident in the Switchyard. Limited testing within the aboveground fuel oil tank farm identified minor TPH contamination extending down to the soil-groundwater interface. No soil sampling or testing has been conducted beneath the existing oil tanks. Soil contamination is addressed in the **Waste Management** section of this Decision. FSA for further discussion regarding soil contamination. (*Id*.)

Accelerated wind and water-induced erosion may result from earthmoving activities associated with construction of the Project. However, through the implementation of Best Management Practices (BMPs) such as silt fences, limiting exposed areas, immediate stabilization of graded areas, diversion ditches, and sediment traps the Applicant will reduce impacts related to erosion and sedimentation for all earthmoving activities to less than significant. (*Id*. p. 4-21.) A Storm Water Pollution Prevention Plan (SWPPP) would be implemented to minimize erosion from construction activities. Also, an erosion control and revegetation plan that addresses standard erosion runoff and sedimentation techniques would be developed and implemented for construction and operational phases. Implementation of these plans will reduce potential erosion and sedimentation impacts to an insignificant level. (*Id*.) Other aspects of Project construction including construction of pipelines, roads, bridges, bike paths, and parking and construction staging areas were all analyzed and Staff found that with the Conditions of Certification and Applicant's use of Best Management

Practices, the construction and operation of the Project would cause no significant direct, indirect, or cumulative impacts to area soils. (*Id*. pp. 4.22 to 4-24, 4-28; Ex. 177, p. 14-19.)

2. Water supply

Applicant proposes to use a once-through ocean water-cooling system that extracts seawater from Morro Bay using the existing power plant intake structure. The ocean cooling water will go through a condenser that will cool the power plant steam after it is used to produce power in the steam turbines. The water which cools the condenser is called circulating cooling water. Duke will replace the eight existing circulating cooling water pumps with eight new pumps, each with an operating capacity of approximately 41,250 gpm (59 MGD). New pipelines will be installed on site to connect the combined cycle units to the existing Units 1-4 cooling water supply and discharge conduits. The cooling water return will use the existing plant's discharge tunnels. After the new Project is operational, the existing plant will be demolished.

The circulating cooling water requirements for each of the combined cycle units will be approximately 165,000 gpm (237 MGD) when the unit is operating at maximum output. Thus the total circulating water requirement for the new plant will be approximately 330,000 gpm (475 MGD), which is lower than the maximum requirements for the existing plant of 464,000 gpm (667 MGD). (Ex. 187.)

CEQA requires the Commission to evaluate a project's potential impacts to surface water supplies, including ocean waters. While the short-term maximum pumping rate of the Project is clearly less than that of the existing plant, a dispute arose over how to determine the appropriate CEQA baseline against which to measure the long term impacts of the new Project's intake of surface water from Morro Bay.

a. CEQA Baseline

As a "certified regulatory program", the Commission's power plant review process must follow the general principles of CEQA, such as assessing and mitigating significant adverse environmental impacts of a proposed power plant. (Tit. 20 Cal. Code Cal Regs §§ 15251 (k), 15252.) CEQA requires that environmental impacts be measured against the existing environmental setting, which in this case includes the operation of the existing power plant. CEQA Guidelines section 15125 provides:

> "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

To ensure that the Project was analyzed against an appropriate environmental setting or baseline, at the August 16, 2001, Committee Status Conference the Committee ruled that Staff and other parties would be required to perform their analyses based on the amount of cooling water pumped by the existing Morro Bay Power Plant averaged over the most recent five-year period. (8/16/01 RT 168; Committee Order of 8/22/01.) That period was the years 1997-2001.

Duke argues that normally the CEQA baseline is the environmental condition at the time the application was filed. Thus, they state by this standard, the appropriate baseline is not the five years preceding the application filing, but rather the status quo at the time of filing. Applicant claims that this is particularly the case where there have been sweeping changes in the environment in years immediately preceding the filing, making the environment at the time of filing very different from that of earlier years. In Duke's view it would be appropriate for the Commission to adopt a baseline consisting of the year immediately prior to the filing. At that time the plant was owned by Duke and operating within the AB-1890 market structure. By reaching back a full five years to include low-use years when the plant was under PG&E's ownership and in an entirely different

regulatory and market structure, Duke contends that the Committee has arguably used a baseline that is too low.

In Duke's view the most appropriate baseline is the period from the market restructuring and Duke's acquisition of the plant through the time it filed the AFC for the Project. That would include the three year period 1998-2000. The average use over that period is 461 mgd. (6/6/01 RT 275-276.) Duke urges the Commission to find that this is the period most reflective of the existing environment because it includes the existing ownership, the existing restructured market, and the recent demand for electricity.[1] Nevertheless, Applicant states that, while it believes it is inappropriate to do so, if the Commission intends to apply a five-year baseline, Duke recommends the years 1996-2000. The average use during those years was 387.2 mgd. (Ex. 197, table 8, p. 2-25.)

As directed by Committee Order, Staff included five-year analyses in its assessment. (Ex. 197, Table 8, p. 2-25.) However, Staff strongly urged the Committee to consider several alternative baselines, including 10- and 15-year baselines, as well as baselines which do not include the year 2001. Staff argues that by excluding data from 2001 (the year Duke filed its AFC) the Commission can best effectuate the CEQA Guidelines and protect against any post-filing manipulation of water intake rates by Applicant in order to raise the CEQA baseline and thereby reduce the apparent impacts of the proposed Project.[2]

[1] Duke excludes the year 2001 (518 mgd), which would raise the average, solely on the argument that environmental analysis began when the application was filed. However, we note that Staff did not in fact prepare its Final Staff Assessment until 2002 and was able to consider the 2001 data.

[2] There is no evidence in the record to exclude water intake data from the year 2001 on the grounds that Duke could or did manipulate the operations of the existing power plant for the purpose of effecting the baseline calculation. In fact Duke argues that to do so would require operating the facility at an economic loss and that operation of the existing power plant is governed largely by market forces and ISO directives not in the control of Duke. (Duke Opening Brief on Group IV Topics, p. 12, fn.40.)

Staff states that the use of 10- or 15-year baselines presents a better understanding of the operational patterns of the existing plant. (Ex. 197, p.2-24.)

However, later in the case, Staff remarkably abandoned this position in its Opening Brief, which addressed biological impacts to aquatic resources. In that document Staff rejects the dominant view that impacts to marine resources can be equated with the amount of cooling water withdrawn from the estuary. Staff goes on to recommend, "that the Committee acknowledge that there is no single numeric baseline that is meaningful in terms of identifying the existing level of aquatic impacts." (Staff's Opening Brief on Group IV Topics, p. 20.)

CAPE argues that the appropriate baseline for cooling water consumption should be the average water use that existed at the time the environmental analysis commenced, which they cite as the filing of the AFC. Accordingly, since the AFC was filed on October 23, 2000, CAPE argues that the appropriate baseline would be the 5-year period immediately preceding the filing of the AFC, that is the years 1995-1999. In doing so they urge the Commission's consideration of the recent case of Save Our Peninsula Committee v. Monterey County Board of Supervisors, (2001) 87 Cal. App.4th 99. In that case the court had to determine whether the appropriate baseline is the water consumption rate at the time the development application was filed, or a later period. (CAPE Opening Brief on Group III Topics, pp. 7-9.)

In determining the appropriate CEQA baseline for the Project's impacts due to cooling water intake the Commission must first reject Staff's approach of comparing historical *long-term* impacts of the existing plant (based on records of annual average daily use) against maximum *peak* permit levels allowable for the Project. (Ex. 143, p. 2-25, Table 3.) Such an "apples to oranges" comparison is neither logical nor supportable under CEQA. The Commission must compare actual long-term historical water intake of the existing plant to the maximum

permitted long-term average use[3] for the Project. In addition, we must compare the past peak usage of the existing plant to the permitted peak intake allowed the proposed Project.

Nor do we think that it is appropriate to follow Staff's earlier recommendation to use as a baseline the water intake of the existing plant over the past 10-year period. CEQA Guidelines require "a description of the physical environmental conditions in the vicinity of the project, as they exist *at the time* the… environmental analysis is commenced." [Tit. 14, Cal. Code of Regs. §15125(a)] On at least two occasions, the Committee for this case stated its intent to use an average of water use over a previous *5-year* period, as a baseline for water intake issues. (Committee Ruling from the bench on 8/16/01 RT 168; Committee Order of 8/30/02.) The Committee selected this baseline period because 1) it is appropriately close in time to the commencement of the Staff environmental review of the Project, 2) it allows any environmental analysis to include the latest information available, and 3) by averaging usage over a 5-year period it reduces the ability of a single high-use, or low-use, year to unreliably skew the baseline information.

The Regional Board has provided the record with reliable, uncontested data showing average monthly flows of the existing plant since 1987. (Ex. 187.) Yet, in spite of the existence of such reliable evidence, Staff ultimately abandoned this data for the purpose of establishing a baseline of current impacts to marine biological resources.[4] Instead of making use of reliable evidence in the record to establish a baseline for impacts, Staff recommends the Commission use "a qualitative discussion of the issue." We reject this approach. First, every expert witness that testified in this proceeding – including the Staff witness – accepted

[3] Annual daily average.

[4] Staff continued to support the use of a 10-year average as an appropriate baseline for limited purpose of evaluating *water use* by the existing plant, as opposed to establishing a baseline for impacts to *marine biological resources*. (Staff Opening Brief on Group IV Topics, p. 19.)

that entrainment is a function of water use. (Ex. 197, p. 2-39; Ex. 267.) Experts from the Technical Working Group expressed the same view.[5] Second, the evidentiary record provides a defensible and precise way to establish the change in water use resulting from the Project. Third, the fact that there exists variability of historic plant operations and marine spawning events does not establish that no correlation exists between entrainment and water use. Such variability has existed during the operating life of the existing plant and it is reasonable to assume that the same would be true for the modernized Project. There is no evidence supporting an assumption that the new plant maintenance schedules, outages or other operational changes will correlate differently with spawning events than does the existing plant. Staff's own witnesses testified to the lack of useful correlation evidence: "[b]oth power plant operation and bay/estuary species life cycle events vary annually, and when considered together, they vary to an unpredictable degree." (Ex. 197 at p. 2-26.)

Thus, rather than establish a baseline upon a "qualitative discussion of the issue" for which no precise evidence exists in the record, we choose to establish a CEQA baseline upon the best evidence available: that of historical short-term maximum water intake and that of historical long-term intake based upon annual average daily use figures over a 5-year period. This evidence is based upon actual maximum limits of the existing pumps and of Regional Board data of actual average monthly flows. (Ex. 187.)

Regarding the appropriate period from which to gather baseline data, the record provides numerous possibilities. As previously noted, for a CEQA baseline, existing conditions are determined at the time the environmental analysis is commenced. [14 Cal Code Regs §§ 15125 (a), 15126.2(a)] However, this timing rule is not rigid and courts have ruled that baselines can and should be adjusted

[5] Dr. Raimondi's overview description of how entrainment losses were calculated states his assumption: "…first, you calculate the volume of water that enters the plant…(6/6/02 RT at p. 16: 9-10.)

in some instances. *Our Penninsula Comm. v Monterery County Bd. of Supervisors* (2001) 87 CA4th 99, 125, 104 CR2d 326. The Commission could reasonably adopt a baseline figure applying water use data from the single year before the Project was filed. Yet, the operating levels of power plants can fluctuate considerably from year to year. We chose not to select a single year's data in order to avoid relying too heavily upon data which may not be typical of recent operations. Applicant argues for a 3-year period average to reflect a period which includes both Duke's ownership of the existing plant and the regulatory and market conditions which have existed since passage of AB 1890. While these are valid arguments, we prefer to cast back over a longer operating time period.

The Committee originally selected the 5-year period ending with the year 2001. This included the most recent reliable data from the Regional Board, preceded the Staff's environmental analysis of Project impacts on aquatic biological resources, and is consistent with Commission action in at least one prior case.[6] However, upon reconsideration, the Committee ordered that the baseline be established in reference to average water intake over the 5-year period 1996 through 2000. (Committee Order dated 8/30/02.) We note that this 5-year period is no more likely to be accurate than the 1997 through 2001 period previously identified. In fact, it burdens Applicant with two years in which the existing plant was owned by PG&E (prior to 1998) and was operated at flow rates far below

[6] In a comparable prior case, the Commission applied a five-year history in establishing a baseline for water intake. In the Moss Landing Power Plant AFC proceeding (Docket No. 99-AFC-4) previous Units 1-5 had operated from 1950 to 1995 while Units 6 and 7 operated from 1960 to the present. Since Units 1-5 were not operating during the 5-year period prior to Staff commencing its environmental analysis, Staff did not consider water intake from those units in calculating the CEQA baseline for the proposed project. However, had Staff applied a ten-year average in the Moss Landing case, as they recommend doing here, the CEQA baseline for the Moss Landing project would have increased, due to including 5 years of operation impacts from Units 1-5 in the baseline. This would have substantially reduced the relative impacts from the Moss Landing project. (Commission Decision on Moss Landing Power Plant, Pub. No. P 800-00-008, Nov. 2000.)

average flow rates following Duke's purchase.[7] Nevertheless, the 1996-2000 period precedes environmental analysis by the Commission staff and imposes an additional conservatism in our analysis by reducing the level of baseline flow averages.

b. Cooling Water Withdrawal

First, it is important to note that essentially no water is lost during the cooling process with the once-through cooling system. Other process water, which makes up the consumptive water use of the project, is provided by desalinization of seawater, therefore no freshwater is required. The amount of seawater consumed in the desalination process is not considered to cause a significant impact on water supply. Furthermore, the withdrawal of salt water near the mouth of the Morro Bay estuary is unlikely to cause a significant impact on saltwater supplies. Thus, Staff and Applicant agreed that the Project will not have a significant impact upon seawater supplies. (Ex. 143. p. 4-36.)

However, the amount of future water use by the Project was hotly disputed in the case because of the linkage between the amount of seawater used by the Project for once-through cooling and the impact of such seawater pumping upon marine organisms. The testimony of Duke, CEC Staff, and the Regional Board staff all acknowledged this relationship. (Ex. 197, pp. 2-26, 2-39 through 2-40, Ex. 267.) Thus, pursuant to CEQA, if the Project does not pump more seawater than the existing plant, it is not likely to impose a significant impact upon the marine environment due to entrainment. The effects of such pumping on marine biological resources is discussed in the **Biological Resources** section of this Decision.

[7] Flow rates for the period 1996-1997 average 276 MGD while flow rates for 1998-2000 average 461.33 MGD. (Ex. 187.)

Applicant argues that as to future cooling water withdrawals by the Project, there is ample evidence in this record that future *maximum daily* withdrawals for cooling (including maximum duct firing) will be 475 MGD. (Ex. 177, p. 19-20; Ex. 186; 3/13/02 RT 76-81, 204-221, 173-175.) It is undisputed that this is the maximum nameplate capacity on the combination of cooling water pumps for the Project.[8] This figure must be compared to the CEQA-comparable baseline figure of 668 MGD as the maximum daily withdrawals for the existing plant. (Ex. 186.)

As to *annual daily average* withdrawals,[9] Duke argues that there is substantial evidence that using any reasonable capacity factor the new plant will withdraw less than either the five- or even the fifteen-year historic average annual water use.[10] (*Id*.) As we determined in our previous discussion regarding the appropriate CEQA baseline for cooling water intake, the appropriate annual daily average, determined over the 5-year period 1996 through 2000, is 387.2 MGD. This figure must be compared to the Project's limitation of 370 MGD on an annual daily average, as stated in the Draft NPDES permit. (Ex. 312, p. 28.) Since the Project will have a *reduction* of water intake of over 17 million gallons per day compared to the existing baseline, there are no long-term CEQA impacts related to cooling water intake. Viewed on a short-term basis, the existing plant draws up to a maximum of 668 MGD while the maximum intake for the new Project will be 475 MGD, a reduction of 29 percent or 193 MGD less. Thus, short-term CEQA impacts from cooling water intake will be less than the existing plant.

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[8] The maximum nameplate capacity of 475 MGD is also enforceable through the limitation on maximum daily flow contained in the Draft NPDES permit. (Ex. 312, p. 28, ¶ B.1.)

[9] Annual daily average means the total flow into the intake in a calendar year divided by 365 days.

[10] The Regional Board has recorded actual flows at the existing MBPP averaging 402.4 MGD for the fifteen-year period ending 12/31/01. (Ex. 187, p. 4.)

On the other hand, Staff and CAPE have argued that the Project in the future will have a *long-term average* water use equal to its full duct firing *maximum daily* permit limit. In other words, those parties urge the Commission to assume that the Project will pump seawater for once-through cooling at its maximum capacity, at all times. Staff in the FSA compared the 475 MGD *maximum daily* use (at full duct firing) of the new plant to the 404.4 MGD fifteen year historic *average annual* use of existing plant.[11] (Ex. 143, p. 4-25, Table 3.) Nevertheless, during cross examination the Staff witness testified that he knew the new plant would not actually operate at its full duct-firing daily maximum on a long term, continuous basis.[12] Other parties such as CAPE have followed Staff in comparing historic average daily water use to future potential maximum possible water use. (*See*, e.g. Ex. 175, p. 2.) Participating agencies including the City, the Regional Board, and the Coastal Commission have also relied upon Staff's FSA analysis for important judgments regarding the Project.

Applicant argued persuasively that the Staff approach of comparing past average water use to future maximum water use is like comparing apples to oranges.[13] Duke's witness further pointed out that the Staff assumptions for annual average water use are clearly not accurate. They assume a number for *annual average* daily use, which is actually the number for *daily maximum* use. However, the figure cannot be applied to realistically assess water use throughout the year because it allows no down time for maintenance, no reduction of duct firing due

[11] This figure is apparently based on flows through 9/30/01. The daily average for the period through 12/31/01 is 402.4 MGD. (Ex. 187.)

[12] MR. ELLISON: Do you agree that this plant in the future will not operate at 475 on a long-term, continuous basis?
MR. HENNEFORTH: I would agree to that. (3/13/02 RT 220:23 to 221:1.)

[13] One might as well calculate the average mileage of a high-performance sports car by assuming it operates constantly at its 200 mph maximum speed.

to market conditions, and reflects no regulatory air or water limitations on duct firing.[14] (3/13/02 RT 167:9 to 168:8.)

One specific regulatory limitation that would come into play to limit the theoretical maximum amount of duct firing is found in the Draft NPDES permit. (Ex. 312.) The permit limits the Project's annual daily average water intake to 370 MGD.[15] This means that regardless of how much duct firing the Project carries out, it cannot pump more than 135,050 MG in a single year (370 MGD x 365 days = 135,050 MGY). If one applies the Staff assumption of constant duct firing, the NPDES permit alone would limit plant operation to a period of 284 days (135,050 MG ÷ 475 MGD maximum = 284 days). Of course this calculation allows no time for maintenance and further assumes that market demand for peaking power endures for 284 days in a year – a very unlikely assumption given historical fluctuations in demand for electricity within the year. Still, since maximum duct firing for 284 days would cause the NPDES permit to limit baseload operation, the Project would be limited to an available capacity of 78 percent (284 days ÷ 365 days = 77.8%). This extremely conservative capacity figure is consistent with the estimated 80 percent capacity factor used by Duke's witness.[16]

We find that the Staff analysis on this matter is fatally flawed. This is because it makes the wholly unrealistic assumption that maximum duct firing would occur for all hours in the year. Even the Staff witness acknowledges this cannot happen. (3/12/02 RT 212.) In its assumptions of maximum water intake for the

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[14] Duke's air quality witness calculated that based on an annual analysis, using appropriate atmospheric conditions, and assuming turbine operation in baseload and duct firing at full capacity, the maximum number of hours of duct firing would be 4000 hours. (3/12/02 RT 66.) This figure does not appear as a limitation in the air district's FDOC. (*Id.* RT 61:3-6.) Rather Applicant's calculation is based on fuel use limitations and mass emission limitations. (*Id.* RT 69.)

[15] Applicant had proposed a 400 MGD annual average limitation in its Opening Brief for Group III Topics, p. 3-55. Duke later reduced voluntary limitation to 370 MGD.

[16] Applicant's witness testified that based on his 30-years experience with more than 100 power plants, the assumption of an 80 percent capacity factor is conservative. (3/13/02 RT 111, 127, 142.)

Project, Staff has failed to make any realistic adjustments for maintenance, regulatory operating limits, or market demands, no matter how conservative. We, therefore, must reject the Staff approach and rely upon the credible and substantial evidence provided by Applicant's witness that 80 percent represents a reasonably conservative assumption of Project's likely availability for operation. Based on the record, both maximum daily and annual average daily cooling water flows for the Project will be reduced on a long-term basis compared to the existing plant.[17]

Based on the evidence contained in the Draft NPDES permit (Ex. 312.) *as a matter of law*, the new Project will be limited to cooling water use that is less than the Committee's CEQA baseline.[18] Accordingly, we conclude that under CEQA, the Project will not have a significant, adverse environmental impact related to cooling water use.

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[17] As discussed above, all parties agreed that the maximum use of the new plant will be 475 MGD and that the existing plant maximum is 668 MGD. As to long-term average use, Staff admitted that average annual water use will decline from the five year baseline ordered by the Committee even assuming an extreme 90% capacity factor for the new plant. (3/13/02 RT p. 214-216.) Neither CAPE witness Wagner nor Staff witness Henneforth could identify any combined-cycle plant similar to the proposed MBPP that had achieved a 90% capacity factor over more than a year. (*Id.*; 3/13/02 RT 171.) The Duke witnesses testified that even an 80% capacity factor is:

> "a realistic conservatively high estimate of what future actual usage may be, given the way power plants are dispatched, market conditions, daily cycles in power demand, annual cycles and availability of power from alternate sources like hydroelectricity, seasonal weather patterns and so forth. We think that even the 328 MGD is high." (3/13/02 RT 79-80.)

[18] Intake use will also be below the levels of a variety of alternative baselines. (See Soil & Water, Table 1)

TABLE 1

MORRO BAY POWER PLANT ONCE-THROUGH-COOLING WATER USE

DERIVED FROM AVERAGE MONTHLY WATER USE DATA AS FILED WITH THE CCRWQCB FOR THE LAST 15 YEARS

Historical compared to Project[1]

	Average Annual Historic Use	**370 mgd**
Year of filing (2000)	**567 mgd**	**-34.75%**
3 Year Average (1998-2000)	**461 mgd**	**-19.74%**
5 Year Average (1997-2001)	**436.6 mgd**	**-15.26 %**
5 Year Average (1996-2000)	**387.2 mgd**	**-4.45 %**
10 Year Average (1992-2001)	**379.4 mgd**	**-2.48 %**
10 Year Average (1991-2000)	**373.2 mgd**	**-0.86 %**
15 Year Average (1987-2001)	**402.4 mgd**	**-8.06 %**

Source: CRWQCB, Ex. 187.

[1] This table compares the actual historical once-through-cooling water volumes to the permitted annual daily average volume (370 MGD) of the proposed new power plant. The - indicates that the proposed new power plant with all eight pumps running will use less (-) water on an annual daily average than the actual water volume used historically at Morro Bay Power Plant.

3. Waste Water

The collection system for the existing plant operates under the plant's current NPDES permit.[19] All plant wastewater streams that contain regulated constituents are treated prior to discharge to achieve allowable limits. Sources of wastewater generated by the existing plant operation and maintenance include seawater that has been circulated through the plant condensers, discharge of intake screen wash, evaporator blowdown, boiler blowdown, bearing cooling water, floor drain water and other miscellaneous plant liquids. The seawater cooling system, including the screenwash water, discharged an average of approximately 504 million gallons per day (mgd) from June 1999 to June 2000, which is the highest flowrate in recent years, but is still lower than the maximum permitted limit of 725 mgd. The annual average boiler blowdown, plant washdown, and evaporative blowdown total approximately 100,000 gpd.

Additional waste discharge streams that are routed to the cooling water outfall in Estero Bay include: process wastewater that has been passed through an oil/water separator, equipment washdown water, basement sump water, and stormwater. The oil/water separator discharges an average of 5,000 gpd of plant wash water and precipitation runoff from roof drains, and storm drains in the area of the boiler fans. Stormwater from general plant areas such as parking lots, roads, and other non-industrial areas currently flow directly to Willow Camp Creek, then to Morro Creek and to Estero Bay. Domestic sewage at the site is managed by a sanitary lift station which collects domestic wastes that are then sent to the local sewer system. (Ex. 143, p. 4-14.)

Wastewater flows for the proposed Project were analyzed by Staff and found to be similar to those of the existing plant. Based on the comparable wastewater discharge flows from the Project as compared to the existing power plant, Staff

[19] NPDES permit No. CA 0003743, last reissued on March 10, 1995 by the Central Coast Regional Water Quality Control Board.

concluded that there will be no significant adverse impacts for the area of wastewater discharge when compared to the operation of the existing units 1-4.[20] Approved wastewater discharges for the Project are detailed in type and average flow (MGD) in Table 1 of the Draft NPDES permit for the new Project. (Ex. 312.)[21]

1) Cooling Water Discharge

Applicant's witness testified that the cooling water used by the existing plant is discharged into Estero Bay through a surface canal on the north side of Morro Rock. The discharge temperature increase over that of the intake temperature averages 22°F when the existing plant is operating at full capacity. Cooling water flows and temperature increases are less when the plant is generating at less than maximum capacity.[22]

The Executive Officer of the Central Coast Regional Water Quality Control Board has determined in its Draft NPDES permit for the Project, that the discharge from the proposed Project is "existing" within the meaning of the California Thermal Plan and that the permitted volume of cooling water and the permitted effluent temperature limits are reduced compared to the permit for the existing plant. (Ex. 312, p. 7.) The Draft NPDES permit includes an enforceable "effluent limitation" which limits cooling water discharge flows from the Project to a maximum of 475 MGD at any time and to an annual daily average of 370 MGD. (*Id*. p. 28.)

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[20] Project impacts to biological resources is discussed in the section of this Decision on Marine Biological Resources.

[21] The types of discharges include: once-through cooling water, intake screen wash return, make-up water system brine, boiler chemical metal cleaning waste, boiler wash/rinse and boiler layup solution, miscellaneous non-routine discharges, Units 5 and 6 boiler blowdown, miscellaneous floor drains, storm water runoff for yard and roof drains, and general stormwater runoff. (Ex. 315, p. 4, Table 1.)

[22] For example, the Morro Bay Power Plant Modernization Project Thermal Discharge Assessment Report, May 11, 2001 (Ex. 160) shows that temperature increases averaged 13.6°F in the first six months of 2000, and 19.3°F in the last six months of 2000.

Testimony of the Duke witnesses stated that the Project will use less cooling water than the existing plant and that the Project's reduced maximum and annual average flows apply equally to the thermal discharges. They stated that average discharge water temperatures of the new plant will be similar to those of the old. However, maximum temperatures of the Project will be less than those of the existing plant. Weighted on an annual maximum possible basis, at maximum plant generating loads, there will be reduction in heat loading of 45 percent for the new Project. (Ex. 177, p. 20; Ex. 160, p. 2-2, Table 2-1.) The Duke witnesses argue that because of the reduced thermal discharge flow and heat loading, the Project's thermal discharge will be smaller than that of the existing plant and therefore, will reduce impacts under CEQA. (Ex. 177, p. 20-21.)

Staff testimony determined that the cooling water discharge of the Project would have "minimal to no" impact on sedimentation in Morro Bay and would have no significant adverse impacts for the area of wastewater discharge when compared to the existing plant. (Ex. 143, p. 4-25.) There exists no substantial evidence to the contrary.

2) Thermal Plume

The Thermal Discharge Assessment Report (Thermal Report) was prepared under the direction of the Technical Working Group.[23] The thermal surveys taken for the report measured existing temperatures in the existing plant's thermal plume through a variety of means. These included fixed temperature recorders at about 35 locations, aircraft-based infrared photography to show images of the thermal plume, periodic boat-based surveys, and the recordation of wind and wave conditions for the days of the survey. (Ex.143, p. 4-15; Ex. 160.) The power plant electricity generation production level varied from 26 percent to 100

[23] The Technical Working Group included representatives of CEC staff and their independent experts, Regional Board staff and their independent scientific experts, and California Department of Fish and Game staff.

percent of capacity during the monitoring period, with most of the surveys being at above 50 percent of capacity. The power plant production levels during the monitoring period represent actual conditions and therefore provide an indication of actual impacts. Power plant production levels during these surveys varied from 63 to 85 percent of capacity. The length of the 4°F temperature rise isotherms for these surveys varied from 2,000 to 5,000 ft from the discharge point. (Ex. 143, p. 4-16; Ex. 160.)

Applicant's witnesses testified that compared to the existing plant, the proposed Project can be expected to reduce the magnitude and distribution of the thermal plume by decreasing the heat of discharge waters by 45 percent and volume by 38 percent. (Ex. 177, p. 21.) Duke predicts that the area influenced by the new Project's thermal plume will be no greater than it is with the existing plant (*Id*.)

The Regional Board's draft NPDES permit found that thermal discharge from the existing plant effects about 600 feet of shoreline along the north side of Morro Rock. It states that although the design volume of the Project will be less than that of the existing plant, the thermal effects will be about the same. Since the impacts from the Project will not increase thermal effects, the Regional Board found that the Project will comply with the California Thermal Plan. Because the Project complies with the Thermal Plan, there is no legal requirement to consider additional mitigation and/or alternatives. However, the Regional Board staff notes that even if this were not the case, there are no reasonable alternatives which could reduce the Project's thermal impacts. The alternatives discussed by the Regional Board are all either worse for the environment, unreasonably expensive, or both. (Ex. 312, pp. 7-8.)

4. Stormwater Management and Flooding

A portion of the Project site is located within the 100-year floodplain along Morro Creek. (Ex. 177, p. 7.) However, Duke conducted a Morro Creek Flood Hazard

Evaluation (Ex. 56.) and found that the crest elevation of the existing tank farm berms is in excess of 8 feet above the 100-year water surface elevation. (Ex. 177, p. 8.) The Project will leave most of the existing berms in place.[24] (*Id*.) The Project will discontinue the current discharge to Willow Camp Creek and reroute it to Morro Bay. No stormwater runoff that exceeds NPDES requirements will occur. The stormwater system for the proposed MBPP project will discharge into the existing system. Site drainage facilities would be designed for a minimum 25-year frequency runoff event with safe overland flow or system capacity for the 100-year event. In addition, Applicant indicated that the new Project site "will be designed such that the tops of the foundations and building finish floor elevations will be above the surrounding road and finish grade elevations to prevent flooding during the 100-year storm event." (Ex. 143, p. 4-19.)

Because the stormwater discharge will be permitted under a General NPDES permit for Stormwater Discharges from Construction and Operational Activities, Applicant will be required to develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would consist of Best Management Practices that would be utilized to prevent contaminated runoff from entering Morro Bay. (*Id.* p. 4-20.)

If the City decides to request a Conditional Letter of Map Revision (CLOMR) with the Federal Emergency Management Agency (FEMA), that agency will evaluate the adequacy of the Project site's existing dike and berm system during their CLOMR review. If found adequate, FEMA will grant the CLOMR, which will serve as appropriate mitigation for flooding concerns. If the CLOMR is not granted, FEMA may require that Applicant implement more stringent mitigation. Applicant has also stated that the dike and berm and any other portions of the Project within the 100-year base flood elevation would be designed to comply with the City of Morro Bay Flooding Ordinance. No significant impacts are

[24] Duke's flood analysis (Ex. 56) shows that the 100-year flood plain at the site ranges from +17.7 to 20.2 feet MLLW, which is less than the 20.73 to 23.73 contained in the 1985 FEMA study of the area. (Ex. 177, p. 8.)

expected from flooding. (*Id*. p. 4-19.)

5. Groundwater

The Applicant uses the maximum daily pumping limit of 80,000 gallons to estimate the maximum pumping rate of 55 gpm. Based on the low pumping rate, high permeability of the aquifer and cross-gradient location relative to the City wells, Applicant concluded that no pumping interference is anticipated to impact the nearest City well. (Ex. 4, p. 6.5-60.)

Nevertheless, Staff analyzed two potential impacts related to groundwater pumping at the Project. Both potential impacts would be short-term and could occur during construction when groundwater demand is the greatest. No long-term impacts to groundwater were identified. (Ex. 172, p. 4-1.) During construction, well interference at the nearby City wells may exceed the levels that occur under typical pumping by the existing MBPP. If a high-use period coincides with seasonal low water levels in the summer and fall, well yields for both the City and the MBPP wells could be diminished. (Ex. 143, p. 4-20; Ex. 172.)

The second potential impact involves Project effects on the local groundwater gradient to the extent that it may cause the methyl tertiary-butyl ether (MTBE) plume located northeast of the Project to migrate toward the supply wells. Sustained pumping by the MBPP wells could potentially alter the migration path of MTBE contaminated groundwater, encourage migration toward the City or MBPP wells, and impact efforts to control and remediate the MTBE plume. Staff has identified mitigation measures that are feasible and that will sufficiently mitigate these impacts to a less than significant level. (*Id*.)

Conditions of Certification **SOIL & WATER 6 through 10** address potential groundwater impacts and will ensure that the Project has no significant impacts on groundwater resources.

6. Conditions

Applicant expressed concerns regarding the wording of Conditions **SOIL & WATER 1 and 2** as it related to the timing of the required Storm Water Pollution Prevention Plans (SWPPPs). The Duke witnesses found this condition generally acceptable with relatively minor clarifications. (Ex. 177 p. 25; 3/13/02 RT 56.) The purpose of the proposed change is to avoid submission of all SWPPPs at the beginning of tank farm demolition. (*Id.* RT 192.) Staff agreed with phasing the submission of the SWPPP plans, so that the plan submitted prior to tank farm demolition would be limited to potential impacts of that phase of the Project only. (*Id.* 232-234.) We have made the recommended change using Staff's proposal. Condition **SOIL & WATER 3** was not disputed and a minor correction was made. (Ex. 177, p. 26; 3/13/02 RT 58, 193.)

Applicant also recommended changes to Condition **SOIL & WATER 4,** which requires Applicant to meet the substantive requirements of a grading permit required by the City of Morro Bay's Flood Damage Protection Plan Ordinance. After some give and take on the record, Staff agreed to consider the phased timing of the permit information. The change allows Applicant to move forward on tank farm demolition without having to first complete all grading plans for the construction phase of the Project. The original requirement could result in delaying the tank farm demolition. (Ex. 177, p. 26; 3/13/02 RT 58-59, 193-194, 232-234.) Because Duke's recommendation provides for adequate compliance with permit requirements while avoiding unnecessary delay, we adopt Applicant's recommendation.

Applicant recommended deleting Condition **SOIL & WATER 5.** (Ex. 177, p. 25-35.) That Condition would have required Duke to obtain a Section 10 permit from the United States Corps of Engineers for the proposed Morro Creek bridge construction. However, Applicant's testimony clarified that because of the advance approval of the bridge by the U.S. Coast Guard and because the bridge will not involve a discharge of dredged or fill material to jurisdictional waters of the U.S., the bridge will not require authorization under Section 10 of the Rivers and Harbors Act of 1899. (Ex. 177, p. 27.) Staff agreed with Applicant. (3/13/02 RT 194.) The evidence of record supports deleting condition **SOIL & WATER 5** and we have done so. However, in the interest of clarity, we have shown the Condition as deleted and have left the original numbering of the Conditions of Certification as it appeared in the Staff FSA.

Staff basically agreed with Applicant's recommendation to **SOIL & WATER 6** that the role of the Department of Toxic Substances Control (DTSC) be clearly described. (Ex. 177, p. 27; 3/13/02 RT 194.) However, Staff wants to ensure that the substantive requirements of this condition are consistent with Condition of Certification **WASTE 3.** Both Conditions ensure that no Project construction may begin which involves the disturbance of contaminated soils until the CPM has determined that all necessary remediation has been accomplished. (*Id*. 194-195.) Applicant agreed to accept Staff's proposed language. (Duke's Reply Brief on Group III Topics, p. 3-34.) The change is also acceptable to the City of Morro Bay. (City of Morro Bay's Reply Brief Re: Group III Topics, p. 7.)

On Condition **SOIL & WATER 7**, Duke sought to limit the Condition to a situation in which MTBE contamination at a nearby gas station has not been fully remediated. (Ex. 177, 29.) Staff countered with language, which acknowledges Applicant's timing concern, but still addresses both drawdown and MTBE contamination to groundwater. (3/13/02 RT 196.) The Staff approach also ensures groundwater flow metering for the life of the Project. We have adopted

Staff's language as best addressing the groundwater concerns while recognizing the phased nature of the Project. There was no controversy regarding Conditions **SOIL & WATER 8** and **9**. These address respectively, the monitoring of on-site wells for MTBE and requirements for handling on-site wells in the Project's Closure Plan.

Condition **SOIL & WATER 10** raises several of the same issues as those relating to Soil and Water 7 since it also relates to groundwater pumping. The Duke witnesses testified that the MTBE-related need for this Condition would be eliminated if the CCRWQCB finds that the remediation of the MTBE plume is complete before the start of the construction phase of the Project. (Ex. 177, p. 30-31; 3/13/02 RT 62-65.) Staff supported the proposed change, but required that the flow monitoring continue and wanted Applicant to use an appropriate observation well if the MTBE monitoring wells are no longer available. (3/13/02 RT 197.)

In addition, the Duke witnesses and those of Staff agreed that the calculation for the required pump test should assume City pumping of 730 acre feet/year (the maximum recorded City pumping rate) and not the 1,000 acre feet/year in the condition as originally written. (Ex. 177, p. 30-31; 3/13/02 RT 62-65, 197.) The Duke witnesses also testified that this condition should only require Duke to remedy that portion of the pumping capacity issue that can be directly attributed to the Project's pumping rate. (Ex. 177, p. 30-31; 3/13/02 RT 62-65.) To achieve this result, Applicant and Staff developed language for this condition requiring groundwater flow modeling. (3/13/02 RT 48-49, 64, 198.)

Finally, the Duke witnesses proposed that the verification for this condition be amended such that the required aquifer test and analysis be submitted 60 days prior to commencement of the construction phase of the Project rather than site mobilization (meaning tank farm demolition). (Ex. 177, p. 31.) Staff and the City opposed this change. (3/13/02 RT. 198, 250.) We think it is reasonable to

require testing only prior to the construction phase of the Project. Therefore, we have modified the condition to reflect this change.

The City of Morro Bay also sought to amend this Condition such that Duke would have to reduce its water use rather than having the option to provide compensatory water to the City. (Ex. 174, p. 3-4.) Both the Applicant and Staff rejected this proposal, testifying that Applicant's provision of replacement water should remain an option. (3/13/02 RT 68-70, 200-201.)

SOIL & WATER 11, as proposed by Staff in the FSA, would have required Duke to file a Conditional Letter of Map Revision (CLOMR) with the Federal Emergency Management Agency (FEMA). The Duke witnesses testified that by regulation, the Project does not require a CLOMR or any revision of the flood maps. They believe that if a CLOMR is necessary for the City generally, it is the City's responsibility to file it, rather than Duke. (Ex. 177 at p. 31-35; 3/13/02 RT 65.) Applicant's witnesses recommended that the condition be deleted. (*Id*.) Staff witnesses agreed to change the Condition provided it would require Duke to cooperate with the City in such a filing. (3/13/02 RT 199-200.) In its Opening Brief, Staff has proposed substitute language.

Duke states that it has no objection to providing the City of Morro Bay with site data and analysis in its possession relevant to the submission of a CLOMR. Applicant has also agreed with the City to provide up to $3,000 toward the costs of any such submission. However, Duke expressed concern that the cost be limited to the amount agreed upon and that the verification for the Condition not link submission and approval of the CLOMR to site mobilization for the Project. Applicant argues that such linkage 1) is not required by law (Ex. 177, p. 32-34.), 2) is a matter between the City and FEMA as to the application and approval of the CLOMP and, 3) the process of submittal, review, and approval is likely to take an extended amount of time and, if linked to site mobilization, could delay

the start of tank farm demolition. (Duke Reply Brief on Group III Topics, pp. 32-43.)

We have used Staff's revised language for Condition **SOIL & WATER 11** but have modified it to limit the maximum cost to Applicant and to eliminate any linkage between approval of the CLOMR and site mobilization.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, and assuming implementation of the Conditions of Certification, 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 terms and conditions of the National Pollutant Discharge Elimination System (NPDES) permit issued for this Project by the Central Coast Regional Water Quality Control Board are incorporated into this Decision.

4. The Project's compliance with existing and new permits, including the (NPDES) permit will result in no significant water quality degradation.

5. The Project's compliance with NPDES permit requirements will result in no significant adverse impact due to wastewater discharge or stormwater management and discharge.

6. The project will not have a significant, adverse environmental impact on local freshwater or ocean water supplies.

7. On a short-term basis, the existing plant draws up to a maximum of 668 million gallons per day (MGD) while the maximum intake for the new Project will be 475 MGD, resulting in a reduction of 29 percent or 193 MGD. Thus, short-term CEQA impacts from cooling water intake will be less than the existing plant and therefore not significantly adverse.

8. On a long-term basis, the appropriate CEQA baseline for cooling water intake, is the annual daily average of cooling water flow rates, determined

over the 5-year period 1996 through 2000**,** amounting to 387.2 MGD. This figure must be compared to the Project's limitation of 370 MGD on an annual daily average, as stated in the Draft NPDES permit. (Ex. 312, p. 28.) Since the Project will have a *reduction* of water intake of over 17 million gallons per day compared to the existing baseline, there are no long-term significant impacts related to cooling water intake, pursuant to CEQA.

9. Based on the record, we conclude that both maximum daily and annual average daily cooling water flows for the Project will be reduced compared to the existing plant.

10. Credible and substantial evidence provided by Applicant's witness establishes that a reasonably conservative assumption of the Project's likely operation capacity is 80 percent.

11. The Project will not have a significant, adverse environmental impact related to cooling water use.

12. The Project's proposed thermal discharge will not result in any significant detrimental biological impacts.

13. The construction and operation of the Project will not cause any significant or cumulative adverse impacts to soil and water resources.

14. 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 Morro Bay Power Plant Project will create no signification direct, indirect, or cumulative adverse impacts to soil or water resources.

CONDITIONS OF CERTIFICATION

SOIL & WATER 1: Prior to site mobilization of all project elements including off-site staging, laydown areas, and linear facilities, the project owner shall obtain Energy Commission CPM approval for the Final Storm Water Pollution Prevention Plans (SWPPP) as required under the General Stormwater Construction Activity Permit for the project. The project owner may provide the

SWPPP in two phases, the first of which addresses tank demolition, and the second of which addresses all the other components of the project.

Verification: No later than 60 days prior to the start of site mobilization, the project owner will submit copies of the final Storm Water Pollution Prevention Plans (SWPPP) to the Energy Commission Compliance Project Manager (CPM) for review and approval and to the City of Morro Bay for comments.

SOIL & WATER 2: Prior to beginning any site mobilization of all project elements including off-site staging, laydown areas, and linear facilities, the project owner shall obtain CPM approval of a final erosion and sediment control plan and stormwater management plan that addresses all project elements. The project owner may provide the SWPPP in two phases, the first of which addresses tank demolition, and the second of which addresses all the other components of the project.

Verification: The erosion and sediment control plan and stormwater management plan shall be submitted to the CPM for review and approval and to the US Army Corps of Engineers and the City of Morro Bay for comment no later than 60 days prior to site mobilization. Approval of the final plans by the CPM must be received prior to site mobilization.

SOIL & WATER 3: The project owner shall obtain the National Pollutant Discharge Elimination System Permit from the Central Coast Regional Water Quality Control Board for the MBPP prior to operation. 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 changes made to this permit, including any permit renewal, and shall provide copies of all relevant documentation. The project will not operate without this permit in place.

Verification: Prior to project operation, and within 30 days following receipt of a National Pollutant Discharge Elimination System Permit from the Central Coast Regional Water Quality Control Board, the project owner shall submit a copy of the permit to the Energy Commission CPM. 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. The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of this permit and shall provides copies of all relevant documentation.

SOIL& WATER 4: Prior to any site mobilization for the construction phase of the project at the power plant site, the project owner shall satisfy the substantive requirements of a grading permit as required by the City of Morro Bay Public Services Department and a Development Permit pursuant to the City of Morro Bay Flood Damage Protection Plan Ordinance.

Verification: No later than 60 days prior to any site mobilization for the construction phase of the project, the project owner will submit all required documents and figures to the CPM for review and approval and to the City of Morro Bay for comment.

SOIL & WATER 5: This Condition has been deleted.

SOIL & WATER 6: The project owner shall have an environmental professional (as defined by the American Society for Testing and Materials practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) available for consultation during excavation activities. The environmental professional shall have authority to stop construction work in the event contamination is encountered. If potentially contaminated groundwater is encountered during excavation at the proposed site 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 and the CPM 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 DTSC (the administering agency), CCRWQCB, and the City of Morro Bay for guidance and possible oversight. In no event shall any project construction commence that involves either the movement of contaminated soil or construction on contaminated soil until the CPM has determined that all necessary remediation has been accomplished. Similar requirements regarding proper management of contaminated soils are provided in the **Waste Management** section of this Decision.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall provide the CPM with the name and qualifications of the selected environmental professional for approval, and a work plan which details the procedures which will be used to address any contaminated groundwater, should it be encountered during construction for approval. Site mobilization can not commence until the environmental professional and the work plan are approved by the CPM. The work plan will identify how the project owner will address any adverse impacts, including impacts to the City's desalination wells, and the mitigation measures to be used to render them less than significant. Should contaminated groundwater or soil be encountered, the project owner will notify the CPM in writing within five days. Any reports filed by the environmental professional regarding any contamination shall be submitted to the CPM within five days of completion. Remediation shall have oversight and approval by the CPM and shall be coordinated with the DTSC and/or the CCRWQCB.

SOIL & WATER 7: Prior to the start of site construction phase mobilization, the project owner shall ensure that the City of Morro Bay, CCRWQCB and the party responsible for the MTBE contamination are notified of increased groundwater

use. The MBPP on-site wells shall be equipped with operational flow meters and totalizers to quantify short-term and long-term groundwater pumping.

Verification: At least 30 days prior to the start of site construction phase mobilization, the project owner shall submit to the CPM, for review and approval, a statement that identifies a contact list for the City of Morro Bay, the RWQCB, and the party responsible for the MTBE contamination and that the supply wells have been equipped with flow meters. At least 15 days prior to the start of site mobilization the project owner shall submit to the CPM a statement that the three parties have been notified. The project owner shall meter and record all groundwater flow throughout the six year (or more, as applicable) construction, demolition and site restoration period as well as the operation of the proposed MBPP. Results of the flow record will be submitted to the CPM quarterly.

SOIL & WATER 8: The project owner shall perform quarterly water quality testing of the on-site supply wells for MTBE. Additional water quality testing currently performed by the Mutual Water Company as required for small, non-community systems, shall be continued.

Verification: The project owner shall submit MTBE test results with a brief report quarterly to the RWQCB, City of Morro Bay, and the CPM until case closure by the CCRWQCB and the City of Morro Bay. The report will identify all test results, water quality trends and recommendations, as appropriate, to protect workers and the environment in the event MTBE reaches the project's wells.

SOIL & WATER 9: The project owner shall include in the facility closure plan for the proposed, new MBPP, a description of closure activity potential to impact soil and water resources, including requirements and procedures for destruction and capping the wells. 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.

Verification: Twelve months prior to facility closure the project owner shall submit a facility closure plan to the CPM for review and approval.

SOIL & WATER 10: The project owner shall conduct an aquifer test to determine the effects of increased pumping of the project's wells on water levels and water quality in the nearby City of Morro Bay wells. The aquifer test shall be performed by a Registered Geologist or Professional Engineer experienced in aquifer testing and analysis. The test shall use the North project well for pumping. The nearest City well and, if the MTBE remediation program is still ongoing at the time of the pump test, the nearest MTBE monitoring well, shall be used for water level monitoring during the aquifer test. If an MTBE monitoring well is not available, a second observation well shall be used. The test shall continue for a minimum of 72-hours at a constant rate of 50 gpm or more.

The pump test analysis shall calculate potential well interference using a "worst case" scenario of 2 years of drought (i.e. no recharge), the City of Morro Bay

pumping of 730 acre-feet/year, and the project owner pumping (whatever the maximum is). The analysis shall be based on a groundwater flow model based on site-specific aquifer drawdown to predict drawdown at radial distances from the pumping well. If interference attributed to the project's pumping rate is estimated to exceed 5 feet or City pumping levels will approach within 2 feet of the pump or top of screen, the project owner shall develop a contingency plan that either 1) reduces groundwater use by the project owner to a level where the exceedance that can be directly attributed to the project's pumping rate of the trigger levels is not predicted to occur, or 2) requires the project owner to provide alternate California DHS permitted water sources of equivalent volume and flowrate capability to the City of Morro Bay. The pump test results, analyses and contingency plan will be submitted to the CPM for review and approval, and to the City of Morro Bay for comment.

In the event the CCRWQCB has not determined that the offsite MTBE plume is fully remediated, the analysis shall also evaluate the potential for pumping of the project owner's wells to influence the MTBE plume. The analysis shall use the groundwater flow model developed by the responsible party (Shell Equillon) or develop a new model based on site-specific aquifer parameters. If the analysis indicates that project pumping by the project owner will cause a change in groundwater flow direction away from the MTBE extraction wells prior to case closure by the CCRWQCB and the City of Morro Bay, then the project owner shall develop a contingency plan that either 1) reduces groundwater use by the project owner to a level where no change in groundwater flow that can be directly attributed to the project's pumping rate is predicted to occur or 2) requires the project owner to provide alternate California DHS permitted sources of water of equivalent volume and flowrate capability to the City of Morro Bay. The pump test results, analyses and contingency plan will be submitted to the CPM for review and approval, and to the City of Morro Bay for review and comment.

Verification: Results of the aquifer test and analysis shall be submitted to the City of Morro Bay for review and comment and to the CPM for review and approval at least 60 days prior to site construction phase mobilization or within 30 days of completion of the pump test analysis, whichever is earliest. If the analysis indicates the pumping rate by the project will directly attribute to the trigger levels being reached, or that the project pumping rate will directly attribute to the modification of the flow direction, the contingency plan shall be prepared and submitted at least 30 days prior to the start of increased pumping for construction. The CPM shall coordinate review of the pump test results and approval of the contingency plans, with the City of Morro Bay, prior to the start of pumping.

SOIL & WATER 11: The project owner shall provide timely assistance to the City of Morro Bay in preparation and submission of all the information required to request a Conditional Letter of Map Revision (CLOMR) to the Federal Emergency Management Agency (FEMA), including reimbursement of actual costs incurred by the City, up to $3000, as determined by the CPM.

Verification: No later than 30 days prior to site mobilization, the project owner shall submit to the CPM a detailed description of the assistance provided by the project owner to the City of Morro Bay in preparation and submission of the information required to request a Conditional Letter of Map Revision (CLOMR).

SOIL & WATER 12: The applicant shall provide representative photographs of the proposed Morro Creek bridge crossing site from locations documented on a plan drawing indicating direction of the photograph. Photographs shall document pre-project site conditions, as well as implementation of the project during construction phases, and post-project conditions, including any required mitigation.

Verification: Photographs of pre-bridge crossing project conditions at Morro Creek shall be provided no later than seven days prior to site mobilization for the Morro Creek bridge project. Photographs of construction phases shall be delivered to the CPM and the Army Corps of Engineers within 48 hours of completion of each respective construction phase (digital photographs by e-mail, color facsimiles, or photographic prints are equally acceptable). Post-project photographs shall be provided within 30 days following completion of the project.

F. CULTURAL RESOURCES

This section discusses cultural resources, 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. More specifically, 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 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 includes historic archaeological resources, which are those materials usually associated with Euro-American exploration and settlement of an area, as well as the beginning of a written historical record. Such resources include deposits, sites, structures, traveled ways, artifacts, documents, or other indicia of human activity. 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, that 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 OF THE EVIDENCE

1. Project Site

Alluvia and sand dune deposits surround the Project site. Morro Rock is the prominent geologic feature in the area and is considered to be an eroded volcanic neck. Surface bodies of water within the Project vicinity are Morro Bay, Estero Bay, Willow Camp Creek and Morro Creek. Morro Bay has retained its approximate present form for the past 6,000 to 7,000 years. As an Estuary, the bay obtains most of its fresh water flow from Chorro and Los Osos Creeks, the outflows of which are situated approximately in the middle of the bay. The area has long been rich in both fresh water, ocean plants, and fish, thus providing a desirable habitation site for human beings over thousands of years. (Ex. 4, pp. 6.3-3 to 6.3-25; Ex. 115, p. 2-6.)

a. Prehistoric Setting

Applicant's Cultural Resource Confidential Technical Report asserts that people first inhabited the area at least 8,500 years ago. It appears that both Chumash and Salinan people were present during prehistoric times in the vicinity of Morro Bay. In fact, the boundaries of Salinan and Chumash territory before European contact are the subject of present day disputes between representatives of the Chumash and Salinan communities and between authorities in the fields of archaeology and anthropology. Historical evidence indicates at least one prehistoric Native American village existed within the Project area of potential effect. Two previously recorded archaeological sites have been identified within the Project vicinity. In addition, Applicant has tested a third deposit in the area of

the tank farm and recommended that it meets the eligibility requirements of the California Register of Historic Resources (CRHR). (Ex. 143, p. 2-6.)

b. Historic Setting

The earliest European contact in the Morro Bay area occurred when Sebastian Rodriquez Cermento arrived in Estero Bay in 1595. He was soon followed by other explorers, and in 1772, Mission San Luis Obispo was established. A naval station was built on the project site in 1941 and 1942 and in 1953, PG&E began building the existing plant. (Ex. 4, Vol. IV. App. 6-10, p. 2, 3.) According to a July 7, 1955 article in the San Luis Obispo Telegram Tribune," the new smokestack was considered a tourist attraction." Construction of the plant took place during the 1950's and 1960's with a major addition in 1963. (*Ibid.*)

The MBPP project will use existing transmission lines and pipelines, which presently serve the existing plant. The proposed Project would be located in the area now occupied by oil storage tanks. The storage tank area is covered with fill which varies from 4 feet to 10 feet in depth.

2. Cultural Surveys

Applicant's consultants conducted archival research, a ground survey, and consultation with Native Americans knowledgeable about the site.

a. Literature and Record Search

Applicant conducted a record search at the Central Coast California Historical Resources Information System (CHRIS). The search included an area extending one mile from Morro Bay Power Project property boundaries and was conducted to establish the locations of known resources within the Project area. The search provided a basis from which to predict the archaeological potential of the Project area and was also used to help evaluate the significance of known or previously unknown resources that may be discovered during Project development. (Ex. 4,

p.4.) The record search revealed that previous surface and subsurface archaeological investigations had been conducted in the vicinity of the existing plant and the proposed Project. (*Ibid*.)

Document review of numerous historic maps and historic sources revealed that, although a Naval Station was built during World War II where the power plant and Veterans' Building are located, the Naval Station was razed in 1953 and that all structures built prior to the power plant have been removed from the site. (*Ibid*.)

In addition to the power plant site, Applicant is proposing the use of three areas at Camp San Luis Obispo, located approximately 8 miles southeast of Morro Bay. The three areas total 39.2 acres in size. A record search was conducted by the Camp San Luis Obispo Base Archaeologist prior to fieldwork. The search identified five previously recorded sites either within or adjacent to the footprint of the laydown areas. Numerous World War II buildings also exist at Camp San Luis Obispo, although all wood building types from that period have been recorded as mitigation for the Army's Section 106 actions. (Ex. 4.)

The proposed offsite satellite parking area is approximately 10.62 acres and is located on the south side of Highway 1 between Highway 1 and Quintana Road. Minor grading and ground preparation will be necessary to support a park-and-ride facility. Most of the land on the parcel has been recently used for agriculture. A small portion of the area is used commercially with some of the area paved for parking. (Ex. 133.) A record search conducted at the Central Coast CHRIS revealed that fifteen prehistoric sites were previously recorded within one mile of the proposed satellite parking area. However, no cultural resource sites had been recorded within the footprint of the proposed area, although the area has not been previously surveyed for cultural resources. (*Ibid*.).

b. Field Survey

The Applicant conducted a pedestrian field survey totaling 40 acres, by walking transects across the site property at 3-meter intervals. The survey covered all proposed construction areas and selected outlying acreage. The sidewalls of cut banks and eroded areas were examined for evidence of cultural resources and the ground was examined for both prehistoric and historic resources. An additional field survey was done at Camp San Luis Obispo as well as a survey at the parking area on Quintana Road. (Ex. 115, p. 2-8.)

c. Native American Consultation

Prior to filing its AFC for the Project Duke entered into a Memorandum of Understanding (MOU) with the San Luis Obispo County Chumash Council (SLOCCC or Chumash Council). (Ex. 4, App. 6.7-5; Ex. 134, p. 2.9.) Duke chose the SLOCCC at the suggestion of the City of Morro Bay. The MOU provides, among other things, for the SLOCCC to provide Native American monitors to oversee construction activities at the site. However, Native Americans of the Salinan Tribe dispute the Chumash claim to this site. Moreover, although the MOU provides for involvement of Salinan and other Native American people, the Salinan have felt it does not treat them equally, particularly with regard to the provision of monitors. Staff's recommendation in the FSA to resolve the dispute proposes conditions that would rotate the monitoring between three Chumash tribes and the Salinan on an equal basis. (Ex. 143, p. 2-43.) However, witnesses for intervenor Dunton, representing the Salinan, rejected the notion of such rotation and urged the Commission to require simultaneous monitoring by both Chumash and Salinan monitors. (2/5/02 RT 119, 121, 127.)

Duke states that it is fully committed to the terms of the MOU and believes the agreement is fully protective of the interests of all Native Americans, not just the Chumash. At the same time, Duke states that it has no desire to take sides in

any territorial dispute and therefore recommends that if the Commission rejects the MOU, Duke either: 1) implement the Staff's rotation proposal; or 2) employ two (but no more than two) full-time Native American monitors. (2/5/02 RT 38.) At the evidentiary hearing, representatives for both the Chumash Council and the Salinan Tribe recommended against rotating monitors. In their view, Staff's recommendation for rotating monitors would break the continuity of monitoring, and be less protective of cultural resources, since different tribes are attuned to the importance of different resources. (2/5/02 RT 121, 142, 145.)

3. Impacts

Impacts to cultural resources at and adjacent to the proposed Project site are likely to be fewer than those of many new power plants because the Project will connect to existing infrastructure. This infrastructure includes cooling water intake and discharge pipelines, natural gas pipelines, and an electrical switchyard. However, the existing tank farm area may contain cultural deposits which could be affected by the installation of piles needed to support the new combined-cycle units. (Ex. 134, p. 102.) Nevertheless, the field survey conducted by Duke did not reveal unrecorded or prehistoric surface cultural resources within the Project site or adjacent areas which will be disturbed during construction. Soils in these areas are generally made up of deposited dredge spoils placed on top of native soils by the U.S. Navy during World War II. (Ex. 134, p. 103.)

Three previously identified cultural resource sites are located in or adjacent to the Project site. However, because facilities for the existing power plant preclude excavations at the Project site at this time, the final testing/mitigation program details will have to be determined after the existing facilities are removed. At that time a CEQA-level exploration and sampling will be made to determine the potential of the site to yield additional cultural information. Staff agrees with Duke on this approach and Condition of Certification CUL-3 will require a testing and mitigation plan to protect the known cultural sites. (*Ibid*.)

Duke's archaeological consultant identified historic and prehistoric resource sites at the Camp San Luis Obispo offsite construction laydown area. Although both Staff and Applicant have determined the sites to be not significant, the site will be covered with a level of fill to protect it before it is used as a parking or laydown area. World War II era buildings at the laydown area have been recorded in accordance with the requirements of the National Historic Preservation Act. Applicant and Staff concur that no further mitigation is needed for the structures. (Ex. 115, p. 2-18; Ex. 134, p. 104.)

The Quintana Road offsite construction parking consists of approximately 11 acres on which Duke will carry out minor grading and surface preparation necessary to prepare the site as a park-and-ride facility. The site has previously been used for agriculture and for parking. No cultural resources have been recorded at the property. However, Applicant and Staff agree that because numerous archaeological sites exist within a mile of this location, Applicant will conduct monitoring during ground disturbance. (*Ibid*; Ex. 134.p. 95.)

Applicant and Staff concur that the existing Morro Bay Power Plant embodies distinctive architectural characteristics representing the type of steam generating plant built during the post-World War II period. Thus, portions of the existing power plant have been recommended as eligible for listing in the National Register of Historic Places (NRHP) and the California Register of Historic Places (CRHR). (Ex. 115, p. 2-18; Ex. 134, p. 104.) Since the demolition of the existing power plant will cause a significant adverse effect to an eligible cultural resource, Duke will complete a Historic American Building Survey/Historic American Engineering Record (HAVS/HAER). The required level of documentation would be determined in consultation with the National Park Service and the State Historic Preservation Officer. (Ex. 115, p. 2-17.)

a. Cumulative Impacts

Because Morro Bay is an area with potential for the discovery of archaeological resources, any project developed in the area has the potential to disturb these resources. The Staff witnesses noted that as the area develops, further impacts can be avoided by using mitigation measures such as recordation, data recovery and avoidance. It is not possible at this time to anticipate the ability of a lead agency in the future to provide appropriate mitigation measures to fully protect cultural resources. Therefore, there is a potential for a cumulative impact to historical resources. However, if the mitigation steps noted above are applied, the potential cumulative impacts will be mitigated below a level of significance. (Ex. 115, p. 2-20.)

While the witnesses for Duke offered recommended changes to many of the Conditions of Certification proposed by Staff in the FSA, both Staff and Applicant's expert witnesses agreed that the MBPP will comply with all applicable LORS pertinent to cultural resources. (Ex. 134, p. 88 et seq.; Ex. 143; Ex. 144; 2/5/02 RT 13.) Both also agreed that, with the proposed Conditions of Certification, the Project would not cause any significant, adverse impacts related to cultural resources either by itself or cumulatively with other foreseeable projects in the area. (*Id;* 2/5/02 RT 12-13.)

The only intervenor to offer testimony on this topic was Patti Dunton. Ms. Dunton presented two witnesses: Mr. Singer (Ex. 141.) and Mr. Burch. (Ex. 142.) Mr. Singer agreed with Staff's proposed conditions in all respects except one. He did not concur with Staff's proposed rotation of Native American monitors, believing that rotation would interrupt the flow of information. Instead, he recommended that monitoring be done as a team with representatives of interested tribes present on-site together. (Ex. 141; 2/5/02 RT 119-121.) Mr. Burch testified regarding the spiritual value of the Project site and stated his preference that the power plant be relocated elsewhere. On the issue of monitoring, he testified that

"if this project must go through," he would agree to "simultaneous monitoring." (2/5/02 RT 127-130.)

Public Comment

Tarren Collins, attorney for the San Luis Obispo County Chumash Council, read a prepared statement on behalf of the Chumash. The statement stressed that the SLOCCC is opposed to development at sacred sites, but recognizes some development may be acceptable in previously disturbed areas. Duke studies cited by the Chumash show that the Project will not impact any known burial sites. SLOCCC also praised Duke for going beyond its legal obligations in cooperating with local Native Americans. The Chumash believe that their MOU with Duke is evidence of this cooperation and the tribe commits to working with Native Americans of other tribes and with the NAHC to properly monitor Project development. Ms. Collins noted the tribe's opposition to Staff's proposal to rotate Native American monitors, stating that such a plan would be detrimental and less protective that having multiple monitors on site. (2/5/02 RT 138-144.)

Chief Mark Vigil of the SLOCCC spoke in favor of the MOU between Duke and the Chumash, noting that it had been more than one year in negotiation. (2/5/02 RT 144.)

Tracy Dunton identified herself as a member of the Salinan Tribe. She opposed the Staff rotation proposal and disagreed with the Duke's position that only native fill needs monitoring for cultural resources. (2/5/02 RT 145.) Roxanne Souza of the Salinan opposes the Project, stressing the sacred nature of Morro Rock to her people. She too recommended that if the Project goes forward, fill material, as well as native soil should be monitored. (2/5/02 RT 146.)

Bonnie Pierce claimed to speak on behalf of the Salinan Tribe, stating that the Tribe does not oppose the Project, but wants Salinan monitors to be part of any

monitoring team. She stated that the Salinan have licensed consultants prepared to participate. (2/5/02 RT 149.) **David Nelson** of CAPE commented that, while he is not Native American, he recalls reports of bone excavations during local construction projects and he opposes the proposed power plant. (2/5/02 RT 151.)

Commission Discussion

The Duke witness testified that Conditions CUL-9, CUL-10, CUL-11, CUL-13 and CUL-16, as proposed in the FSA, are appropriate without any changes. (2/5/02 RT 21-22.) For the remaining conditions, he proposed minor modifications that Duke prefers over the Conditions of Certification proposed by Staff in the FSA.

The first issue addressed in Applicant's proposed changes is whether various cultural resource requirements should apply when Duke is not disturbing native soils. The Duke witness testified that the site has a significant layer of fill overlaying native soil and that various conditions should only apply to disturbance of the native soil. He testified that only in native soil is there a possibility of finding previously undisturbed cultural resources. (Ex. 134, p. 106.) Accordingly, he proposed to limit the following conditions to only native soil disturbance: CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-7, CUL-8 and CUL-14. (2/5/02 RT 15.)

However, the Staff witness disagreed with this recommendation. He testified that nonnative soils and disturbed soils sometimes contain cultural resources which merit protection, including the potential for human remains. The Morro Bay site in particular has fill and dredge spoils which were removed from potential sites. As a result, the Staff witness stated that cultural resources may be found in non-native fill soils. (2/5/02 RT 73-75.) Both of the Native American witnesses for Ms. Dunton and the representative for the Chumash Tribe agreed

with Staff that non-native soils may contain such resources and therefore should be monitored. (2/5/02 RT 122, 129-30.)

We are persuaded on this matter by the Staff witness and the several Native Americans who testified in support of the Staff view. The evidence of record establishes the potential for cultural resources to be found in the area of the Project. Historical soil disturbance of the area is reasonably likely to have moved cultural resources from their natural resting place to the fill areas at the site. We, therefore, believe it is prudent to include such non-native fill soils in the material which should be monitored for cultural resources. Accordingly, we do not adopt Applicant's recommendation in this matter.

On the question of whether the Chumash Council or the Salinan Tribe should monitor during Project construction, both groups have made a claim connecting their people to the Project site. Rather than favor one group over another, we accept Duke's offer to employ two monitors, one from each group, to be the full-time Native American monitors. In doing so, we do not specifically reject the MOU entered between Duke and the SLOCCC. Rather we find it to be a thoughtful and fair document which could guide the inclusion of the Salinan as well as the Chumash in conducting monitoring duties as a team. However, we stress that both tribes should be offered the same opportunity to provide Native American monitors.

Duke also questioned whether the cultural resources training of Conditions CUL-4 and CUL-5 should be required of all workers or only construction workers. Applicant's witness testified that the training should be limited to construction workers because other workers, such as clerical or office staff, are not engaged in activities likely to involve cultural resource discoveries. The Staff witness disagreed, postulating that workers "walking from a parking lot to an office" may encounter cultural resource materials. (2/5/02 RT 75.) We are persuaded by Duke's logic that training is most useful for those likely to come into contact with

cultural resources at the construction site. That is, construction workers. However, for the purpose of this Condition, the Applicant must define construction workers broadly to ensure training for all who are likely to be present if and when cultural resources are exposed. Applicant may provide such training by means of a video to ensure more consistent and thorough training. (Ex. 134, p. 107.)

The next modification proposed by Applicant concerned the verification of Condition CUL- 8. Duke asked that the verification make clear that the Project owner must provide plans to avoid cultural resource sites if specified sites are encountered outside their previously established boundaries. (Ex. 134, p. 108.) Staff concurred with this concept but proposed different language for the verification than that suggested by Duke. We have adopted the Staff's language suggestion because it requires the Project owner to notify the CPM within 24 hours. (2/502 RT 76-78.)

Applicant also recommends language permitting the use of photos as well as drawings for compliance with Condition CUL-12. (Ex. 134, p. 109.) This change is necessary as many archaeologists are now using electronically scanned photographs of cultural resource artifacts rather than drawings for the purpose of reporting. (*Id*.) Staff testified that this clarification was appropriate provided that any scanned or electronic photos are produced at 300 dpi, (dots per inch). That is a quality that the California State Office of Historic Preservation will accept. (2/5/02 RT 78.) We have adopted the change with Staff's 300-dpi provision.

Duke next suggested that Condition CUL-14 permit the Native American Mentoring/Consultation Plan to include requirements for Native American monitors to be under contract to Duke and to work at the site. Such requirements include having a business license, having appropriate liability and workman's compensation insurance, entering into a specific scope of work with defined labor costs and level of effort for specific tasks with Duke, and adhering

to MBPP site-specific worker safety, training and equipment programs. (Ex. 134, p. 109.)

Staff expressed concern that these requirements should not unduly limit the ways that a Native American monitor can participate in the program. In particular, Staff noted that some monitors have worked for the cultural resource specialist rather than for the Project owner. (2/5/02 RT 100.) To address this concern, Duke offered to have the CPM rule on any claims that Duke's requirements may be unduly restricting Native American participation. While not agreeing to any specific language for the Condition, the Staff witness acknowledged that he has in past cases "received a variety of kinds of agreements from fairly simple to a number of pages" and that "I would never preclude Duke from a contract between [Duke] and native American monitors; nor would I preclude a separate kind of agreement." (2/5/02 RT 104.) We find Applicant's request to be a reasonable one in order to ensure, among other things, adequate identification, training, and liability coverage for Native American monitors. The CPM will rule on any allegations by monitors that the project owner's requirements are restrictive.

In the Verification for Condition of Certification CUL-14, Staff proposed that initial contact with Native American monitors should commence seven days following permitting of the Project. However, the Duke witness pointed out that the actual monitoring work may not occur for months or even years following permitting, depending on when Duke commences construction. (Ex. 134, pp. 110-111.) Applicant's witness, therefore, suggested that this Condition be modified to make the trigger 60 days prior to when the monitoring work would actually begin, rather than seven days after permitting.

Staff did not agree to this change, but offered no persuasive reason for its position. (2/5/02 RT 85.) Staff's opposition to Duke's recommended change does not address the issue of Project delays that are possible either through

litigation or simply due to market conditions. By requiring selection of the monitors far in advance of when the work would begin, Staff's proposal does not accomplish the stated purpose of the Condition. Furthermore, Staff's proposal creates potential problems associated with having a long delay between selection of monitors and the commencement of monitoring activity. We have adopted Applicant's approach to ensure that Native American monitors are contacted at a time reasonably related to the beginning of Project construction.

Duke also sought a change regarding the way in which the verification for Condition of Certification CUL-14 directs Duke to proceed where a Native American group does not respond at all to a solicitation of monitoring interest. (Ex. 134 at pp. 110-111.) Applicant's witness proposed that a Native American group be considered non-responsive when it does not respond within 30 days to a letter from Duke soliciting interest in monitoring. The provision would be subject to notification of the CPM and review by the CPM that Duke made an appropriate effort to notify Native American monitors. Staff refused to consent to this change, but did not respond to the obvious problem of whether the Project would be held up due to a lack of response by potential monitors. (2/5/02 RT 87.) We find that an open-ended response time leaves Applicant in an uncertain and untenable position regarding the selection of appropriate Native American monitors. We, therefore, adopt Duke's recommendation on this matter.

Applicant's witness also proposed that the Native American groups and associated monitors should report to Duke's Project Construction Manager rather than the Project's Cultural Resource Monitor (CRS). He testified that the CRS has various critical cultural resources functions to accomplish as part of the Project and the administrative/management of Native American monitors will take away valuable time from the CRS. In addition, he further pointed out that since the Native American monitors will be under contract directly to Duke, the management of the Native American monitors should be by a Duke representative. (Ex. 134, p. 112.) Staff disagreed and states that it is more

appropriate for the Native Americans to provide information directly to the CRS and work under the direction of the CRS, as opposed to the Project Construction Manager. The Staff witness emphasized that monitors should report to a person with the education and background to understand the cultural resources implications of the information. Staff believes that such qualifications are not typically found in a construction manager. (2/5/02 RT 88-89.) To address Duke's concerns about overloading the CRS with responsibilities for dealing with Native American monitors, Staff suggests adding an optional "cultural anthropologist" as a potential recipient of the monitor's reports. Such an anthropologist would be retained by either the Project owner or by a consultant to the Project owner.

While we have no interest in interfering with Applicant's efficient management of the Project, the primary goal of this Condition is to ensure adequate mitigation for potential impacts to cultural resources. We agree with Staff that such information should be conveyed to someone with the knowledge to recognize its significance, or lack thereof. Accordingly, we do not adopt Duke's recommendation, but do include reference to an optional cultural anthropologist to receive reports from Native American monitors.

Historical buildings are also considered cultural resources. The record establishes that demolition of the existing power plant will cause a significant adverse effect on a structure which is architecturally exceptional. (Ex. 115, p. 2-16.) Accordingly, Condition of Certification CUL-15 calls for the Project owner to complete a Historic American Engineering Record (HAER) level documentation of the existing plant and appurtenant facilities. The Duke witness found Condition CUL-15 generally acceptable, but recommends a "trigger" date keyed to the start of demolition activities at the existing plant, rather than a date keyed to the "start of any ground disturbing activities…" as called for in the FSA. Duke recommends that it submit the name and qualifications of its architectural historian 120-days prior to start of demolition or alteration of the existing plant. Applicant reasons that since the construction schedule for the new combined-

cycle units is approximately 30 months, the identification of the architectural historian should be tied more directly to the demolition phase of the existing MBPP rather than to the start of ground disturbing activities.

We find the Applicant's recommendation to be reasonable, since it is related to the start of actual demolition activities on the existing plant rather than to an irrelevant date related to any ground disturbing activities at any part of the Project. The 120 days will provide sufficient time for the CPM to accept the qualifications of the architectural historian and for the preparation of the HAER report on the existing power plant prior to demolition of existing Units 1 – 4. (Ex. 134, pp. 114-115.)

FINDINGS AND CONCLUSIONS

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

1. Cultural Resources exist in the general Project area.

2. Construction activities associated with the Morro Bay Power Plant Project and related facilities present the greatest potential for adverse impacts to cultural resources.

3. The Project site contains several sites described in the AFC and which are eligible for designation as a cultural resource under criteria of the National Registry of Historic Places.

4. The sites noted in the above paragraph meet one or more of the criteria needed to be identified as a prehistoric or historic resource under CEQA guidelines.

5. Demolition of the existing Morro Bay Power Plant will have an adverse effect on a historical resource, which will be mitigated by Historical American Engineering Record-level documentation of the facility prior to demolition.

6. 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 the Morro Bay Power Plant Project will comply with all applicable LORS 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 ground disturbance, the project owner shall provide the California Energy Commission (Commission) Compliance Project Manager (CPM) with the name and statement of qualifications of its Cultural Resources Specialist (CRS), and one alternate CRS (if an alternate is proposed), who will be responsible for implementation of all cultural resources Conditions of Certification.

The resume for the CRS and alternate, if an alternate is proposed shall include information that demonstrates that the CRS and alternate meet the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published by the State Office of Historic Preservation (1983). The minimum qualifications shall also include the following:

1) a graduate degree in anthropology, archaeology, California history, cultural resource 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's experience in each of the following areas:

    a) leading archaeological resource field surveys;

    b) leading site and artifact mapping, recording, and recovery operations;

    c) marshalling and use of equipment necessary for cultural resource 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 and recovered artifacts;

g) completing the identification and inventory of recovered cultural resource materials; and

h) preparing appropriate reports to be filed with the receiving curation repository, the State Historic Preservation Office, all appropriate regional archaeological information center(s).

The statement of qualifications for the CRS shall include:

1) a list of specific projects the CRS has previously worked on;

2) the role and responsibilities of the CRS for each project listed; and

3) the names and phone numbers of contacts familiar with the CRS's work on these referenced projects.

Verification: At least ninety days prior to the start of ground disturbance, the project owner shall submit the name and statement of qualifications of its CRS and alternate CRS (if an alternate is proposed) to the CPM for review and approval. The project owner shall provide copies of the CRS' and the alternate CRS' statement of qualifications to the City of Morro Bay for review and comment.

At least ten days, prior to the start of construction, the project owner shall confirm in writing to the CPM that the approved CRS will be available at the start of construction and is prepared to implement the cultural resources Conditions of Certification. At least ten days prior to the termination or release of the CRS, the project owner shall obtain CPM approval of the replacement CRS by submitting to the CPM the name and resume of the proposed new CRS.

CUL-2 Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. 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 CRS. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the CRS and the CPM. Maps shall show the location of all areas where surface disturbance may be associated with access roads, and any other project components.

Verification: At least 75 days prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings.

Copies of maps and drawings reflecting changes to the footprint of the power plant and/or project components shall be submitted to the CRS and CPM within five days of the changes. The project owner shall provide copies of all maps and drawings to the City of Morro Bay for review and comment.

CUL-3 Prior to the start of ground disturbance, the CRS shall prepare, and the project owner shall submit to the CPM for review and approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

The CRMMP shall include, but not be limited to, the following elements and measures:

a. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials.

b. A discussion of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.

c. Identification of the person(s) expected to perform each of the tasks and description of the mitigation team organizational structure and the inter-relationship of team roles and responsibilities. Specify the qualifications of any professional team members.

d. 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.

e. A discussion of the participation by Native American Monitors/consultants (NAM), the procedures to be used to select them, the areas where they will be needed, and their role and responsibilities. The NAM(s) shall meet the criteria set forth in "Guidelines for Monitors/Consultants of Native American Cultural, Religous, and Burial Sites" provided by the Native American Heritage Commission (NAHC). The NAM shall provide comments on Native American artifacts and sites and ensure that any human remains that may be discovered are treated with dignity.

f. Identification of areas of ground disturbance where monitoring is deemed necessary by the CRS. The CRS will determine the size or extent of the areas where monitoring is to occur by the Cultural Resource Monitor(s) CRM. The areas to be monitored full time shall include the power plant site and the areas where grading and/or excavation will be required and at any off site parking or laydown areas.

The CRM shall have as a minimum, a bachelor's degree in anthropology, archaeology, California history, cultural resource management, or a comparable field, and at least one-year of field experience in California performing tasks in identifying cultural resource materials and sites, or two years of study in anthropology, archaeology, California history, cultural resource management, or a comparable field and four years of field experience in California performing tasks in identifying cultural resource materials and sites. As provided in CUL-6, in addition to the CRS and alternate CRS, CRM's shall have authority to halt construction.

g. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the California State Historic Resources Commission Guidelines on Curation Facilities of cultural resources.

h. A discussion of the availability and the CRS' access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

i. Identification of the public institution that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for the materials to be delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least sixty days prior to the start of ground disturbance activities, the project owner shall provide the CRMMP, prepared by the CRS, to the CPM for review and approval. Resumes of the CRMs shall be included in an Appendix to the CRMMP. The project owner shall provide a copy of the CRMMP to the City of Morro Bay for review and comment.

CUL-4 Construction Worker Environmental Awareness Training for all new construction employees shall be conducted prior to and during periods of ground

disturbance. New employees shall receive training prior to starting work at the project site, linears or other project components. The training may be presented in the form of a video. The training shall include a discussion of applicable laws and penalties under the law. Training shall also include samples or visuals of artifacts that might be found in the project vicinity and the information that the CRS, alternate CRS or monitor has the authority to halt construction in the event of a discovery or unanticipated impact to a cultural resource. The training shall also instruct employees to halt or redirect work in the vicinity of a find and to contact their supervisor and the CRS or monitor. An informational brochure shall be provided that identifies reporting procedures in the event of a discovery. Information regarding Native American concerns shall be presented during this training. Workers shall sign an acknowledgement form that they have received training and a sticker shall be placed on hard hats indicating that environmental training has been completed.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a letter to the CPM stating that employees will not begin work until they have completed environmental training and that a sticker on hard hats will identify workers who have received training. Copies of acknowledgement forms signed by trainees shall be provided in the MCR. The project owner shall provide a draft copy of the Construction Worker Environment Awareness Training to the City of Morro Bay for review and comment.

CUL-5 Prior to the start of ground disturbance and throughout the project construction period as needed for all new construction employees, at a minimum of every two weeks, the project owner shall ensure that the CRS or qualified individual(s) approved by the CPM provide the CPM-approved cultural resources training either in-person or through use of a training video to all construction project managers, construction supervisors, and workers. The project owner shall ensure that the training provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.

Training at the power plant site may be discontinued after all ground disturbance at the site has concluded and the CRS has inspected the site and determined that no cultural resources will be impacted. Training shall continue for project personnel working in the vicinity of other project components that will disturb native soils, including landscaping.

Verification: In each Monthly Compliance Report (MCR) after the start of construction, the project owner shall provide the CPM with documentation that the project owner has provided CPM-approved cultural resources training and the set of reporting and work curtailment procedures to all construction workers.

After completion of all ground disturbance at the power plant site, if the project owner wishes to discontinue training at the site, the project owner shall provide a

letter to the CPM indicating that the CRS has inspected the project site and has determined that no cultural resources will be impacted by completion of the project.

CUL-6 The CRS, alternate CRS and the CRM(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered or if known resources may be impacted in a previously unanticipated manner.

If such resources are found, the halting or redirection of construction shall remain in effect until all of the following have occurred:

a. the CRS has notified the CPM and the project owner of the find and the work stoppage;

b. the CRS, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and

c. any necessary data recovery and mitigation has been completed.

If data recovery or other mitigation measures are required, the CRS and/or the alternate CRS and CRM(s), shall monitor these data recovery and mitigation measures, as needed. NAM(s) shall be provided an opportunity to participate, as discussed in Appendix A.

For any cultural resource encountered, the project owner shall notify the CPM and the City of Morro Bay, so that the City may comment, within 24 hours after the find.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: Thirty days prior to the start of ground disturbance, the project owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and CRM(s) have the authority to halt construction activities in the vicinity of a cultural resource find and stating that the CRS will notify the CPM, project owner and City of Morro Bay within 24 hours after a find.

CUL-7 Throughout the project site preparation and construction period, the project owner shall provide the CRS and the CPM with a current schedule of anticipated monthly project activity (presented on a week-by-week basis). The CRS shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

The CRS may informally discuss the cultural resources monitoring and mitigation activities with Commission technical staff.

Verification: The project owner shall provide the CRS and the CPM with a week-by-week schedule of the upcoming construction activities, one month in advance. These advance schedules are to be provided to the CPM with the MCR.

CUL-8 The CRS shall monitor ground disturbance during construction and demolition, at a minimum, within 50 feet of the identified boundaries of CA-SLO-16 and CA-SLO-239 to ensure there are no impacts to the sites. Monitoring shall also occur full time during all ground disturbance at the project site, including utility lines and access roads, and the area of the sound wall and the Morro Creek foot bridge. Monitoring is also required during ground disturbance at all parking and laydown areas proposed for the project. In addition to the areas where full time CRS monitoring is required, the CRS, alternate CRS or CRM(s) shall be present at times the CRS deems appropriate, during the construction and demolition phases of the project to monitor ground disturbance, during project construction, and at any other locations specified in the approved monitoring and mitigation plan. NAM(s) shall be provided the opportunity to observe and comment pursuant to Appendix A.

Should cultural resources material be encountered outside previously established boundaries of CA-SLO-16 or CA-SLO-239, construction shall halt and project components shall be redesigned to ensure that the site will be avoided. If portions of CA-SLO-16 or 239 are encountered outside of established boundaries, the CPM will be notified within 24 hours.

Verification: During the construction and demolition phases of the project, and throughout the periods of ground disturbance, the project owner shall include in the MCR to the CPM, copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. The project owner shall provide the CPM with plans to redesign project components to avoid cultural resources sites as soon as the plans are completed. If portions of CA-SLO-16 or 239 are encountered outside of established boundaries, the project owner shall notify the CPM within 24 hours.

CUL-9 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the CRS 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.

The CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities.

Verification: Throughout the project pre-construction and construction period, the project owner shall ensure that the daily log is available for periodic audit by the CPM. The weekly summary reports shall be included in the MCR.

CUL-10 The project owner shall ensure that the CRS performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project. If artifacts are discovered, the NAM shall be provided an opportunity to comment upon all phases of data recovery, lab work, and plans for curation. Information as to the specific location of sensitive cultural resource sites shall be kept confidential and accessible only to qualified cultural resources specialists.

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 CRSs involved in curation. 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.

CUL-11 After completion of the project, the project owner shall ensure that the CRS prepares a Cultural Resource Report (CRR) according to Archaeological Resource Management Reports (ARMR) Guidelines as recommended by the California Office of Historic Preservation. The project owner shall submit the report to the CPM for review and approval. The report shall be considered final upon approval by the CPM.

Protocol: The CRR shall include (but not be limited to) the following:

a. For all projects:

1) description of pre-project literature search, surveys, and any testing activities;

2) maps showing areas surveyed or tested;

3) description of any monitoring activities;
4) maps of any areas monitored; and

5) conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under “a” and also provide:

1) site and isolated artifact records and maps;

2) description of testing for, and determinations of, significance and potential eligibility; and

3) research questions answered or raised by the data from the project.

c. For projects regarding which cultural resources were recovered, include the items specified under “a” and “b” and also provide:

1) descriptions (including drawings and/or photos) of recovered cultural materials;

2) results and findings of any special analyses conducted on recovered cultural resource materials;

3) an inventory list of recovered cultural resource materials; and

4) the name and location of the public repository that will receive the recovered cultural resources for curation.

Verification: After completion of the project, project owner shall ensure that the CRS completes the CRR within 90 days following completion of the analysis of the recovered cultural materials. Within seven days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval and to the City of Morro Bay (to a person authorized to receive confidential cultural resources information) for review and comment .

CUL-12 After completion of the CRR, the project owner shall submit an original, an original-quality copy, or a computer disc copy of the CPM-approved CRR to the public repository to receive the recovered data and materials for curation, to the SHPO, and to the appropriate regional California Historical Resources Information System information center (CHRIS). 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 CRR to be sent to the curating repository, the SHPO, and the regional CHRIS shall include the following (based on the applicable scenario (a, b, or c) set forth in the previous condition):

a. originals or original-quality copies of all text;

b. originals of any topographic maps showing site and resource locations;

c. originals or original-quality copies of drawings and/or photos (300 dpi) of significant or diagnostic cultural resource materials found during pre-construction surveys or during project-related monitoring, data recovery, or mitigation; and

d. photographs of the site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within 30 after receiving approval of the CRR, 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 CHRIS.

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 CRR with the following:

a) the public repository receiving the recovered data and materials for curation,
b) the SHPO, and
c) the appropriate CHRIS.

CUL-13 Following the filing of the CPM-approved CRR with the appropriate entities, the project owner shall ensure that all cultural resource materials, maps and data collected during data recovery and mitigation for the project are delivered to the closest public repository with the ability to receive them. The facility shall meet the U.S. Secretary of Interior's requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials are delivered for curation within thirty days after providing the CPM-approved CRR to the public repository and other entities receiving the recovered data and materials.

For the life of the project the project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

CUL-14 Prior to any ground disturbance, the project owner shall implement the Energy Commission's Native American Monitoring/Consultation Plan (based on the requirements included as an Appendix to the Cultural Resources section of this Decision) for consulting with concerned Native American groups that have traditional ties to the project area. The plan includes arrangements for addressing comments of each group regarding artifacts and sites that may be discovered. The plan also includes the requirements that each Native American group that decides to participate in monitoring/consultation will be required to

meet in order to be under contract to the project owner and to work at the project site. The plan also includes provisions for monitoring/consultation by each group by allotting equal amounts of time for monitoring/consultation and for incorporating each Native American group's comments concerning all aspects of the project including curation in the final CRR required by CUL-11.

Verification: Sixty days prior to the start of ground disturbance, the project owner shall provide to the CPM copies of sent letters or summaries of phone calls inviting Native Americans in the identified groups to participate in monitoring/consulting. Thirty days prior to the start of ground disturbance, the project owner shall provide copies of letters or summaries of phone calls from Native Americans responding to the offer to participate in monitoring consulting to the CPM. If one or more of the identified Native American groups does not respond to the project owner's letters and phone calls offering the opportunity to participate within 30 days of receipt of the project owner's letters and phone call, the project owner shall provide this information to the CPM and the Native American group in question shall be considered notified and non-responsive. In such an event, the non-responsive group shall forego the opportunity to participate in monitoring/consulting for the duration of the MBPP Modernization Project.

In addition, within thirty days of the start of ground disturbance, the project owner shall provide the Names of potential monitors and the date that person was provided with updated information regarding cultural resources at MBPP. In the first MCR, and in all following MCRs, the CRS shall include information regarding any Native American activities/participation in the weekly summaries of daily monitoring reports required by CUL-8.

CUL-15 Prior to the start of demolition or alteration of the existing Morro Bay Power Plants Units 1-4, the project owner shall provide the CPM with the name and statement of qualifications of an architectural historian who will prepare Historic American Engineering Record (HAER) level documentation of the existing Morro Bay Power Plant and appurtenant facilities.

> Protocol: The statement of qualifications for the architectural historian shall include all information needed to demonstrate that the architectural historian meet the necessary qualifications, including:
> a) meets the Secretary of Interior's Professional Standards for architectural history;
> b) has at least 5 years experience in recording 19th and 20th century architectural buildings;
> c) names and phone numbers of contacts familiar with the architectural historian's work on these referenced projects.

Verification: At least 120 days prior to the start of demolition or alteration of the existing Morro Bay Power Plant Units 1-4, the project owner shall submit the

name and statement of qualifications of its architectural historian to the CPM for review and approval.

CUL-16 Prior to demolition or alteration of the existing Morro Bay Power Plant and appurtenant facilities, the architectural historian will prepare Historic American Engineering Record (HAER) level documentation of the existing Morro Bay Power Plant and appurtenant facilities. This will include large format photography (views of overall site, individual buildings, and building details), a descriptive and historical narrative of the Morro Bay Power Plant, and a historic context for The International Style of architecture.

Verification: At least 30 days prior to demolition or alteration of the existing Morro Bay Power Plant or the appurtenant facilities, a copy of the HAER recording of the existing Morro Bay Power Plant and appurtenant facilities will be provided to the CPM for review and approval.

Within 30 days after CPM approval of the HAER, the project owner will provide a copy of the transmittal letters to the CPM of the HAER documentation to the Library of Congress, the California State Library, and to local libraries.

Appendix to Cultural Resources

MBPP Native American Monitoring/Consultation Plan

1. Sixty days prior to the start of ground disturbance, the project owner shall contact members of the following local Native American groups. The groups have participated in the AFC process and profess traditional ties to the area and have been involved or have attempted to be involved in the project. The Project Owner shall use a list of names and addresses prepared by Energy Commission staff from public meeting sign-up sheets and names acquired from the Native American Heritage Commission (NAHC) public notification list. These names and addresses will be provided to Duke Energy under separate cover. The project owner shall offer to each group the opportunity to participate on an equal, basis, in cultural resources monitoring/consulting during ground disturbance of the MBPP.

   a. SLOCCC
   b. Salinan Nation

2. The Native American groups that decide to participate in monitoring/consulting will be required to enter into a business contract with the project owner. As with other contractors, Native American groups that decide to participate in monitoring/consulting must have a business license, have appropriate liability and workman's compensation insurance, enter into a specific scope of work with defined labor costs and level of effort for specific tasks with the project owner, and adhere to MBPP site specific worker safety, training and equipment programs. The CPM will decide any disputes alleging the above requirements to be restrict or burdensome.

3. Within 30 days of receiving a request from the project owner to provide name(s) of monitor consultants, each Native American group will identify one person from their group to be a lead monitor/consultant reporting to the CRS. If possible, an additional person or persons shall be selected by the respective group to be a back up in the event the primary monitor is not available to cover a shift. The Cultural Resources Specialist (CRS) shall ensure that the Native American groups are informed of the monitoring and construction schedules on a weekly basis. Native American monitoring/consulting shall occur (during ground disturbance as required in the conditions of certification). If a group chooses not to participate in the monitoring, the remaining groups will share the monitoring.

4. Thirty days prior to the start of ground disturbance, the project owner's construction manager shall contact the designated monitors/consultants of each participating group and the CRS to update them regarding any

cultural resources that were discovered prior to certification and to inform them of the locations of project-related excavations and the cultural resources conditions of certification. The CRS shall be ready to implement the monitoring schedule, prior to any ground disturbance or start of construction.

a. The lead Native American monitor/consultant from each group and any back-up monitor/consultant, selected by the group he/she represents, shall attend Project Owner's training required for all construction employees.

b. Native American monitoring/consulting, for the Morro Bay Power Plant Project shall occur under the direction of the CRS or Cultural Resource Monitors (CRM)(As defined in Cul-1 and Cul-3). Under no circumstances shall Native American monitors/consultants monitor ground disturbing activities without the on-site direction of the CRS or a CRM.

5. In the event of unanticipated discoveries, the Native American monitors/consultants for all groups shall be informed by the CRS concerning discovered cultural resource sites and shall be afforded an opportunity to comment on the sites and the meaning and significance of the discoveries. Comments shall be provided within 24 hours of being informed of a find and shall be added to the final Cultural Resources Report (CRR) pursuant to Cul-12. Native American concerns regarding curation shall be filed with any agreement with a curation facility as long as they do not conflict with professional standards, applicable laws or federal or state guidelines.

6. In the event there is a discovery of human remains, state law shall be followed. In discussions with Energy Commission cultural staff, representatives of all the groups identified above expressed the desire that Native American burials should not be disturbed.

7. The CRS shall forward the information provided by the Native American monitor/consultants to the Energy Commission's Compliance Project Manager (CPM). The final responsibility for determining significance and/or eligibility to the California Register of Historic Resources (CRHR) shall lie with the Compliance Project Manager (CPM) who must be contacted about such finds by the CRS within 24 hours pursuant to Cul-6.

8. Each Native American group that has provided a monitor/consultant may present a discussion of Native American concerns regarding cultural resources as part of the training video required by CUL-5. If the Project Construction Manager decides to have periodic training accomplished in person, the monitor/consultant for the Native American group will be

provided an opportunity to participate in the in-person training session to discuss Native American concerns.

G. GEOLOGY AND PALEONTOLOGY

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.

In this section we address 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.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant and Staff offered testimony examining the construction, operation and closure impacts to significant geological and paleontological resources and surface water hydrology. (Ex. 117, pp. 9-22; Ex. 4, secs. 6.3 and 6.8; Ex. 115, pp. 4.2-1 through -13.) Staff and Applicant additionally examined seismic, and geologic hazards, and erosion potential from Project construction and operation (*Ibid*.).

Staff's testimony (Ex.115) reviewed the Project setting as it relates to this topic area. The Morro Bay Power Plant facility is located on a low-lying coastal

terrace at the northern end of Morro Bay. The terrace is underlain by bedrock of the Franciscan Formation at depths of 50 to 80 feet (mean sea level datum) beneath the proposed Project site. Morro Rock is located approximately 2000 feet east of the site. Morro Rock comprises a Tertiary age intrusive igneous rock composed of dacite.

Morro Creek (located immediately north of the Morro Bay Power Plant site) has incised a channel into the coastal terrace. The channel was subsequently filled with fluvial sediments. At the site of the proposed combustion turbine facility, dune sand, estuarine deposits and hydraulic fill also blanket the coastal terrace.

The hydraulic fill unit was dredged from Morro Bay and placed on the tidal flats by the United States Navy in 1941 and 1942. The fill unit averages 8 feet in thickness and raised the elevation of the proposed site for the combustion turbine facility to between 15 to 20 feet above sea level.

Staff testified that no indications of surface faulting were observed at the site during the site visit. In addition, no known active faults cross the Morro Bay Power Project footprint. (Ex. 115, pp. 4.2-2.)

1. Geological Hazards

The staff testimony reviewed the potential impacts to the Project from faulting and seismicity. No active or potentially active faults are known to cross the power plant footprint. The Project is located within Seismic Zone 4 as delineated on Figure 16-2 of the 1998 edition of the CBC. The closest known active fault is the Los Osos fault, which is located 5 miles south of the project site. In addition, the Hosgri fault is located approximately 11 miles offshore and the San Andreas fault is located approximately 41 miles northeast of the Morro Bay Power Plant. (*Ibid*.)

The Applicant performed both deterministic and probabilistic analyses of the peak ground accelerations at the site. The deterministic analysis used Blake's EQFAULT program (1989) to determine peak ground accelerations at the Project site resulting from maximum magnitude events on the San Juan, Los Osos, Hosgri, Rinconada, and San Andrea's faults. Because of its proximity to the Morro Bay site, the Los Osos fault is most critical. The Applicant calculated a peak ground acceleration at the Morro Bay Power Plant site of 0.33g associated with a magnitude 6.8 earthquake on the Los Osos fault. (Ex. 115, p 4.2-3.)

The Applicant's geotechnical consultant, Hushmand Associates (2000a), performed the probabilistic analysis. The peak ground acceleration associated with the Design Basis Earthquake is 0.30g. The peak ground acceleration associated with the Upper Bound Earthquake is 0.39g. The peak ground acceleration associated with the Design Basis Earthquake (0.30g) will be used for design of the Project facilities. These values are generally consistent with the California Division of Mines and Geology (CDMG) Map Sheet 48, which predicts a peak ground acceleration with a 10 percent chance of exceedance in 50 years of between 0.3 and 0.4g for the Project area. Staff determined that design and construction of the Project to conform to the California Building Code (1998) requirements outlined in Conditions of Certification Geo-1 and Geo-2 will reduce the impact of strong seismic ground shaking to less than significant. (*Ibid*.)

The Commission staff analysis also determined that liquefaction and lateral spreading will be adequately accounted for during the final design of the Project's foundation. Design and construction of the Project to conform to the California Building Code (1998) requirements outlined in Conditions of Certification Geo-1 and Geo-2 will reduce the impact of liquefaction to less than significant. Staff also determined that the risk to the Project from expansive soils will be low. (Ex. 4.2-5.)

Tsunamis occurred in the Morro Bay area in 1878, 1946, 1953, 1960, and 1964. These tsunamis resulted in localized damage to piers, wharves, and buoys in Morro Bay Harbor. The NOAA Tsunami Database describes a maximum runup (i.e. the advance of water up the beach or structure following the breaking of a wave) of less than one foot with some unsubstantiated reports of a 1.5 foot runup due to the tsunami on April 1, 1946. The ground surface elevation at the proposed site is 15 to 23 feet above mean sea level. Consequently historic tsunamis have not inundated the proposed Project site. (*Ibid*.)

2. Geological and Paleontological Resources

No significant sand and gravel resources of the quality required to produce Portland cement concrete have been identified in the Project area. No other significant mineralogical resources are known to exist in the Project area. In addition, the Staff witness stated that paleontological assessments which included both an archival record search from the University of California, Berkeley, Museum of Paleontology and a field survey of the Project site on February 1, 1999, did not reveal any fossil localities in the immediate Project area. Furthermore, no fossil remains were observed. (Ex. pp. 4.2-5.)

Commission Discussion

The evidentiary record is uncontested that the proposed Project will meet the Commission's geological and paleontological resources requirements. (Ex. 117, pp. 9-22; Ex. 4, secs. 4, secs, 6.3 and 6.8; Ex. 115, pp. 4.2-1 through 13.) Applicant and Staff are the only parties to offer testimony on these topics, and these findings are unopposed. (12/17/01 26-3.1. Based on the undisputed evidence, the Committee concludes that with the implementation of Staff's proposed Conditions of Certification, as slightly modified by Applicant's suggestions as agreed upon by Staff (Ex. 117, pp. 14-15 and 21; Ex. 115, pp. 4.2-7 through -12), the Project will comply with all applicable LORS and that

there will be no significant adverse impacts to geological and paleontological resources from the construction and operation of this Project. (Ex. 117, pp. 14-16 and 21-22; 12/17 RT 33-35; Ex. 115, p. 4.2-7.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we find:

1. No significant 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 Morro Bay Power Plant will have no significant impact on geological resources.

4. While the construction and ground disturbance activities associated with construction of the Morro Bay Power Plant Project have the potential to impose direct, indirect, and cumulative impacts to paleontological resources, Condition of Certification will ensure adequate mitigation.

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 of the new generation units, 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 Compliance Project Manager (CPM). A Geotechnical Engineer may also perform the functions of the Engineering Geologist, 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 Chief Building Official (CBO) prior to the start of construction of the new generation units, the Project Owner shall submit to the CPM, for approval, the name(s) and license number(s) of the Certified Engineering Geologist(s) or Geotechnical Engineer(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) or Geotechnical Engineer(s) and will notify the Project Owner of his/her findings within 15 days of receipt of the submittal. If the Engineering Geologist(s) or Geotechnical Engineer(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 notify the Project Owner of their approval or disapproval of the Engineering Geologist(s) or Geotechnical Engineer(s) within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned Engineering Geologist(s) or Geotechnical Engineer(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.

   Protocol: 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, including the liquefaction potential and foundation conditions on the proposed development, and an opinion on the adequacy of the site for the intended use 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 also submit a statement that, to the best of his or her knowledge, the work within his or her area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: 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. 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 CBO, and to the CPM on request.

PAL-1 Prior to the start of any ground disturbance activities (defined as the removal of soil or vegetation clearance, boring, trenching, or alteration of the site surface), the Project Owner shall ensure that the Designated Paleontological Resource Specialist (DPRS) approved by the CPM is available for field activities and prepared to implement the Conditions of Certification.

The DPRS 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 DPRS.

The statement of qualifications for DPRS shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three (3) years of paleontological resource mitigation and field experience in California, including at least one (1) 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 DPRS do not satisfy the above requirements, the Project Owner shall submit another individual's name and qualifications for consideration.

If the approved DPRS is replaced prior to completion of project mitigation, the Project Owner shall obtain CPM approval of the new DPRS 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 DPRS.

Should emergency replacement of the DPRS become necessary, the Project Owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least 30 days prior to the start of construction, the Project Owner shall submit the name, resume, and the availability for its DPRS to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed DPRS.

At least ten (10) days prior to the termination or release of a DPRS, the Project Owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new DPRS. Should emergency replacement of the DPRS 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 DPRS shall prepare a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) 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 DPRS shall be available to implement the PRMMP, 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 PRMMP 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 of 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 DPRS 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 30 days prior to the start of construction on the project, the Project Owner shall provide the CPM with a copy of the PRMMP prepared by the DPRS for review and approval. If the plan is not approved, the Project Owner, the DPRS, 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 DPRS 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 DPRS and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 30 days prior to 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 DPRS, 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 DPRS or designee 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 DPRS determines that full-time monitoring is not necessary in certain portions of the project area, the DPRS shall notify the Project Owner.

Verification: The Project Owner shall include a summary of paleontological activities conducted by the DPRS in the Monthly Compliance Report.

PAL-5 The Project Owner, through the DPRS, 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 his/her compliance files copies of signed contracts or agreements with the DPRS 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 (3) 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 DPRS. 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 DPRS that project impacts to paleontological resources have been mitigated.

Verification: The Project Owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the DPRS within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The Project Owner shall include in the facility closure plan a description regarding the facility closure activities potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM 12 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.

VI. 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 Morro Bay 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.

In reviewing whether a land use impact is significant, we refer to the following CEQA criteria:[1]

- Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.
- Would the Project disrupt or divide the physical arrangement of an established community.
- Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

[1] 14 Cal. Code of Regs., section 15000 et seq., Appendix G.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Coastal Access provisions of the Warren-Alquist Act, the California Coastal Act of 1976, the City of Morro Bay General Plan/Coastal Land Use Plan, City of Morro Bay Zoning Ordinance, and the City of Morro Bay Waterfront Master Plan, as well as San Luis Obispo County Land Use Plans and Ordinances are the primary land use provisions relevant to the Morro Bay Power Plant Project. (Ex. 143, pp. 3-1 through 3-9.)

In addition, Duke Energy and the City of Morro Bay are negotiating an Agreement to Lease (ATL) which, once signed by both parties would be a legally enforceable agreement. The Agreement to Lease contains provisions that address numerous Project components such as: Project terms and definitions, time frames for Project construction and demolition, public and conservation easements, the Project's Outfall Agreement, waterfront improvements, Project fees and payments due to the City, and terms for modifications and arbitration. (Ex. 95.)

1. The Site

The Project site is situated west of State Highway 1, east of the Embarcadero, and south of Atascadero Road. The existing facility also includes a seawater (cooling water) intake structure located near the northern end of Morro Bay Harbor and a cooling water discharge outfall located north of Morro Rock. The site is surrounded by light industrial, coastal-dependent industrial, commercial, marine, residential, visitor-servicing, and recreational land uses.[2] The MBPP property is made up of one parcel totaling 107.35 acres owned by Duke Energy, and a second parcel of 26.27 acres owned by PG&E, which contains a substation/switchyard facility. (Ex. 143, p. 3-10.)

[2] The Staff FSA contains a series of color-coded maps designating the various zoning and land uses for areas within one-mile of the Project site. (Ex. 143, LAND USE Figures 1, 2, and 3.)

The acreage of the existing power generation facility footprint is 9.61 acres and includes the power plant buildings, transformers, stacks, shop, warehouse and office buildings, and parking. However, this figure does not account for the existing tank farm occupying approximately 24 acres. Thus, the total area for the existing MBPP is 33.61 acres. (Ex. 4, p. 1-29.) The proposed facility would occupy approximately 14 acres immediately northwest of the existing facility, on the site of the existing plant. (Ex. 143, p. 3-10.)

The City of Morro Bay Local Coastal Plan/General Plan Land Use Map, designates the MBPP property as General Industrial and Coastal Development-Industrial with an overlay Planned Development and Interim Open Space. The property also has an Environmentally Sensitive Habitat designation. General Plan land uses surrounding the site include Open Space/Recreation with an overlay Park, Low/Medium Density Residential, Environmentally Sensitive Habitat, Visitor Serving/District Commercial, Neighborhood Commercial and General Industrial with an overlay Planned Development and Interim Open Space. The proposed Project site is zoned M-2, Coastal-Dependent Industrial district, with overlay zoning Planned Development and Interim Use. Adjacent zoning districts include M-1 (Light Industrial); R-2 (Duplex Residential); OA-1 and OA-2 (Open Area); ESH (Environmentally Sensitive Habitat); and, C-VS (Visitor Servicing Commercial). (*Id.* p. 3-10.)

Residential development exists to the northeast, east and southeast of the Project site. The majority of these residential developments are low/medium and medium density. The nearest residential area is located approximately 900 feet southeast of the project property boundary, along Scott Street. This development occurred following construction of the existing MBPP. A mobile home park is located immediately north of Duke's 107 acre property. (*Id.* p. 3-11.)

Industrial uses within the Project's immediate vicinity include the existing power plant, the PG&E substation, and the fisherman gear and storage area located

north of the subject property. Marine land uses within the area include commercial fishing and a variety of services and facilities associated with the Morro Bay Harbor. (*Id*.)

Sensitive lands and open space areas within the Project vicinity include Morro Rock, Fairbanks Point, Black Hill Natural Area, Morro Creek, Chorro Creek, Los Osos Creek, and the Morro Bay Estuary. Morro Rock is located approximately one-half mile from the Project property; the lower reaches of Morro Creek run along the northern end of the Project property. (*Id*.) There are twelve (12) offsite sensitive receptors within a one mile radius of the project property.[3] (*Id*.)

In addition to the MBPP property, the Project will use two sites outside of the City of Morro Bay. These include a construction staging area within the Camp San Luis Obispo and an offsite satellite parking area located approximately two to three miles southeast of the City of Morro Bay. Both of these sites are proposed for use during construction and are not proposed as permanent Project components. (*Id*., p. 3-12.)

2. Potential Impacts

Both Staff and Duke land use witnesses testified that the Project will not cause any significant, adverse environmental impacts either directly or cumulatively. Staff witnesses testified that applying the standards found in CEQA, the Project would not cause any unmitigated significant adverse environmental impacts either directly or cumulatively. (Ex. 143, p. 3-49.) The Duke witnesses concurred with the Staff impacts assessment. (Ex. 185 pp. 6-7, 12; 3/12/02 RT 253.) No party offered any conflicting testimony regarding significant impacts. Duke's witnesses also concluded that the Project will include provisions that would greatly enhance the local environment. These include: improved coastal access through the addition of approximately 8,355 feet of new bike paths, acquisition of

[3] Sensitive receptors include human beings located at schools, houses, day care centers, etc.

the Den Dulk property which lies adjacent to the state beach, and a new bridge over Morro Creek, as well as the improved views resulting from the demolition of the existing power plant. Thus, they concluded, the overall impact of the Project on coastal access and local land uses is positive compared to the existing environment, even allowing for any temporary and minor impacts that may occur during construction. (Ex. 185, p. 12.)

In addition to Staff and Duke witnesses, the only other testimony on land use issues came from the City of Morro Bay. As discussed below, the City's witness testified that the MBPP is consistent with the City's land use ordinances, policies and plans taking into account the draft Agreement to Lease between Duke and the City. The purpose of the City's testimony was to recommend an additional condition of certification incorporating by reference specified provisions of the Agreement to Lease between Duke and the City.

3. Consistency with Laws, Ordinances, Regulations and Standards (LORS)

All of the witnesses testifying on land use issues agreed that the Project will comply with all applicable land use laws, ordinances, regulations and standards. However, the City argues that an additional condition is required in order to support this conclusion. The City's proposed condition would specify the inclusion of several items from the Agreement to Lease in order to establish a "greater than normal benefit" which the City claims is necessary for the Project to comply with LORS. The finding of greater than normal benefits arises because, in the City's view, the Project constitutes "new" construction, rather than the replacement of an existing facility, and therefore requires a Conditional Use Permit (CUP). The City's Zoning Ordinance[4] sets the height of "new" construction in the Project area at a maximum of 30 feet. Since the height of the proposed Project would be approximately 145 feet, the City argues that no CUP could be granted without the finding of greater benefits. The City witness stated

[4] City of Morro Bay Zoning Ordinance, Table 17.24.150.

that the greater benefits cannot be shown without the City's proposed condition including terms from the Agreement to Lease. (Ex. 173, pp.3, 6; 3/13/02 RT 5-7.)

Staff conducted an extensive analysis of the Project's compliance with all applicable land use requirements.[5] Based on its analysis, the Staff witnesses testified that the Project will comply with all applicable land use requirements. (Ex. 143, p. 3-49.) The Duke witnesses also reviewed all applicable land use LORS and reached the same conclusion. (Ex. 185; 3/12/02 RT 252.)

Neither the Staff witnesses nor those for the Applicant agreed with the City that the benefits provided to the City through the Agreement to Lease must be considered in order to find compliance with the 30-foot height restriction in the Coastal Dependent Industrial Zone.[6] The Staff witness testified:

> "The 30-feet limit in the M-2 zone is for new construction only and does not apply to 'replacement or repair of existing structures.' (Zoning Ordinance, Table 17.24.150.) The proposed Project is considered to be a 'replacement' of the existing facility, and therefore, is consistent with the City's building regulations." (Ex. 143 at p. 3-26 and 3-27; 3/12/02 RT 302.)

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[5] These provisions included the California Coastal Act (Ex. 143 p. 3-17 to 3-25), the Subdivision Map Act (*Id.* p. 3-25), State Tide and Submerged Lands Leasing laws (*Id.*), the City of Morro Bay General Plan (*Id.* p. 3-26 to 3-30), the City of Morro Bay Coastal Land Use Plan (*Id.* p. 3-30 to 3-34), the City of Morro Bay Zoning Ordinance (*Id.* p. 3-35), and applicable San Luis Obispo County Land Use Plans and Ordinances (*Id.* p. 3-39.)

[6] In his testimony, the City's witness suggests that Staff relied upon the conveyance of certain properties to the City in the Agreement to Lease to make findings regarding land use conformance:

> "For example, as a result of the prospective property conveyances, the CEC staff has determined that the MBPPP is consistent with Objective 1, Programs LU-62.2 and 64.4, and General Plan LU-77. *See* FSA, pgs. 3-26, 3-29, 3-30. As discussed in greater detail below, the Den Dulk conveyances are also used to justify a finding of greater than normal public benefits for purposes of zoning compliance. *See* FSA pgs. 3-37, 3-38, and 3-41." (Ex. 173 at p. 2.)

However, as Duke witness Marckwald explained, the referenced portions of the FSA refer to "dedication" of these properties to public use within the meaning of Public Resources Code 25529 and not necessarily conveying title to the property to the City as provided in the Agreement to Lease. (3/12/02 RT 254-256.) Staff witness Hablin confirmed that Mr. Marckwald's interpretation of the FSA testimony was correct. (3/12/02 RT. 300.)

The Duke witnesses agreed that this Project is a "replacement" and that the 30-foot height restriction does not apply. (Ex. 185, Attachment B, at p. 64; 3/12/02 RT 263.) In their view, the best evidence that the Project is a replacement is that immediately upon the completion of the proposed Project the entire existing power plant will be demolished. The Duke witness added that the new Project will be at the same site, use the same fuels and will be smaller than the existing plant being demolished. (3/12/02 RT 386.) In fact, the City's own analysis concludes that the new Project is not an "expansion" of the existing project within the meaning of the General Plan/LUP.[7] (Ex. 173, attached Ex. 1, p. 3.)

Both Duke and Staff concluded that the height restriction does not apply and there is no need to find "greater than normal public benefits" to justify an exception to it. We agree, moreover, the weight of the evidence establishes that even if the height restriction did apply, there is ample basis for concluding that the benefits of the Project justify its height without consideration of the itemized benefits in the Agreement to Lease. First, the demolition of the much taller existing power plant, including the three existing 450- foot stacks, meets the purpose of the height restriction, which is to minimize the height of structures along the waterfront. Obviously, the new Project with its 145 foot stacks achieves this objective far better than the existing power plant. The City's witness acknowledged this fact during cross examination. (3/13/02 RT 24-25.) Thus, the policy and essential purpose of the height restriction is better achieved by allowing the height of the new structure than by denying it and leaving the much taller existing structure in place.

In addition, there are many other Project benefits that qualify as "greater than normal" without consideration of the Agreement to Lease. Among these are the

[7] The City's own witness referred to the Project as a "replacement of the existing facility". (*Id.;* 3/13/02 RT 8.*)*

ones set forth in the City's own testimony:

> "Without considering the Agreement to Lease, the public benefits from construction of the MBPPP include:
>
> - Demolition of the existing stacks and turbine boiler building;
> - Replacement of the existing plant with a more efficient facility that is designed to minimize view impacts;
> - Remodeling of the waterfront intake facility's facade;
> - Construction of bike and pedestrian paths around the MBPPP;
> - Construction of a bridge across Morro Creek." (Ex. 173 p. 4.)

In fact, the Project includes other benefits to the community as well.[8] Both Staff and Duke witnesses found that the Project's benefits are "greater than normal" even without consideration of the additional benefits in the Agreement to Lease. (3/12/02 RT. 264, 302-303.) We agree.

In addition, both Staff and Duke witnesses testified that there are other substantial reasons for the Commission to reject the City's proposed incorporation of the entire draft Agreement to Lease as a license condition. This is because many provisions of the draft Agreement to Lease are already reflected in the Project description and relate directly to the Project features and mitigation. (3/12/02 RT 287-292, 328.) As such, they are part of the Project and must be achieved, pursuant to the Commission's General Conditions, even if not additionally specified in a particular Condition. (Ex. 115, p. 5-19.) However, the Agreement to Lease contains other provisions that are strictly financial or property agreements (such as rent payments and other lease compensation) and are appropriately enforced through traditional contract law and not by the Energy Commission. (*Id.; see also* 3/12/02 RT 303.)

Thus, we reject the City's proposed condition of certification because there is no need to make a "greater than normal public benefits" finding because the height limit does not apply to a replacement facility such as the MBPP. However, the

[8] These additional benefits include demolition of the existing tank farm, the reduction in noise, the construction jobs, the $10 million local purchasing program, increased revenues to the City of Morro Bay, increased revenues to the County, and to local schools. (3/12/02 RT 261-262.)

finding could be made without consideration of the draft Agreement to Lease even if the height restriction did apply. Finally, the provisions of the draft Agreement to Lease which are relevant to the Project description or mitigation have already been incorporated into the Staff's analysis and license conditions. Remaining provisions in the Agreement to Lease are private financial provisions not appropriately enforced through the Commission.

While CAPE offered no witness on Land Use topics, it did argue in its briefs that the City must amend its Coastal Land Use Plan (CLUP) to allow the Project. In CAPE's view, the Project is an "expansion" of the existing facility within the meaning of the CLUP. (CAPE Opening Brief p. 51). However, land use witnesses sponsored by Duke, Staff and the City all agreed that the Project is not an "expansion" as defined in the CLUP and that no CLUP amendment is necessary. (Ex. 155; Ex. 185 p. 9; Ex. 143 p. 3-33; 3/12/02 RT 286, 302; 3/13/02 RT 28.) CAPE offered no expert witness testifying in support of its position.

CAPE argues the Project is an expansion based solely upon the claim of an increase in the "footprint" of the facility from 9.61 acres to 14 acres. However, the facts in evidence do not support CAPE's position. When the total footprint of the existing industrial facility, including the tank farm, is taken into account, the Project will result in a significantly smaller footprint than the existing facility.[9] Staff agreed that the tank farm should be considered in any such comparison on this issue. (3/12/02 RT 327). Furthermore, the change in the footprint of the Project is not a controlling factor. Other considerations include the facts that the existing facility is being completely demolished and replaced by one with a much smaller overall height and total volume. (Ex. 185 p. 2.) Nor are we persuaded by CAPE's argument that the Project amounts to an expansion under the "plain

[9] The 9.61-acre figure for the existing project does <u>not</u> include the existing tank farm. (Ex.143 at p. 3-10). The tank farm is an additional approximately 24 acres. (Ex. 4 at p. 1-29). Thus, the footprint of the entire existing project is 33.61 acres. Since the new project includes demolition of both the existing power block and the tank farm, the total footprint will be decreasing from 33.61 acres to 14 acres.

meaning" of the word "expansion." (CAPE Opening Brief on Group III Topics, p. 51.)

CAPE also argues that the Project will violate two local land use policies. The two identical policies state:

> The City shall insist that the present operation and any further expansion of the PG&E Plant conform to the standards of the Federal and State pollution control requirements and emission levels be maintained. (Morro Bay General Plan Section LU 40.17 and CLUP Policy 5.22.)

CAPE argues that the policies should be applied specifically and exclusively to PM_{10} and SO_2 rather than to emissions generally. However, all of the expert witnesses testified that the Project will comply with all applicable local land use requirements, including these provisions. (3/12/02 RT 252; Ex. 143 at p. 1-3.) The witness for the City specifically rejected CAPE's interpretation, stating that the policy applied not to specific emissions but to "emissions generally." (3/13/02 RT 20.)

The evidence also establishes that areas remote from the Project site which are proposed for use during construction, will conform to all applicable land use LORS. The proposed temporary craft parking area involves an approximate 5-acre portion of the 107-acre MBPP property. The parking area is bordered to the north by Morro Creek and to the west by Willow Camp Creek. It also borders the lands under ESHA designation. CLUP Policy 11.14, is applicable under local land use LORS and the Project owner has proposed a 50-foot buffer area around the craft parking area. (Ex. 143, p. 3-39.)

The proposed temporary satellite parking area and construction staging area are located within the County's Estero Area Plan planning area. The Estero Area Plan provides the definitions for the planning area's land use categories and combining designations and their respective planning standards. These proposed sites which are remote from the power plant site itself do not involve

the use of prime farmland, will have temporary use, and will be restored to their original state following construction of the MBPP. The sites will involve integral uses in the construction of the power generation facility and therefore come under the Energy Commission's certification process. Staff witnesses determined that use of the sites for Project-related activities would be consistent with County land use plans and ordinances. (*Id.* pp. 3-39, 3-40.)

4. Coastal Commission Comments

Both the Warren Alquist Act and the Coastal Act expressly provide for comments from the Coastal Commission during the power plant licensing process.[10] During the evidenciary hearing on land use the Coastal Commission made comments regarding Project compliance with the Coastal Act and LCP policies. (3/12/02 RT 332-338.) These recommendations were essentially repeated in the Coastal Commission's 30413 (d) Report to the Energy Commission, dated December 12, 2002. (CCC 30413(d) Report, p. 49-52.) We have incorporated the Coastal Commission's recommendations into the Conditions of Certification. In the case of the Coastal Commission's recommendations for public notification requirements in Condition LAND-4, we have tempered the language to provide what we believe to be reasonable flexibility for construction activities.

5. Compatibility with Existing and Planned Land Uses

The proposed Project would be located on the existing MBPP site, which has been used since 1955 for the purpose of electrical power generation. Thus, the Project represents continued use of a site committed to Coastal-Dependent Industrial use and is not an introduction of new industry in a non-industrial area of the City. Furthermore, the Project is consistent with the City's land use designations and zoning and would not constitute a change in the current

[10] Public Resources Code sections 25523(b) and 30413 (d), respectively.

development pattern of the City, as established by the City's adopted CLUP and General Plan. The Project is also compatible with the existing industrial character of an immediate surrounding land use, the existing PG&E substation. (Ex. 143, 3-41.)

The record is clear that during Project construction, increased dust, noise, and traffic may affect land uses within the vicinity of the Project. However, with mitigation and implementation of the Conditions of Certification, these impacts would be reduced to a less than significant level.[11] The greatest construction impacts to coastal access and recreation within the Project area would likely occur during the Project's peak construction period.[12] However, the evidence establishes that because the construction-related impacts will be temporary, and given the final improvements to coastal access and recreation also proposed by the Project, the construction-related impacts are considered less than significant.[13](*Id.)*

Staff analysis determined that since the power generating facility itself would be located entirely within the boundaries of the existing MBPP property, the proposed Project would not disrupt or physically divide an established community, convert agricultural land to a non-agricultural use, or significantly impact sensitive lands or open space. (*Id.)*

In addition, the areas remote from the Project site, which will be used for parking and lay-down functions during the construction period, are compatible in those

[11] The details of construction-related environmental impacts are addressed in the respective sections of this Decision i.e.: Noise, Air Quality, Traffic and Transportation, etc.

[12] Peak construction (greater than 100 workers on site at any given time) would occur over a 14 month period, between construction months 5 and 18.

[13] The proposed Project additionally includes the development or improvement of three pedestrian and bike path segments surrounding the MBPP property, realignment and extension of the Embarcadero, a pedestrian/bicycle bridge over Morro Creek, a façade for the seawater intake structure and the dedication of the "Den Dulk" property including Coleman Park to public use.

uses with existing and planned land uses. The proposed satellite parking facility located between State Highway 1 and Quintana Road is within a rural area that is not typically subject to high traffic volumes or other activities. However, any nuisance impacts would be temporary in nature. (*Id*. p. 3-42.) The proposed construction staging and laydown area at Camp San Luis Obispo would be located within an area that has been previously developed. Surrounding land uses have involved similar types of activities and would be compatible with the proposed use. Consequently, no direct impacts are anticipated to occur. (*Id*., Ex. 185, pp. 7-8.)

6. Cumulative Impacts

In addition to the MBPP, Applicant testified that there are 16 proposed projects within a five-mile radius of the MBPP property. In comparison to the MBPP, these projects are relatively small in scale and include residential, commercial and recreational development. In addition, Applicant is proposing demolition of its offsite fuel tanks. Staff determined that the combined projects would not significantly disrupt or physically divide the established community. (*Id*.)

FINDINGS AND CONCLUSIONS

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

1. The proposed project would be located within the existing boundaries of the 107.35-acre Morro Bay Power Plant (MBPP) industrial complex.

2. The MBPP industrial complex site includes: generating units, exhaust stacks, fuel storage tanks, seawater intake and outfall structures, office buildings, and related equipment. The site is directly adjacent to the existing 26.27-acre Pacific Gas and Electric (PG&E) Morro Bay Switchyard, containing transmission lines, towers, switches, bus bars, and transformers.

3. The existing MBPP site is located near Morro Bay Harbor in an area which is surrounded by light industrial, coastal-dependent industrial, commercial, marine, residential, visitor-servicing, and recreational land uses.

4. The nearest residence to the existing MBPP site is located approximately 900 feet from the Project site. A mobile home park is located immediately north of the Applicant's 107-acre complex site.

5. For purposes of the 30-foot height restriction in the Coastal Dependent Industrial Zone, the Morro Bay Power Plant Project constitutes a replacement of the existing power plant facility and is consistent with City of Morro Bay building regulations concerning height restrictions.

6. The Project will provide greater than normal benefits to the City of Morro Bay.

7. The Morro Bay Power Plant Project is consistent with the current General Plan and zoning ordinances for the City of Morro Bay and for the County of San Luis Obispo.

8. The proposed Project is consistent with the goals and policies of the City of Morro Bay and of San Luis Obispo County General Plan and Local Coastal Program.

9. The MBPP will not disrupt or divide the physical arrangement of an established community.

10. The Project will not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

11. The Project is compatible with existing and planned land uses and would not preclude or unduly restrict existing or planned land uses.

12. The Project is consistent with maintaining the environmental quality and character of the Morro Bay community.

13. 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).

14. 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 Morro Bay 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 The project owner shall comply with the State requirements (Pub. Resources Code section 6701-6706) for the leasing of tide and submerged lands involving the Public Trust for Commerce, Navigation and Fisheries administered by the City of Morro Bay for the project's Outfall Area.

Verification: The project owner shall submit to the California Energy Commission's Compliance Project Manager (CPM) a copy of the final executed Outfall Lease Agreement, that covers the City's administered property. Said Lease Agreement shall be submitted prior to November 15, 2004 or prior to the start of "commercial operation," whichever occurs first.

LAND-2 Prior to the start of commercial operation, the project owner shall provide land in San Luis Obispo County located in the coastal zone, as defined in Section 30150 of the Coastal Act, to be established for "public use" in accordance to Section 25529 of the Warren-Alquist Act subject to the review and approval by the CPM. Said land shall be covered under an easement designating it for "public use", while balancing such use with the protection of environmentally sensitive habitat areas. Said land shall be maintained by the project owner and shall be available for public access and use, subject to restrictions required for security and public safety. The project owner may dedicate such public use land 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 said land for the benefit of the public, the project owner may dedicate the land to the State.

Protocol: The project owner shall provide a location map, a current plot plan, survey map showing dimensions, the legal description(s) and a

written description of the land being proposed for public use to be granted and a copy of the "public use" easement language for review and approval by the CPM.

If the land to be established for "public use" is located within the State designated "Coastal Zone" in accordance to the California Coastal Act, said land shall be subject to review and comment by the Executive Director of the California Coastal Commission.

If the land to be established for "public use" is located within the jurisdictional boundary of the City of Morro Bay or the County of San Luis Obispo, said land shall be subject to review and comment by the affected local government.

The CPM shall provide the Executive Director of the Coastal Commission and/or the affected local government 30 calendar days to provide written comments to the CPM.

Verification: The project owner shall provide to the CPM a copy of the recorded grant deed and executed "public use" easement on the land for public use approved by the CPM prior to the start of commercial operations by the new power generation facility. If the project owner chooses to maintain the ownership of the land, the project owner shall provide monthly monitoring of the maintenance and operation of the land in the annual compliance report.

LAND-3 Prior to the start of site mobilization, the project owner shall identify the final lay down/staging area(s) for the project for approval by the CPM. The project owner shall provide to the CPM for review the following items: (1) descriptions of the final lay down/staging areas identified for construction of the project, including (a) Assessor's Parcel numbers; (b) addresses; (c) General Plan, and LCP (if applicable) land use designations; (d) zoning; (e) site plan showing dimensions; (f) owner's name and address (if leased); and, (g) duration of lease (if leased); and, if a discretionary permit was required; (2) copies of all discretionary and/or administrative permits necessary for site use as a lay down/staging areas.

If a lay down/staging area is to be located within the jurisdictional boundary of the County of San Luis Obispo, the City of Morro Bay and/or the State designated Coastal Zone, the County of San Luis Obispo, the City of Morro Bay and/or the Executive Director of the California Coastal Commission shall have 30 calendar days to provide written comments on the lay down/staging area to the CPM.

Verification: Sixty (60) days prior to the start of site mobilization, the project owner shall provide to the CPM for review and approval the final lay down and staging area(s) information as specified above.

LAND-4 The project owner shall comply with the State requirements (Pub. Resources Code section 30210-30214) to insure that public access to beach and waterfront areas and beach/waterfront parking areas serving Morro Strand State Beach, Morro Rock Natural Preserve and Morro Bay State Park within a one mile radius of the existing 107 acre MBPP property are not closed or substantially access-impaired. Access shall not be closed for longer than 24 hours at any given time due to construction activities related to the new power generation facility or the demolition of the old power generation facility, except in the case of an unforeseen emergency event that requires limiting access to protect public health and safety, as determined by the CPM. In the case of public access limitations substantially exceeding 24 hours at a time, the project owner shall post notices informing the public of the anticipated length of the closure and of alternative nearby public accessways.

> Protocol: The project owner shall prepare a complaint resolution form, or functionally equivalent procedure and/or post an 800 telephone number acceptable to the CPM, to document and respond to public access complaints. The project owner shall attempt to contact the person(s) making the complaint within 24 hours. The project owner shall submit a report documenting the complaint and actions taken. The report shall include a complaint summary, including final results.

Verification: In Monthly Compliance Reports during construction of the new facility and/or demolition of the old facility, the project owner shall submit to the CPM copies of any filed complaints. The project owner shall retain copies of the complaints in a file available to the public until the issuance of the final inspection for the demolition of the old power generation facility by the CBO.

LAND-5 The project owner shall ensure that all applicable design, development, operational, combining designation, and special use standards of the San Luis Obispo County Coastal Zone Land Use Ordinance (Title 23 of the San Luis Obispo County Code) are fully adhered to during the pre-construction, construction, use, and restoration of the proposed satellite parking area and construction laydown/staging area.

> Protocol: Prior to site mobilization for the satellite parking area and laydown/staging areas, the project owner shall submit any required design, construction, operational, and restoration plans for the satellite parking area and laydown/staging area to the applicable departments of San Luis Obispo County and the Executive Director of the California Coastal Commission if applicable, for review and comment.
>
> The San Luis Obispo County Department of Planning and Building, and, if applicable the Executive Director of the California Coastal Commission shall have 30 calendar days to review the satellite parking area and laydown/staging area and provide written comments to the CPM to review for approval. Said 30-calendar day review period shall start upon the submittal of the plan or plans to the San Luis Obispo

County Department of Planning and Building and said Executive Director by the project owner.

Verification: At least 30 days prior to site mobilization for the satellite parking and laydown/staging area, the project owner shall submit written evidence to the CPM for approval demonstrating that the project conforms to all applicable adopted regulations and requirements as established by the San Luis Obispo County Coastal Zone Land Use Ordinance.

LAND-6 To help promote public access and recreation adjacent to the project site and satisfy Public Resources Code section 30210-30214 and 25529, the project owner shall fund an endowment, through a one-time payment of $355,000.00 (in two payments as described within the verification), to be used for the purpose of maintaining any proposed Class I (approximately 5,261 feet) and Class II (approximately 3,094 feet) bike paths and pedestrian paths, irrespective of ownership. The endowment and its income will be used to fund basic maintenance activities (signage, slurry seal, stripping, sweeping, patching, landscaping, lighting bulbs replacement, if any, and routine repairs) for these bike and pedestrian paths for the life of the project. These maintenance activities will be carried out by the City of Morro Bay or other appropriate entity, as determined by the project owner in consultation with the Executive Director of the California Coastal Commission and approved by the CPM.

Protocol: A Memorandum of Agreement (MOA) shall be executed between the Energy Commission, the Executive Director of the California Coastal Commission, the project owner, and the entity selected to carry out the basic maintenance activities required by this condition. At a minimum, the MOA shall contain the following: 1) a provision stating that the endowment and income will be used to carry out basic maintenance activities as indicated above; 2) a provision requiring the selected entity to deposit the funds into an individual interest-bearing account and; 3) a provision requiring the entity to maintain Generally-Accepted Accounting Principles and financial management.

As requested by the CPM or the Executive Director of the California Coastal Commission, but not more frequently than once each year during the life of the project, the project owner shall meet with the CPM, the Executive Director of the California Coastal Commission, and the designated maintenance entity to determine if the remaining funds comprising the endowment are sufficient to cover the costs of annual basic maintenance activities planned for such year. If the parties mutually agree that the funds generated are not sufficient to cover such costs, the project owner shall contribute sufficient funds to cover the anticipated shortfall for that year. In the event that the parties cannot mutually agree on the adequacy of the endowment to cover any such

year's annual maintenance costs, the CPM shall make the final determination on the issue of adequacy of funds. If the CPM determines that the funds in the endowment are insufficient to cover such maintenance costs, the project owner shall contribute sufficient funds to cover the anticipated shortfall for that year.

Verification: Within 60 days after the completion of the bridge over Morro Creek, or completion of the first segment of Class I bike path proposed in the Project's AFC (October 2000), as amended, whichever is earlier, the project owner shall remit to the CPM a check in the amount of $177,500 (50% of the fund). The CPM will then transfer this amount to the agreed-upon entity that will carry out the purposes of the MOA. The MOA shall be executed by all parties prior to or on the date the above amount is transferred to the agreed-upon entity. Within 60 days of the completion of the final segment of bike or pedestrian path, the project owner shall deliver to the CPM the balance of the endowment. The CPM will then transfer these funds to the agreed-upon entity.

B. NOISE AND VIBRATION

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 and examines the sufficiency of measures proposed to control noise during construction and operation.

Staff's Noise Tables A1 through A4, replicated at the end of this section, explain the noise measurement terms used in this discussion. (Ex. 115, 3.3-27 to 31.) All sound levels or decibels (dB) described in the record are "A-Weighted", which correlates to human hearing. (Ex. 115, p. 3.3-27.) The "Leq" is the average A-Weighted noise level during a specified period. The DNL is the day-night average sound level over 24 hours after adding 10 dB for nighttime noise levels. (*Ibid*.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

Noise from the existing power plant dominates the background acoustical environment in the near vicinity. The closest noise sensitive receptors are homes located at the west end of Surf Street, which is immediately south of the plant. Noise from the existing plant is also dominant at the commercial area west of the plant entrance. In other areas of Morro Bay, plant noise is often inaudible, especially during periods of heavy traffic, which includes most daytime hours. For example, traffic on State Highway 1 dominates the daytime noise environment east and north of the plant site. On the hillside east of the plant, the plant noise is audible when highway traffic noise is reduced, such as at night.

(Ex. 115, p. 3.3-5.) The noise levels produced by the existing plant vary depending upon the level of power production. In general, plant noise is higher during daytime hours, when electrical demand is highest. The dominant plant noise sources appear to be the fans, generators and transformers. (*Ibid*.)

In order to predict the likely noise effects of the Project on adjacent sensitive receptors, Duke commissioned ambient noise surveys of the area. The surveys were conducted, at various hourly time intervals in January and June of 1999, and were supplemented in July 2000 and July 2001. The noise surveys were conducted using Bruel & Kjaer and Larson Davis sound level meters meeting the requirements of the American National Standards Institute (ANSI) for Type 1 sound level measurement systems. The measurements were performed at heights of approximately five feet above ground level to simulate the average height of the human ear. (Ex. 4, § 6.12.1.3.2.)

The Applicant's noise survey monitored existing noise levels at the following fourteen off-site monitoring locations, which are shown by **NOISE: Figure 1**:

1. Scott Avenue – residential area southeast of project site
2. Morro Bay High School – north of project site, near caretakers' residences
3. Morro Bay Elementary School – south of project site
4. Radcliff Street at Berwick Drive – residential area east of Highway 1
5. Morro Dunes RV Park – north of project site
6. First Church of Christ Scientist - south of project site
7. Morro Bay Library - south of project site
8. Piney Way at Olive Drive – residential area south of project site
9. MBPP Entrance
10. Embarcadero Retail Area – west of project site
11. Public Park at Coleman and Embarcadero - west of project site
12. Public Beach Shoreline - west of project site
13. Morro Rock, East Side - west of project site
14. Morro Rock, West Side - west of project site

PLACEHOLDER

NOISE – Figure 1
Noise Monitoring Locations and Existing Land Uses

NOISE Table 1
Summarizes Ambient Noise Measurement Results.
(Ex. 4, § 6.12.1.3.4.)

Measurement Sites	Measured Noise Levels, dBA		
	Nighttime		CNEL
	L_{eq}	L_{90}	
1	43	41	53
2	45	42	60
3	45	42	56
4	43	42	59
5	42	40	50-55*
6	46	43	55-60*
7	38 to 48	37 to 46	50-55*
8	37	36	45-50*
9	61	60	70-75*
10	67	63	70-75*
11	57	54	60-65*
12	62	55	65-70*
13	48	46	55-60*
14	53	49	60-65*
* - Energy Commission staff estimate			

Source: Exhibit 115, p. 3.3-8, NOISE: Table 3.

Applicant has also conducted an ambient noise measurement over a 25-hour period at the Morro Dunes RV Park (Site 5) to provide additional information concerning ambient noise levels at the most-affected residential receptor. These data indicated that the ambient background noise level (L_{90}) during nighttime hours was in the range of 37 to 46 dBA, and was dominated by frogs in the adjacent creek. Noise from the operation of Units 3 and 4, and from the distant surf, was described by the Applicant as being “intermittently and dimly heard” at nighttime. (Ex. 4, § 6.12.1.3.4; Ex. 115, p. 3.3-8.)

The Applicant also conducted frequency analyses of the noise measured at Locations 1 through 8, during day and late night hours. These data provide the basis for a comparison of the frequency content of the existing and the proposed plant, primarily to determine the presence of pure tones. The existing plant

produced noticeable pure tones in the lower frequency bands, most likely due to the Unit 3 and Unit 4 forced-draft fans and transformers (*Ibid*.)

In general, the noise environment in the immediate vicinity of the existing plant can be described as relatively noisy, containing pure tones that can be particularly annoying. The noise environment in the immediate vicinity of the existing plant is dominated by noise from the existing plant, primarily produced by fans, generators and transformers. At more distant receivers, traffic and other noise sources dominate the existing noise environment. (*Ibid*.)

2. Standards

Staff analysis as presented in the FSA examines the Project's predicted noise emissions relative to the pertinent federal and state laws, including CEQA Guidelines (Cal. Code Regs., tit. 14, App. G.) and Cal-OSHA Regulations. (Cal. Code Regs., tit.8, §§5095-5099.) In addition, the local requirements contained in the City of Morro Bay Noise Element were considered. Staff evaluated Project impacts against a baseline setting which includes the existing power plant. (Ex. 115.)

NOISE Table 2
Morro Bay Noise Element Standards[1]

Noise Level Descriptor	Daytime Standard, dBA (7 a.m. to 10 p.m.)	Nighttime Standard, dBA (10 p.m. to 7 a.m.)
Hourly L_{eq}	50	45
Maximum Level	70	65
Maximum Impulsive Level	65	60

Source: Exhibit 115, p. 3.3-4, NOISE: Table 2.

[1] The City of Morro Bay noise standards are applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures (rather than at the property line).

3. Impacts and Mitigation

a. Construction Noise

Construction noise is usually considered a temporary phenomenon under a CEQA analysis. Duke has organized the construction period for the Project into three different phases: demolition of the tank farm (a 3-month effort), construction of the new power plant and demolition of the existing 450-foot tall stacks (21 months), and dismantling of the existing power plant generation units (32 months). Construction and demolition of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances. The City of Morro Bay Noise Element does not specifically regulate the permissible hours of construction, and does not have any specific noise limits regarding the hours during which construction is allowed. (Ex. 115, p. 3.3-9.)

Applicant prepared a comprehensive analysis of construction noise impacts, listing predicted noise levels expected from specific types of equipment and of generalized construction activities. (Ex. 4, pp. 6.12-36 to 3.12-44.) Duke's witness described the various factors that went into its analysis for construction noise impacts. (1/30/02 RT 34-35.) The construction noise analysis results are summarized for the most-affected receptor locations during the busiest periods of construction (about 7 months) in **NOISE: Table 3**.

NOISE Table 3
Construction Noise Level Predictions

Receptor No.	Description	Daytime Ambient Noise Level, L_{eq}, dBA	Highest Construction Noise Level, L_{eq}, dBA	Cumulative Noise Level, L_{eq}, dBA	Change in Noise Level, L_{eq}, dBA re: Ambient
1	Scott Avenue	50	54	55.5	+5.5
2	Morro Bay HS	60	50	60.4	+0.4
5	Morro Dunes RV Park	60	64	65.5	+5.5
10	Embarcadero	67	63	68.5	+1.5
11	Public Park	56	60	61.5	+5.5
12	Public Beach	62	52	62.4	+0.4
13	Morro Rock, East Side	52	53	55.5	+3.5

Source: Exhibit 115, p. 3.3-9, NOISE Table 4.

The predicted construction sound levels would result in cumulative noise levels up to 5.5 dBA higher than under the ambient conditions at three locations, the Scott Avenue residential area, the Morro Dunes RV Park, and the Public Park near the corner of Coleman and Embarcadero streets. Experts for both Staff and Applicant stated that precise estimates of construction noise cannot be predicted because the time that various individual equipment pieces are used cannot be predicted. However, the experts based their estimates on known industry practices. (1/30/02 RT 94.) The construction noise increases would be perceptible, and potentially significant. However, because the increase in noise levels is of a temporary nature, and will be restricted to daytime hours by Condition of Certification **NOISE-8**, expert witnesses for both Staff and Applicant determined that the noise effect of construction will be insignificant and will comply with applicable LORS. (Ex. 115, p. 3.3-9; Ex. 134, p. 53; 1/30/02 RT 10, 93.)

The noise levels shown in **NOISE: Table 3** assumed the use of a “quieter” pile driving technique to install piles supporting the main equipment and building foundations. Applicant proposes to use auger cast piles, which are installed using a drilling technique, rather than using impact pile driving. The expected

noise reduction from using this technique is 5 to 15 dBA. (Ex. 4, § 6.12.2.1; 1/30/02 RT 16-17.) Condition of Certification **NOISE-10** will require monitoring for vibration at the nearest residence during drilling activities. (Ex. 115, p. 3.3-13.)

The Applicant and Staff also analyzed noise impacts of construction truck traffic. Predicted noise levels due to truck traffic are shown by in the FSA. (Ex. 115, p. 3.3-10, NOISE: Table 5.) Analysis by both Staff and Applicant determined that the predicted cumulative truck traffic noise levels would be insignificant. (Ex. 115, p. 3.3-10.) Other sources of construction noise include demolition of the existing tank farm, (Ex. 115, p. 3.3-11.) and of the existing plant and stacks. (*Ibid*.) No explosives will be used during the demolition process. To mitigate the noise of construction and demolition activities, Staff proposed a series of conditions, which are discussed below. These include requirements for mitigation steps including temporary noise barriers, equipment enclosures, and fitting construction equipment with silencers. (Ex. 115, p. 3.3-12.)

Conditions also require noise reduction during "steam blows". Steam blows are necessary after erection and assembly of the feedwater and steam systems. This is because during construction the piping and tubing that comprises the steam path accumulate dirt, rust, scale and debris such as weld spatter, and dropped welding rods. If the plant were to start up without thoroughly cleaning out the piping and tubing, all the accumulated debris would find its way into the steam turbine, quickly destroying the machine. (Ex. 115, p. 3.3-13.)

In order to prevent this, before the steam system is connected to the turbine, the steam line is temporarily routed to the atmosphere. High-pressure steam is then raised in the heat recovery steam generator (HRSG) or a temporary boiler and allowed to escape to the atmosphere through the steam piping. This flushing action, referred to as a steam blow, is effective at cleaning out the steam system. A series of short steam blows, lasting two or three minutes each, is performed several times daily over a period of two or three weeks. At the end of this

procedure, the steam line is connected to the steam turbine, which is then ready for operation. While unsilenced steam blow noise levels could be as high as 70 dBA to 74 dBA at the nearest receiver (Scott Avenue), the noise may be reduced with appropriate vent silencers. (*Ibid*.)

Energy Commission staff recommended a notification process to make neighbors aware of scheduled steam blows. This is contained in Condition of Certification **NOISE-5**. Implementation of Conditions of Certification **NOISE-4** and **NOISE-5** is expected to reduce noise from steam blows to a level of insignificance. (Ex. 115, p. 3.3-13; 1/30/02 RT 81-82.)

b. Operation Noise

Applicant's witness summarized the actual sound measurements of the existing environment which were made at various locations in the community. The witness also explained his use of accepted noise modeling techniques to factor in the proposed Project. He reviewed a number of conservative assumptions he applied in carrying out his analysis. (1/30/02 RT 6-7.) These conservative factors include:

- Assuming 100% load operation of the new plant over a 24 hour period. (Ex. 115, p. 3.3-14; 1/30/02 RT 7: 12-16.);
- Performing a "worst case" analysis of tonal content of noise (Ex. 115, p. 3.3-17.); Neglecting propagation reductions in noise resulting from intervening structures or topography. (1/30/02 RT 7:7-11.);
- Using the "worst case" of the foundation noise for analyzing construction noise. (1/30/02 RT 31:4-6.);
- Assuming the weather conditions that would result in the loudest noise levels on a consistent, long-term basis (1/30/02 RT 52:19-23.); and
- Using an "effective maximum" analysis for the usage of equipment during construction. (1/30/02 RT 66:1-8.)

The witness testified that, based on his analysis, after completion of the Project, Morro Bay residents and visitors will experience reductions in noise levels that are significant, even "dramatic" or "drastic" reductions for areas such as the Embarcadero. (1/30/02 RT 9:6-20.) He concluded that due to all of the design features discussed in the AFC, and the Conditions of Certification, the Project's contribution to community noise levels from the long-term operation of the power plant will:

- Meet the standards for noise set by the City of Morro Bay as well as standards established by the Commission.
- Replace loud, 1950s-vintage power plant equipment with a much quieter, modern-technology power generation facility.
- Be a substantial improvement over existing daytime conditions at nearly every location in and around Morro Bay.
- Result in nighttime noise conditions that will be a significant improvement, compared to the present, due to reduced annoyance from fan 'whine' and transformer 'hum'." (Ex. 134, pp. 5-6.)

NOISE: Table 4 lists the predicted Project operation noise levels in terms of the equivalent noise level (L_{eq}), which is the metric used in the Morro Bay Noise Element. In this table, the ambient background noise level (L_{90}) was measured at times when the existing units at the MBPP were shut down or on standby, to represent future conditions after the existing units are dismantled.

NOISE Table 4
Summary of Predicted Operation Noise Levels

Measurement Sites	Nighttime Sound Level, dBA			Noise Standard, L_{eq}, dBA
	Ambient L_{90}	Project L_{eq}	Cumulative L_{eq}	
1	41	41	44	45
2	42	36	43	45
3	42	35	43	45
4	42	37	43	45
5	40	43	45	45
6	43	38	44	45
7	40	33	40	45
8	36	31	37	41

Source: Exhibit 115, p. 3.3-16, NOISE: Table 9.

As a result of these analyses, Energy Commission staff believes that no significant noise impacts are likely to occur due to the operation of the project, as mitigated. The proposed Condition of Certification **NOISE-6** would ensure that the background noise level (L_{90}) at the most-affected residential receptor would not increase by more than 5 dBA, and that noise due to the plant operations would not exceed the standards of the Morro Bay Noise Element. (Ex. 115, p. 3.3-19.)

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The Duke witness testified that the tonal components of the existing plant are responsible for most of the annoyance factor associated with that plant. Since the proposed Project lacks these components, it will be far less annoying. (1/30/02 RT 62-63.) After examining a worst-case analysis carried out by Applicant, Staff has determined that even if any tonal components do occur at the proposed Project during operation, Staff's recommended Conditions of Certification **NOISE-6** requires Applicant to eliminate the tones. (Ex. 115, p. 3.3-17.)

4. Cumulative Impacts

Staff compiled a list of past, present and possible future projects producing related noise impacts. No planned projects could be identified, but Staff noted that traffic noise from the Highway 1 corridor is an existing, significant noise source. Noise from Highway 1 was accounted for in the ambient noise measurement used in Project analyses. (Ex. 115, 3.3-18.)

Public Comment

Two members of the public offered comments regarding noise impacts. The first was **Joan Carter**, who lives in the Morro Heights area, in the south portion of the City Morro Bay. She stated that at night her sleep is frequently disturbed and that when she awakens, she can hear the existing power plant. She stated her preference for a quieter power plant compared to the existing one. (1/30/02 RT 73.)

Betty Winholz commented that she lives about 1.5 to 2 miles from the existing power plant, in a different portion of south Morro Bay than Ms. Carter. Although Cerrito Peak lies between her house and the existing plant, she stated that the plant disturbs her sleep several times a month. She stated that she has complained to Duke and the City of Morro Bay regarding the noise. (1/30/02 RT 75.) In later comments she voiced her concern about cumulative noise impacts of a proposed desalination plant as well as the cumulative noise of running the existing plant while constructing the new one. She pointed out that residences located at higher elevations and quite distant from the Project might experience greater noise impacts than residences located close to the Project site. (1/30/02 RT 114-118.)

Commission Discussion

We respond first to the public comments received concerning potential noise impacts. The Commission notes that concerns expressed in the public comments about the *existing* power plant do not necessarily apply to the proposed Project. The evidence establishes that most locations in Morro Bay will experience a significant sound reduction with the new Project operating at full load compared to the existing project operating at reduced load. (1/30/02 RT 8, 39, 61.) We also point out that the existing plant pre-dates the city noise ordinance, and thus has been "grandfathered", and is not subject to the ordinance. The proposed Project, on the other hand, is subject to the Conditions of Certification which follow, as well as being subject to Energy Commission jurisdiction for as long as the Project operates. As to cumulative noise effects, the construction noise impacts analyzed by Applicant and Staff experts were calculated with the existing power units operating and thus take into account the cumulative impacts of those units as well as other sources of ambient noise such as the ocean surf and traffic on Highway 1. (Ex. 115, p. 3.3-128.)

We now turn to a discussion of the various Conditions of Certification and address the changes sought by the parties. Conditions **NOISE-3,** and **8** were not disputed by any party.

CONDITIONS OF CERTIFICATION

NOISE-1 The purpose of this Condition is to require effective notification of residents within one mile of the Project prior to the start of construction and to provide a telephone number for receiving any Project-related noise complaints from the community. Applicant agreed with the Staff language. CAPE urges that, rather than informing only residences located within one mile of the Project, notification go to the entire town. CAPE also wants the Project owner to

acknowledge receipt of any noise complaint within 24-hours of receiving the complaint.

Duke has essentially agreed to CAPE's notification recommendations but suggests that Condition language be made consistent with other provisions in the Decision which address notification and complaint handling. Staff had no objection to the change. (1/30/02 RT 104.) We have amended the Condition to include these provisions in a manner consistent with other similar requirements in the Decision.

NOISE-2 This Condition concerns the manner in which the Project owner must attempt to resolve noise complaints. CAPE seeks a change to require that the Project owner send the complaining party a copy of the noise complaint report that is sent to the CPM. Applicant and Staff do not object and we have made the change.

NOISE-4 This Condition addresses the manner in which the Project may carry out steam blows during the construction phase. CAPE asks the Commission to modify **NOISE-4** to lower the allowable noise level for a steam blow to 40 dBA rather than the 70 dBA set forth in the City's noise ordinance. While CAPE acknowledges that the Condition as written reflects the City's ordinance, CAPE seeks a vast reduction in the maximum allowable noise level.

However, CAPE is mistaken in alleging that Duke has represented these construction steam blows can be limited to 40 dBA at the nearest "receptor" as defined by Staff and used in **NOISE-4**, that is, the RV Park. The testimony cited by CAPE is Duke's AFC testimony that construction noise will be 40 dBA at the nearest *residence*—meaning at Scott Street. This is explicit in the Condition as it appears in the FSA. (Ex. 115, p. 3.3-13; 1-30-02 RT 41-42.)

In fact, Duke's witness testified that Applicant is concerned that even the 70 dBA standard may not be achievable with a commercially available silencer when

measured at the RV Park. (1/30/02 RT 64-65.) CAPE's request would require the steam blows to be at or below the existing ambient nighttime noise levels in Morro Bay. (Ex. 115, p. 3.3-16.) It would also effectively eliminate the use of high-pressure steam blows altogether. The record shows that meeting 40 dBA level suggested by CAPE at that location is not feasible. (*Id*., Ex. 134, p. 59.) Staff joins Applicant in urging that the 70 dBA limit contained in **NOISE-4** is adequate to prevent significant adverse noise impacts. (Staff Reply Br. On Grp.II Topics, p. 13.) We agree.

NOISE-5 This Condition requires the Project owner to notify residents within one-half mile of the Project in writing prior to the first steam blow. CAPE seeks a change that would require all City residents to be notified in writing. Duke does not object, but recommends that notification be in writing "or other effective means" similar to the language in **NOISE-1.** We agree that all residents of Morro Bay should get advance notice of steam blow activity and we have provided Applicant some flexibility in the means of effective notification.

NOISE-6 The portion of this Condition in question requires that during normal operations, the Project cannot exceed ambient noise levels by more than 5 dB and that plant noise levels must comply with the Morro Bay Noise Element. CAPE urges the Committee to modify the Condition by deleting the words "by more than 5 dBA." The change would prohibit the Project from making *any* noise greater than ambient. This proposal is apparently based on CAPE's view that the Commission's 5 dBA threshold for potential significance is too generous to applicants.[2] However, the Commission has consistently applied this 5 dBA standard in numerous siting decisions. Staff objects to now changing the standard unless site-specific facts show that another standard is appropriate.

[2] As stated at FSA Part 1 (Ex. 115, p. 3.3-3), the CEC "has interpreted the CEQA criteria such that noise produced by the permitted power-producing facility that causes an increase of more than 5 dBA in the background noise level (L_{90}) at a noise sensitive receiver during the quietest hours of the day is usually considered a significant effect."

Here the specific facts in the evidentiary record establish that virtually all receptors in Morro Bay will find the proposed Project more quiet than the existing one. (1/30/02 RT 8.) The only measurable exception to this could be at the RV Park where modeling shows a likely noise increase of 2 dB, a noise change so slight it cannot be perceived.[3] (*Ibid*.) Moreover, the record is uncontradicted that a change in level of *at least* 5 dB is required before any noticeable change in response from the community would be expected. (Ex. 115, p. 3.3-30.) The Commission has long applied the 5dB threshold successfully in regulating power plant operations. Furthermore, we are not persuaded by CAPE's citation to *Los Angeles Unified School District v. City of Los Angeles* 58 Cal. App 4th 1019, 1024; 68 Cal. Rptr. 2d 367, 379 (1997). That case involved the failure of the City to consider the cumulative effect of added traffic noise. Here the record demonstratives that the analyses of both Applicant and Staff have factored in the cumulative effects including traffic noise. (Ex. 4, p. 6.12-60; Ex. 115, pp. 3.3-17-3.3-18.) The evidence establishes that the proposed Project will be perceived as the same as, or quieter than, the existing one. As a result, we are not persuaded that a threshold standard more stringent than the existing 5 dB level should be applied in this case.

NOISE-6 and **NOISE-7** CAPE disputes the portions of these Conditions which require noise measurements within 30-days of the Project achieving a sustained output of 80 percent or more of rated capacity. Rather, CAPE wants the testing done at 100 percent of capacity. While Duke does not object to the change, Applicant points out that there is not a significant difference in test results at 80 percent versus 100 percent, though waiting for the Project to reach 100 percent capacity would delay the date of testing. Staff opposes the change because delayed testing will delay any needed corrections. Staff also points out that these Conditions of Certification are applicable (and enforceable) at all times. Thus, even if testing at 80 percent shows compliance with the Conditions of

[3] Applicant's expert testified that the threshold of perceptibility for community noise is usually considered to be 3 dB. (1/30/02 RT 8.)

Certification for noise, the CPM may order additional tests if there is reason to believe a Condition is being violated at 100 percent capacity.

We are not persuaded by CAPE's arguments and will leave the testing threshold at 80 percent of rated capacity.

NOISE-9 This Condition limits noise from demolition of the existing power building and stacks to no more than 5 dB above ambient levels at the residential receptors. CAPE proposes to change the Condition to mandate real-time monitoring using an L_{max} of 45 dBA and 40 dBA for day and night respectively. Staff points out that this is below the existing L_{eq} levels for ambient daytime noise and below the L_{90} levels for ambient nighttime levels. (Ex.115, pp. 3.3-9, 3.3-10, 3.3-16.) This proposal is so restrictive it would likely prohibit any demolition at all. In contrast, Staff's proposed Condition limits demolition activities that will result in an increase in ambient noise levels greater than 5 dBA to be limited to 6 minutes of every hour. This approach allows demolition to proceed but will minimize annoyance from continuous construction noise.

We find that CAPE's recommendation is not feasible and is not required based on the construction noise levels, which the record established will be less than significant at residential locations.

NOISE-10 The City of Morro Bay recommends that reference in this Condition to "pile driving" be changed to "auger pile drilling". Applicant's witness testified to Duke's willingness to use this technique which produces noise levels substantially lower than traditional hydraulic ram drilling techniques and avoids annoying repetitive pounding. As a result, Applicant does not oppose the concept of the City recommendation. (Ex. 134, p. 57; 1/30/02 RT 17.) Staff too supports the recommended change. (*Id*. RT 89.) Since the recommended change brings the language of the Condition into conformity with the quiet drilling technique proposed by Applicant, we adopt the change.

NOISE-11 The FSA did not propose this Condition. Rather, CAPE offers a new noise condition that would provide:

> "NOISE-11. No normal controlled startups of the Project's gas turbines (whether occurring singly or simultaneously) shall occur at any time before 7 a.m. or after 10 p.m. that exceed 40 dBA at any residential receptor in Morro Bay. Such permitted normal controlled startups at any time between 7 a.m. and 10 p.m. shall not exceed 45 dBA at any residential receptor in Morro Bay." (CAPE Opening Br. at p. 27.)

The apparent intent of this proposed condition is to extend the continuous noise provisions of the Morro Bay Noise Element to the transitory noise involved with start-up steam releases. However, such transitory noises are not treated the same as continuous noises under either the City Noise Element or CEQA. Both laws recognize that temporary or transitory noise conditions are less significant than continuous ones.

In addition, both Staff and Applicant have analyzed and designed mitigation for the impact of the start-up steam releases. As acknowledged by Staff in the FSA, Duke has committed to installing noise control steam vents for these releases. (Ex. 115, p. 3.3-17.) With this mitigation, these intermittent releases are expected to result in noise levels of 40-44 dBA at Scott Avenue and 42 to 45 dBA at the RV Park. (*Id*.) These levels are in compliance with applicable laws and are not considered significant. (*Id*.)

For the above reasons, we find that start-up periods are not likely to cause significant noise impacts, or violations of the City's noise ordinance. We therefore will not adopt CAPE's proposed language for the additional Condition.

In conclusion, all evidence of record and sworn testimony supports a determination that the proposed project will be, in most locations, significantly

quieter that the existing plant. (1/30/02 RT 61.) Where increased noise impacts can be identified to exist at all, such impacts will be insignificant.

FINDINGS AND CONCLUSIONS

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

1. The existing ambient noise environment in the vicinity of the Project site is characterized as relatively noisy, and is dominated by noise from the existing power plant, ocean surf, traffic and other noises.

2. Project construction noise levels are temporary and transitory in nature and shall be mitigated to the extent feasible by sound reduction devices, limiting construction hours, and providing notice to nearby residences and the greater Morro Bay community.

3. Construction of the MBPP will temporarily increase noise levels above existing ambient levels in the surrounding community but will not cause a significant impact.

4. The City of Morro Bay General Plan Noise Element specifies that daytime operational noise levels acceptable for residential land range from 50 to 70 dBA L_{dn}.

5. The sensitive receptors nearest the MBPP are located 900 feet away from the new units of the proposed Project, at the RV Park.

6. The Project's operation noise levels will not significantly elevate noise levels at any place in the community above the existing ambient noise levels. Many locations will experience a reduction from current ambient noise levels.

7. Implementation of the Conditions of Certification, which follow, will ensure that noise levels will not significantly increase as a result of the MBPP.

8. 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 Morro Bay Power Plant Project will not create any significant direct, indirect, or cumulative adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the site, by mail, and throughout the City of Morro Bay either 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. The project owner shall verify receipt of a complaint received on an unattended telephone within 48 business hours of the complaint, to assure the caller that the complaint was received.

Verification: The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of ground disturbance, a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method(s) 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.

Protocol: The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form, 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: 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. The project owner shall provide a copy of the written noise complaint report to the complaining party at the same time the report is submitted to the CPM, provided that the complainant has included a contact number or address with the complaint.

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 City of Morro Bay Planning Department, with the complainant (if the complainant supplied an address) 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 ground disturbance, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a commercially available temporary silencer that quiets the noise of steam blows to no greater than 70 dBA, measured at the Scott Avenue monitoring site, or at any other residential receptor. If such a silencer is not commercially available, the project owner shall implement other practical measures to reduce noise to the above-noted level. The project owner shall conduct steam blows only on weekdays during the hours of 7 a.m. to 7 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that off-site 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 period of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise levels do not exceed the average nighttime ambient L_{90} plus 5 dBA. If the low-pressure process is approved by the CPM, the project owner shall implement it in accordance with the requirements of the CPM. In the event that the required noise levels are not met, the CPM will determine whether the project owner has taken all feasible steps towards adequate silencing.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM and the City of Morro Bay drawings or other information describing the temporary steam blow silencer and the noise levels expected, a series of alternative practical measures to be used if the silencer cannot achieve the stated noise level, 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 by mail the City of Morro Bay and all residents within one-half mile of the site of the planned steam blow activity, and shall make additional notification available to all other City of Morro Bay 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 (including newspaper and other media). 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 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 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause resultant noise levels to exceed the ambient background noise level (L_{90}) at residential receivers by more than 5 dBA, and that the noise due to plant operations will comply with the noise standards of the Morro Bay Noise Element.

No new pure tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints, as determined by the CPM.

Protocol:

A. Prior to initiating construction, the project owner shall conduct short-term ambient noise measurements during day, evening, and

nighttime hours at one location in the vicinity of the Del Mar Elementary School.

B. Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct short-term survey noise measurements at monitoring sites 1, 2, and 4 and at the above-described location in the vicinity of the Del Mar Elementary School. The short-term noise measurements shall be conducted during both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods. In addition, the applicant shall conduct a 25-hour community noise survey at Morro Dunes RV Park. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

C. If the results from the two noise surveys (pre-construction vs. operations) indicate that the background noise level (L_{90}) at the most affected receptor has increased by more than 5 dBA for any given hour during the 25-hour period, or that the noise standards of the Morro Bay Noise Element have been exceeded, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

D. If the results from the two noise surveys (pre-construction vs. operations) indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: Within 15 days after completing the pre-construction survey, the project owner shall submit a summary report of the survey to the City of Morro Bay Planning Department, and to the CPM. Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the City of Morro Bay Planning Department, and to the CPM. Included in the post-construction survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of 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 Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey

results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-8 Noisy construction or demolition work shall be restricted to the times of day delineated below:

Weekdays	7 a.m. to 7 p.m.
Weekends and Holidays	9 a.m. to 5 p.m.

Noisy construction is defined as that which causes off-site annoyance, as evidenced by the filing of a legitimate noise complaint (as determined by the CPM). Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-9 The project design and implementation shall include noise mitigation measures adequate to ensure that power building and stack demolition will not cause resultant noise levels to exceed the ambient background noise level (L_{90}) at residential receivers by more than 5 dBA, except as modified by the CPM in accordance with item B below.

Protocol:

A. Upon request by the CPM, the project owner shall conduct one-hour noise measurements during power building and stack demolition at monitoring sites 1, 2, and 4.

B. If the results from the noise survey indicate that noise due to the power building and stack demolition has caused the background noise level (L_{90}) at the most affected receptor to increase by more than 5 dBA for any given hour during the measurement period, the project owner shall implement reasonable mitigation measures, per concurrence of the CPM, to reduce noise to a level of compliance with this limit.

Verification: Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the City of Morro Bay Planning Department, 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 15 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-10 Vibration due to auger pile drilling shall be limited to a peak particle velocity of 0.2 in/sec at the nearest sensitive structure.

Protocol:

A. Upon commencement of auger pile drilling, the project owner will conduct continuous vibration monitoring at the nearest residential receptor, including the RV Park, and will continue the monitoring until the pile nearest that residence is installed.

B. If vibration measurements indicate at any time that the auger pile drilling vibration at any sensitive receptor, including the RV Park, has exceeded a peak particle velocity of 0.2 in/sec, the operator shall notify the CPM immediately, and cease auger pile drilling until mitigation measures from the pre-filed mitigation plan are implemented.

Verification: At least 30 days prior to beginning auger pile drilling activities, the project owner shall submit to the local jurisdiction and the CPM for review, a pre-planned mitigation response to be implemented in the event that the above-noted vibration level is exceeded at the RV Park. Within 30 days after completing the vibration measurements, the project owner shall submit a summary report of the measurements to the local jurisdiction, and to the CPM. Included in the report will be a description of any additional mitigation measures which were implemented to achieve compliance with the above listed vibration limits, as well as the vibration measurement data demonstrating compliance.

NOISE COMPLAINT RESOLUTION FORM

Morro Bay Power Plant Project
(00-AFC-12)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____ Date: _____

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

NOISE: APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **NOISE: Table A1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (Leq), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (Ldn). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical Ldn values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects (USEPA 1971). At 70 dBA, sleep interference effects become considerable.

In order to help the reader understand the concept of noise in decibels (dBA), **NOISE: Table A2** has been provided to illustrate common noises and their associated sound levels, in dBA.

NOISE: Table A1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: California Department of Health Services 1976, 1977.

NOISE: Table A2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Exhibit 115, p. 3.3-29.

SUBJECTIVE RESPONSE TO NOISE

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships (Kryter 1970) can be helpful in understanding the significance of human exposure to noise.

1. Except under special conditions, a change in sound level of one dB cannot be perceived.
2. Outside of the laboratory, a three dB change is considered a barely noticeable difference.
3. A change in level of at least five dB is required before any noticeable change in community response would be expected.
4. A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

COMBINATION OF SOUND LEVELS

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

NOISE: Table A3
Addition of Decibel Values

When two decibel Values differ by:	Add the following amount to the larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0
Figures in this table are accurate to ± 1 dB.	

Source: Exhibit 115, p. 3.3-30;Thumann, Table 2.3

SOUND AND DISTANCE

Doubling the distance from a noise source reduces the sound pressure level by six dB.

Increasing the distance from a noise source ten times reduces the sound pressure level by 20 dB.

WORKER PROTECTION

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

NOISE: Table A4
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: Ex. 115, pp. 3.3-31, NOISE: Table A4

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

The socioeconomic environment in the vicinity of the Project includes the existing Morro Bay Power Plant which has been in continuous operation for approximately 50 years. The area of the plant site includes industry, commercial operation and marine, recreational and residential uses. The socioeconomic study area for the Project was defined by the witnesses as the City of Morro Bay, San Luis Obispo County, and northwestern Santa Barbara County. (Ex. 134, p. 76.)

According to preliminary Census 2000 results, San Luis Obispo County had a population of 246,681. The comparable numbers for the City of Morro Bay were 10,350 in 2000. In addition to Morro Bay, the unincorporated communities of Baywood, Los Osos, and Cayucos are also located within a six-mile radius of the Project site. Their combined population was 27,000 in 1990, with Baywood-Los Osos responsible for just over half the population. These communities together accounted for about 12 percent of the San Luis Obispo County population in 1990. (Ex. 115, p. 3.5-2.)

1. Employment

The Project construction period will occur over an approximately five-year period. The peak construction labor requirement is estimated at 831 workers on two shifts, which is expected to occur during the 13th month of construction. The number of workers is anticipated to exceed 600 workers for six months and exceed 200 workers for a 12-month period, months 6 through 17 of the process.[1]

The six-month peak construction employment of more than 600 workers represents a significant proportion of all construction jobs in San Luis Obispo County (11%). However, assuming a one-way commute distance for construction workers of up to two hours, the labor pool extends to portions of Santa Barbara and Kern Counties. The Staff witness anticipates the Project will have little difficulty in finding a construction labor force within commute distance, and few workers are expected to relocate to Morro Bay or San Luis Obispo as a result of the Project. (Ex. 115, p. 3.5-6.)

There are three trades identified where the Project demand will exceed the local supply of workers: boilermakers, ironworkers, and millwrights.[2] For all these trades, there will be an 11-month period when from 6 to 113 workers may seek temporary weeknight housing. For only five of these months will there be more than 50 workers who need temporary housing. (*Ibid.*)

Once the Project is in operation, the permanent employment associated with the proposed Project (approximately 75 workers) would be about the same as the current labor force at the existing power plant. Thus, employment during the

[1] SOCIOECONOMICS TABLE 3, found on pages 3.6-7 and 3.6-8 of the FSA (Ex. 115) shows the distribution of workers by craft over the time construction schedule.

[2] This information is summarized in a table, which analyzes Project labor needs, by craft. (See SOCIOECONOMICS TABLE 4, Ex. 115, p. 3.5-9.)

operating phase of the Project will not have a significant impact on the Morro Bay labor force. (Ex. 115, p. 3.5-9.)

2. Fiscal

Construction of the Project will generate one-time sales tax receipts, based on local sales of materials. According to Applicant's estimates, about $10.3 million worth of material would be purchased locally, including concrete, steel, and miscellaneous equipment. Total construction payroll is estimated to be about $67 million. On-going local expenditures for maintenance and materials are projected at $260,000 annually, a continuation of existing expenditures. Duke estimates on-going operational payroll at approximately $8.6 million. Thus, the Project will result in both one-time and ongoing economic benefits to local businesses. (Ex. 115, p 3.5-11.)

The existing MBPP generated approximately $131,000 in annual property tax to the City of Morro Bay and a total of $1.1 million to all recipient agencies in 1999, based on an assessed value of $110 million. The net increase in assessed value of the Project is estimated to be $409 million. This figure represents the total value minus the value of the existing power plant units that will be removed. (Ex. 4, p. 6-10-43.) Based on the expectation that approximately $519 million of improvements will represent assessable value, the City of Morro Bay will receive $626,700 in additional property tax revenue, the County General Fund $1.019 million, and the School District will receive $1.662 million in additional annual revenues. (*Ibid*.)

Franchise fees to Morro Bay for natural gas are projected at $850,000 annually. Duke has agreed to support a minimum annual funding to the City of Morro Bay of $2 million from property taxes, franchise fees, and other city fees. The company will provide the City with additional funding to guarantee the $2 million annual fee should the combined totals not reach this level. (Ex. 115. 3.5-12.)

One of Applicant's witnesses summarized for the record the total of increased property tax revenues, outfall lease payments, franchise fees, police and fire payments, public services, direct liaison funding, and payments for Highway 41 road improvements. During the five years of the construction period, these payments will total $23.7 million. Since the existing plant generates about $13.7 million for a comparable period, the net benefit from such payments during the construction period would be $10 million. He added that these figures do not include "multiplier or second round spending" such as spending by construction workers on lodging or food. Such multiplier spending adds significantly more to the totals. (1/31/02 RT 31-32.)

The uncontroverted evidence establishes that the construction of the Project will create jobs, as well as increase retail and tax revenue in the affected area.

3. Housing

Construction of the Project is not expected to result in a significant number of workers moving to the area for construction or permanent jobs. Morro Bay experiences some normal housing turnover although the community has a low vacancy rate. However, mobile home, RV parks, and motels also provide temporary living opportunities. There is good availability of temporary RV space and motels for nine months of the year, with more limited availability during summer. However, this summer limitation is offset by the 16,000-student Cal Poly San Luis Obispo campus, which creates a substantial rental availability in San Luis Obispo during summer. (Ex. 115, p. 3.5-10; Ex. 134, p. 83.)

During a limited time, there is the potential for some construction workers to temporarily relocate to Morro Bay. However, the workers would primarily be in Morro Bay on weeknights, when demand for transient housing is lower than on weekends. Accordingly, the Staff witness stated that any temporary housing demand generated by a limited number of construction workers is expected to be

a positive rather than negative influence on the Morro Bay and/or San Luis Obispo transient housing stock. (*Ibid.*) This is consistent with the support which the Morro Bay Motel and Restaurant Association has given the Project. (Ex. 134, p. 83.)

Duke has provided a guarantee in its Agreement to Lease with the City that, in the unlikely event transient occupancy taxes (TOT) drop below a 3-year average during construction, the City my seek compensation up to $100,000. (Ex. 134, p. 85; Ex. 95, p. 24.)

SOCIOECONOMICS Table 1
Estimated Incremental Property Tax for Morro Bay Power Plant Project

Taxing Jurisdictions	Approximate Share of Tax Increment	Approximate Incremental Revenue
City of Morro Bay	11.94%	$526,700
San Luis Obispo County General Fund	23.10%	$1,019,000
Air Pollution Control District	.064%	$2,800
City/County Library	1.73%	$76,400
San Luis Flood Control District	.245%	$10,800
Nacimiento Water Service	.266%	$11,700
Cayucos-Morro Bay Cemetery	.918%	$40,500
San Luis Coastal Unified School District	37.69%	$1,662,400
San Luis Obispo Community College	6.71%	$295,700
County School Service	3.97%	$175,200
ERAF (schools)	13.36%	$589,100
Total to County	100.00%	$4,388,400
State Water Debt	.40%	$17,600
TOTALS	**100.40%**	**$4,428,500**

Source: Estimates based on applicants projections of property value and San Luis County Auditor-Controller allocation factors; Exhibit 115, Table 5, p. 3.5-12.

4. Schools

Few temporary workers are expected to move to and/or bring families to Morro Bay during the construction period. Thus, there is not expected to be any impact on the need for school facilities. The Project will not generate one-time school impact fees since no additional classroom square footage will be required. (Ex.

4, p. 5.10-9; Ex. 115, p. 3.5-10). Applicant testified that the San Luis Unified School District would receive $1.662 million in additional annual revenues from property taxes due to the Project. (Ex. 134, p. 81.)

5. Emergency Services

Duke will support a Traffic Officer in the Morro Bay Police Department and provide overtime support during the construction period. Functions will include: traffic management at key intersections, particularly during shift change and major deliveries; coordination with onsite security; as well as liaison between the Police Department and the Applicant. The estimated approximate cost is $285,000, with payment to be initiated with the removal of the tanks and beginning of construction. (Ex. 115, p. 3.5-11.) Furthermore, as part of the Agreement to Lease, Duke will pay up to a maximum of $2,720,000 for potential police and fire costs for the duration for the Project. (Ex. 134, p. 86.)

6. Environmental Justice

The purpose of the environmental justice, (E.J.) screening analysis is to determine whether there exists a low-income and/or minority population within the potential affected area of the proposed site.

Minority populations, as defined by USEPA's April 1998 National Environmental Policy Act Compliance Analysis[3] are identified where either:

- The minority population of the affected area is greater than fifty percent of the affected area's general population; or
- The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

[3] While Commission Staff relies on EPA guidelines in conducting its Environmental Justice (EJ) screening, such analysis is not required under CEQA. EJ guidelines are a separate policy developed in response to a 1994 federal Executive Order.

Staff has determined the potential affected area as a six-mile radius of the proposed site. The six-mile radius is consistent with the radius used for Staff's cumulative air quality analysis. (Ex. 115, 3.5-12.)

The results of Staff's analysis of minority populations within the six-mile radius of the Project are displayed in Table 2 below. As a result of the analysis, Staff concluded that the Project does not have a minority population within the six-mile radius.

SOCIOECONOMICS Table 2
Minority Populations 2000

	Total Population[1]	Minority Population[2]	Percent Minority
Six-mile radius	36,336	6,230	17.1%
City of Morro Bay	10,350	1,716	16.6%
State of California	33,560,448	17,100,904	51%

1. Dept. of Finance Demographic Research Unit
2. Minority includes non-white and white-Hispanic populations.

Source: Exhibit 115, Socioeconomics Table 7, p. 3.5-13.

SOCIOECONOMICS Table 3
Low-Income Populations

	Population Below Poverty Level	Percent Below Poverty Level
6 Mile Radius	2,959	8.8%
City of Morro Bay	976	11.4%
Source: 1990 US Census;		

Source: Exhibit 115, Socioeconomics Table 8, p. 3.5-14.

Accordingly, Staff testified that no socioeconomic environmental justice issues were found to exist. (Ex. 115, p.3.5 - 13 to 14.)

CAPE introduced no evidence regarding the topic of socioeconomics, but made several arguments against the adequacy of Staff's E.J. analysis. CAPE argued that Staff's selection of a six-mile radius is arbitrary. Yet, CAPE ignores Staff testimony stating that the six-mile radius is consistent with the radius used by

Staff for its cumulative air quality impacts analysis. (Ex. 115, p. 3.5-12.) CAPE also attempts to rely on a City of Morro Bay Housing element, which is not part of the evidentiary record. (Staff Reply Brief on Group II topics, p. 17.) We find that Staff has conducted an environmental justice analysis which is similar to that conducted in prior cases at the Commission and which is legally adequate according to federal guidelines.

7. Property Values

The witness for Duke testified that he had conducted an analysis of communities where major industrial facilities had homes located nearby. The result of the analysis found no adverse impacts on property values for the studied areas. In addition, Duke conducted a review of home sales data, which revealed no significant differences between the median home selling price in Morro Bay, and in neighboring communities. (Ex. 134, p. 81.)

Staff testimony documented its literature search of studies analyzing the effect of industrial development on property values. (Ex. 115, pp. 3.5-19 to 22; Ex. 4, App. 6.10-3.) Their search has revealed no information or study that demonstrates an adverse or negative impact on surrounding property values directly attributable to a natural gas-fired power plant. In addition, the Staff witness pointed out that because the proposed Project is a replacement of an existing power plant rather than a change in land use, the proposed Project is not likely to adversely impact property values in the vicinity. Staff acknowledged that there may be a small negative impact during the construction of the new plant, as the existing large plant will still be in operation while construction cranes and other equipment are utilized in constructing the adjacent replacement plant. However, upon completion the view in the area will be enhanced compared to the present. (Ex. 115, p. 3.5-14 to 22.)

CAPE proposed a new Condition SOCIO-4, which would require Duke to compensate any property owner who can demonstrate diminished home value resulting from Project construction. (1/31/02 RT 13; Opening Brief of CAPE on Group II Topics, p. 42.) Applicant's testimony contained persuasive data on home sales, which show no significant differences between the median home selling price in Morro Bay, and in neighboring communities of Cayucos and Cambria. (Ex. 134, p. 81-82.) The latter two communities do not contain a major industrial facility such as the existing MBPP. In addition, the analysis performed by Staff determined that the Project "is unlikely to adversely impact property values in the vicinity." (Ex. 115, p. 3.5-14.) Thus, the evidence of record does not support the need for the condition which CAPE seeks. The evidence presented by Staff and Applicant persuades us that property values are not likely to decrease because of the Project. This conclusion is similar to that reached in prior power plant decisions rendered by this Commission.[4]

8. Cumulative Impacts

Applicant has identified a number of on-going projects in San Luis Obispo County that would occur concurrently with the Morro Bay Power Plant Project should it be approved. (Ex. 4, p. 6.1-13, Table 6.1-1.) The Staff witness testified that the only potential impact from a cumulative socioeconomic point of view would be a possible shortage of workers in some trades, and the influx of a new population which may have an impact on housing and schools. (Ex. 115, p. 3.5-15.)

Of the off-site projects identified by Applicant, expansion of the San Luis Obispo Airport was scheduled for completion in 2001. Cleanup of Avila Beach and completion of the Cuesta Grade Highway 101 project may overlap with the MBPP in some construction trades, such as equipment operators and laborers, but there is no labor force shortage in these skills. Most of the projects identified

[4] See Commission Decision on the Crockett Cogeneration Project, Docket No. 92-AFC-1. (May 1993, Pub. No. P800-93-004.) Also Commission decision on the Metcalf Energy Center, Docket

by Duke and listed in Table 6.1-1 are residential and commercial development projects which would not require the same construction trades as those needed for power plant construction. (*Ibid*.) Because of the size of the labor force in the county and adjacent counties, Staff testified that there exists an adequate number of workers in the area.

The testimony of record establishes that both Applicant and Staff witness have separately concluded that the Project will comply with LORS pertinent to socioeconomic topics. The witnesses also agreed that the Project would not cause any significant adverse socioeconomic impacts either by itself or cumulatively. (Ex. 134, 74 et seq.; Ex. 115; Ex. 116; 1/31/02 RT 9.)

Public comment

Mandy Davis expressed her opinion that most citizens of the City of Morro Bay who voted in favor of an initiative on the new plant were misled by Duke's marketing efforts in support of the Project. (1/31/02 RT 51-63.) **Bill Woodson** stated that the Commission should require local hiring by Duke for construction and operations workers. While Condition of Certification SOCIO-1 does require hiring and purchases from local counties, Mr. Woodson wanted such hiring limited to workers from the City of Morro Bay and San Luis Obispo County. (1/31/02 RT 64-66.) **David Pinkham** stated his opposition to the Project due to the damage which he fears it will cause to the estuary and the local environment. (1/31/02 RT 66-69.)

FINDINGS AND CONCLUSIONS

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

1. The Morro Bay Power Plant Project will recruit employees and procure materials and supplies primarily within the central California area (San

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No. 9-AFC-3 (September 2001, Pub. No. P800-01-023.)

Luis Obispo, Kern, and Santa Barbara Counties) for construction and operation.

2. The Project will not cause an influx of a significant number of construction or operation workers moving into the local area.

3. The proposed Project will not cause a significant adverse direct or cumulative effect on traditional socioeconomic considerations including employment, housing, schools, medical, tax revenues, and fire and police protection.

4. The construction and operation of the MBPP Project will result in increased revenue to the City of Morro Bay and local jurisdictions from lease payments, taxes, employment, and sales of services, manufactured goods, and equipment.

5. The Project will likely result in an estimated increase of $4.4 million in annual property tax revenues, of which the City of Morro Bay will receive an estimated $626,700 over its existing portion of MBPP property taxes. The City will also continue to receive substantial Franchise Gas Fees for Duke's purchase of natural gas for the Project.

6. The Applicant estimates it will spend approximately $10.3 million for local purchases of materials and supplies during construction and demolition phases of the Project.

7. As part of the Agreement to Lease, Applicant has agreed to make a maximum aggregate payment to the City of Morro Bay of $2,720,000 for potential police and fire costs.

8. The potential environmental justice impacts of the project have been comprehensively analyzed and the evidence establishes that the MBPP Project will not have a disproportionately high or adverse impact upon any minority or low-income populations in the local area.

9. 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 Condition of Certification will ensure that Project-related construction and operation activities will not impose any significant direct, indirect, or cumulative adverse socioeconomic impacts and that the Project will conform with all applicable LORS relating to socioeconomic factors.

CONDITION OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within the Central California area (San Luis Obispo, Kern, and Santa Barbara 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.

Verification At least thirty (30) days prior to site mobilization or start of demolition, 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.

D. TRAFFIC AND TRANSPORTATION

Construction and operation of the Project will have the potential to adversely impact the transportation system in the Project vicinity. During the construction phase, large numbers of workers arriving and leaving during peak traffic hours and transportation of large pieces of equipment could increase roadway congestion and affect traffic flow. During plant operation, there is reduced potential for impacts due to the limited number of vehicles involved. Once Project construction is completed, on-going operations and maintenance traffic will be minimal, but will include the regular transportation of hazardous materials to the Project site. In all cases, the transportation of hazardous materials must comply with federal law.

The evidentiary record contains an examination of the extent to which the Morro Bay Power Plant Project will affect the regional and local transportation systems in the vicinity of the Project. 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

1. Setting

The Project site is located between State Route 1 and the Pacific Ocean on the north end of the Embarcadero commercial district. Applicant proposes to locate the Project within the existing Morro Bay Power Plant site. Access to the site would be from Embarcadero Drive via a new roadway extension north to Atascadero Road. A secondary Project access is proposed at the existing rear gate entrance on Main Street. Traffic and Transportation Figure 1 shows the

major roads, potential access roads, and highways in the Project area. The major roadways in the vicinity of the Project site are State Route 1, State Route 101, State Route 41 (Atascadero Road), Main Street, and Embarcadero Road. State Route 1 passes through the City of Morro Bay and is the key north/south route serving the coastal area. This highway is also a scenic route through central California. (Ex. 115, p. 3.6-4.)

State Route 101, which is located about 15 miles east of Morro Bay, offers an alternative north/south route through the County and is a more direct north/south regional passageway, than State Route 1. State Route 41, also known as Atascadero Road within the Morro Bay city limits, extends east from State Route 1 at the Cuesta Hillside residences to State Route 101 in the City of Atascadero. Traveling west from Highway 1 Atascadero Road passes Morro Bay High School and continues on to the beach where it ends. (*Ibid*.)

Main Street is a primary local collector that extends north/south from the northern city limits to Morro Bay State Park. Main Street parallels State Route 1 adjacent to the Project site and serves the central business district of Morro Bay. Embarcadero Road extends from Morro Rock along the waterfront to the boat launch at Tidelands Park. The Embarcadero area serves as a major tourist attraction and commercial district. Access for the existing plant is on Embarcadero Road south of Coleman Park. Quintana Road serves as a frontage road for State Route 1 from South Bay Boulevard to Main Street near the Project's back entrance. Quintana Road primarily serves commercial land uses adjacent to State Route 1. (*Ibid*.) As shown in Traffic and Transportation Figure 2, Applicant's proposed satellite parking area will lie between Quintana Road and State Highway 1. (Ex. 115. 3.6-11.)

The existing power plant employs 77 persons, the largest number of whom work the day shift. The plant operates 7 days a week, 24 hours a day. Operations include various truck deliveries of materials and equipment.

TRAFFIC AND TRANSPORTATION – Figure 1
Regional Transportation Setting
Source: Ex. 4, p. 6.11-9

TRAFFIC AND TRANSPORTATION – Figure 2
Proposed Satellite Parking Area
Source: Ex. 115, p. 3.6-11

TRAFFIC AND TRANSPORTATION - Figure 3
Offsite Laydown Area Camp San Luis Obispo
Source: Ex. 115, p. 3.6-12

a. Existing Levels of Service (LOS)

The operating conditions of a roadway system, including intersections, are described using the term “level of service”. Level of service (LOS) is a description of a driver’s experience at an intersection or roadway based on the level of congestion or delay. Intersection and roadway LOS can range from “A”, representing free-flow conditions with little or no delay, to “F”, representing saturated conditions with substantial delay. The thresholds for LOS A to F are based upon the length of delay per vehicle and vary by signalized or unsignalized intersection control. There are numerous methodologies used to determine intersection LOS. For the MBPP project, Applicant used intersection operations analysis methodologies contained in the *Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington D.C., 1994 except for State Route 1. Roadway LOS on State Route 1 was analyzed using methodologies contained in *Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington D.C., 1997. (Ex. 115, p. 3.6-6.)

While the LOS does not expressly consider safety in its description of a driver’s experience, such concerns are implicitly analyzed in the LOS for two reasons. First, to the extent that concerns regarding safety are raised by increased congestion, the LOS analysis considers the potential for accidents. (Ex. 115, p. 3.6-13, 3.6-21.) Second, the LOS considers the design capacity of a road and the ability of a road to operate within its design capacity. (Ex. 115, p. 3.6-6.) This consideration must take safety concerns into account because safety concerns are directly related to the design capacity of a road. Thus, while the LOS may not expressly consider safety, it does account for safety concerns when it describes the driver’s experience based on the level of congestion or delay.

The City of Morro Bay General Plan Circulation Element specifies a minimum standard of LOS C at intersections. Table 1 summarizes intersection LOS at 15

study intersections. Each study intersection was found to operate at an overall acceptable LOS of level C or better under existing conditions. The intersection of Main Street at State Route 1, Northbound Ramps has an overall intersection LOS of A. However, vehicles heading westbound under worst movement conditions experience a LOS of D. The LOS of the impacted intersections reported by the Applicant in Table 1 was verified by independent calculations. (*Ibid*.)

TRAFFIC AND TRANSPORTATION Table 1
Level of Service - Existing Conditions

North/South Street	East/West Street	Intersection Control	AM Peak Hour on Adjacent Street (7:00-8:00)		PM Peak Hour on Adjacent Street (4:00-5:00)	
			Delay (sec)	LOS	Delay (sec)	LOS
Main St.	Atascadero Rd.	All-Way Stop	13.2	B	13.9	B
Hwy 1 NB Ramps	Atascadero Rd.	Unsignalized	2.7	A	1.4	A
Hwy 1 SB Ramps	Atascadero Rd.	Unsignalized	1.4	A	2.8	A
MBHS East	Atascadero Rd.	Unsignalized	0.9	A	1.3	A
MBHS West	Atascadero Rd.	Unsignalized	1.5	A	1.1	A
Main St.	Hwy 1 NB Ramps	Unsignalized	0.7	A	1.6	A
Main St.	Hwy 1 SB Ramps	Unsignalized	1.6	A	1.5	A
Main St.	Quintana Rd.	Signalized	7.6	A	8.5	B
Main St.	Beach St.	All-Way Stop	9.3	A	6.0	A
Main St.	Harbor St.	All-Way Stop	9.2	A	3.5	A
Main St.	Pacific St.	Unsignalized	1.1	A	2.3	A
Embarcadero Rd.	Beach St.	All-Way Stop	7.9	A	2.2	A
Embarcadero Rd.	Harbor St.	Unsignalized	0.8	A	1.0	A
Embarcadero Rd.	Pacific St.	Unsignalized	1.3	A	1.8	A
Embarcadero Rd.	Main Duke Entr.	Unsignalized	0.2	A	0.8	A

Source: Exhibit 4. Table 6.11-2 pages 6.11-20 through 6.11-22

2. Construction Impacts

Construction activity at the Morro Bay Power Plant will be carried out in three Stages, (see TRAFFIC AND TRANSPORTATION Table 2). Stage I will be the decommissioning and removal of existing on-site fuel oil tanks. This stage will last approximately three months. The work associated with the decommissioning phase will require less than 40 workers per day on the site. Stage II will be for the construction of two 600-MW, combined-cycle generating units. Stage II construction will take approximately 21 months with an expected maximum workforce of 950. Stage III of the Project will be for the decommissioning and removal of the existing power generating equipment from the site. This stage is

estimated to take approximately 34 months with a peak workforce of 100 per day. The greatest potential effects of the Morro Bay Power Plant Project on traffic will occur during Stage II. (Ex. 115, p. 3.6-7.)

The expert witnesses for both Applicant and for Staff conducted their respective traffic analyses including consideration of factors that could increase the potential for accidents. They considered road hazards, unsafe conditions, and road features that affect the public safety. (Ex. 115, p. 3.6-1 - 3.6-28; Ex. 4 p. 6.11-1 - 6.11-77). Expert testimony included consideration of the level of service (LOS), which relates to traffic delays. (Ex. 115, p. 3.6-6 - 3.6-8, 3.6-14, 3.6-16). The analyses also considered the history of accidents in the area. (Ex. 4, p. 6.11-20 - 6.11-23; Ex. 37, Transportation, p. 5-7). Additionally, the analysis considered peak traffic conditions and potential peak pedestrian periods. (Ex. 115, p. 3.6-7 - 3.6-11, 3.6-14, 3.6-16; Ex. 4 Figures 6.11-5, 6.11-6, 6.11-7, p. 6.11-31.)

TRAFFIC AND TRANSPORTATION Table 2
Stages For Project Construction

Duration	**Stage I 3 Months**	**Stage II 21 Months**	**Stage III 34 Months**
Workforce			
Peak	35	700 Day Shift/250 Night Shift	100
Average	35	300 Day Shift/100 Night Shift	40

Source: Exhibit 4. Volume 1-B Table 6.11-1. Page 6.11-1.

Of the 950 employees anticipated during Stage II construction, 700 employees are expected during the day shift (i.e., beginning no later than 7:00 a.m. and ending before 4:00 p.m. or after 5:00 p.m.) and 250 employees are expected during the night shift (i.e., beginning no earlier than 7:00 p.m. and ending no later than 6:00 a.m.) The measured ambient a.m. peak hour of traffic within the study area is between 7:00 a.m. and 8:00 a.m. and the ambient p.m. peak hour is between 4:00 p.m. and 5:00 p.m. The Applicant has stated it will schedule the workforce shifts to avoid these peak hour traffic times. As a result, construction traffic will be off of area roadways during the City of Morro Bay peak traffic hours.

Therefore, the Project's peak traffic periods will not coincide with the ambient traffic peak periods. (See TRAFFIC AND TRANSPORTATION Table 3).

TRAFFIC AND TRANSPORTATION Table 3
Project Trip Generation Estimates

Number of Employees	Daily Commute Trip Generation Rate[1]	Total Expected Daily Commute Trips[2]	Carpool Reduction[3]	Projected Daily Trip Generation	AM Project Peak Hour (6:00-7:00 a.m.)			PM Project Peak Hour (5:00-6:00 p.m.)		
					Total[4]	In[5]	Out[5]	Total	In	Out
700	2.2	1,540	-385	1,155	462	420	42	462	42	420

Notes:
[1] – Daily trip generation rates based on similar power plant construction activities.
[2] – Expected daily commute trips = number of employees (700) X daily trip generation rate (2.2 trips/employee).
[3] – Carpool reduction = 25% (based on similar power plant construction activities).
[4] – Total Project Peak Hour Trips (AM and PM) based on assumption that 80% of daily total one-way employee trips occur during the project peak hour (assumes 10% of daily trips will arrive before or after the peak hour and 10% of daily trips will include personal trips made by employees outside of peak hours: based on similar power plant construction activities).
[5] – Peak hour total trips split .91/.09 favoring the heavy movement (i.e., inbound trips in the AM peak hour and outbound trips in the PM peak hour: based on similar power plant construction activities).

Source: Ex. 115, p. 3.6-9, Table 3.

Applicant has proposed requiring that employees traveling to and from the Project site use specific routes with in the City of Morro Bay, and arrive and leave during specific times to avoid peak traffic levels on existing peak volume roadways. Construction workers will enter the plant site through what is called the "back gate." To get to the back gate from Highway 1, the workers will use the Main Street exit, turning right off of Main Street, onto the road along the back of the MBPP and enter the site through the back gate by the PG&E Morro Bay Switchyard. Use of the back gate will minimize the impact of morning construction traffic at the Morro Bay High School located off of Atascadero Road. Traffic counts collected on June 8th and 9th, 1999, indicated that the high school experienced morning hour peak traffic between 7:15 to 8:15 a.m., and afternoon hour peak from 2:00 to 3:00 p.m. (Ex. 115, p.3.6 – 10.)

The roadways around the MBPP do not have sufficient parking spaces available for the construction workforce, local community residents, and tourists. Therefore, Applicant will need to provide off-street parking for the Project. Duke

has stated that all construction-related parking would occur in off-street designated areas. These parking areas will be either on-site or at an off-site satellite parking area. Applicant has proposed development of an off-site parking area approximately 3 miles southeast of the adjacent to State Route 1 between the Quintana Road and South Bay Boulevard exits for Highway 1.[1] The site would accommodate between 150 to 200 worker vehicles. Applicant will have a shuttle bus or van available to transport construction workers between the off-site satellite parking area and the MBPP site. (*Ibid*.)

Duke has identified SR 41 as a route to be used by heavy vehicles for construction-related trips. Due to the terrain and design of SR 41 between Morro Bay and Atascadero, use of this facility by heavy vehicles may impact traffic safety. This potential impact would be caused by slow moving trucks and the resulting congestion. Safety impacts associated with construction truck traffic on SR 41 are also a concern because the highway has tight corners and steep grades. Mitigation measures and Conditions of Certification that address these impacts to SR 41 are discussed later in this section. (Ex.115, p 3.6 – 13.)

During construction hazardous materials such as gasoline, diesel fuel, and oil and lubricants will be delivered to the plant site. To ensure that these materials can be transported safely to the site, hazardous material deliveries for construction will be brought into the MBPP by way of the back entrance after exiting from Highway 1 to minimize travel over city roadways. Duke will require that hazardous material arriving from the north or south use Highway 101, exit at Highway 1 in San Luis Obispo and travel north on Highway 1 to the Main Street exit. Furthermore, to avoid the ambient traffic peak periods, Applicant has stated that it will prohibit deliveries of hazardous materials between the hours of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 5:00 p.m. (*Ibid*.)

[1] See TRAFFIC AND TRANSPORTATION, Figure 2.

The handling and disposal of hazardous substances as well as the significance of any accidents associated with the transportation of hazardous materials are addressed in the WASTE MANAGEMENT and the HAZARDOUS MATERIALS MANAGEMENT sections of this Decision.

The intersection of Main Street and Atascadero is presently operating at LOS C during the p.m. peak hour. If not mitigated, the addition of Project trips could adversely impact this intersection by worsening operations to LOS D for short periods during the p.m. peak hour. The decrease in the LOS to level D for this intersection occurs only during Stage II construction when the workforce exceeds 400. A Transportation Management Plan that improves the traffic flow at this intersection and/or reduces the volume of construction traffic by the use of offsite parking and the development of carpool and vanpool programs can be used to maintain the current LOS for this intersection. (Ex 115, p. 3.6 – 14.)

Members of the community of Morro Bay also expressed concerns about the impact of construction traffic on its access to public beaches and tourist recreation and shopping areas. To assist in traffic control during the construction period, Applicant has agreed to provide funding to support an additional traffic officer for the City of Morro Bay Police Department. (*Ibid*.)

3. Operational Impacts

The operational phase of the Morro Bay Power Plant will require a workforce similar to the number of existing full-time employees (approximately 75 employees). Therefore, the operational phase would not increase the number of trips generated to and from the site and would not create a significant impact on the surrounding transportation system. (Ex. 115, p. 3.6-15.)

4. Cumulative Impacts

Section 6.11.2.3 of the AFC (Ex. 4.) identifies local projects that could potentially create a cumulative impact on the area if combined with project traffic. To represent a worst-case scenario, it was assumed that these projects were developed concurrently with the construction of the MBPP project. The projects identified in the AFC are spread throughout the community of Morro Bay. Because of the dispersion of the projects, the traffic pattern associated with many of them will not impact the same roadways impacted by the MBPP construction activity. Therefore, the traffic volume from all cumulative projects, plus the power plant Project, will not deteriorate the service levels to below acceptable levels, with the exception of the intersection of Main Street at Atascadero Road. Under cumulative conditions this intersection would operate at LOS D in the p.m. peak hour which is considered a significant impact. However, mitigation measures and Conditions of Certification will allow the intersection to operate at an acceptable LOS of C. Table 4 includes a summary of study intersection operating conditions in the cumulative project context. (Ex. 115, p. 3.6 – 16.)

TRAFFIC AND TRANSPORTATION Table 4
Level of Service Summary for Cumulative Conditions

			Project Construction Plus Cumulative Conditions					
			AM Peak Hour on Adjacent Street (7:00-8:00)		PM Peak Hour on Adjacent Street (4:00-5:00)		PM Peak Hour of Project (5:00-6:00)	
North/South Street	East/West Street	Intersection Control	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Main St.	Atascadero Rd.	All-Way Stop	15.4	C	15.6	C	25.6	D
Hwy 1 NB Ramps	Atascadero Rd.	Unsignalized	3.0	A	1.7	A	2.2	A
Hwy 1 SB Ramps	Atascadero Rd.	Unsignalized	1.8	A	3.1	A	3.6	A
MBHS East	Atascadero Rd.	Unsignalized	1.0	A	1.2	A	0.6	A
MBHS West	Atascadero Rd.	Unsignalized	1.4	A	0.9	A	0.3	A
Main St.	Hwy 1 NB Ramps	Unsignalized	1.2	A	1.8	A	1.9	A
Main St.	Hwy 1 SB Ramps	Unsignalized	1.9	A	1.7	A	1.5	A
Main St.	Quintana Rd.	Signalized	8.0	A	9.0	B	13.2	B
Main St.	Beach St.	All-Way Stop	9.8	A	6.9	A	12.6	B
Main St.	Harbor St.	All-Way Stop	9.6	A	3.9	A	10.3	B
Main St.	Pacific St.	Unsignalized	1.3	A	2.6	A	2.1	A
Embarcadero Rd.	Beach St.	All-Way Stop	7.9	A	2.3	A	8.9	A
Embarcadero Rd.	Harbor St.	Unsignalized	0.9	A	1.1	A	1.4	A
Embarcadero Rd.	Pacific St.	Unsignalized	1.2	A	1.9	A	2.1	A
Embarcadero Rd.	Main Duke Entr.	Unsignalized	0.2	A	0.8	A	0.8	A

Source: Exhibit 4. Volume 1-B. Table 6.11-9 pages 6.11-69 through 6.11-70.

Although Applicant expressed minor disagreement with Staff's proposed wording for some of the Conditions of Certification, expert witnesses for Duke and for Staff both concluded that the Project will comply with applicable LORS pertinent to traffic and transportation. Experts for both Applicant and Staff also testified that pursuant to the Conditions of Certification, the Project can be built and operated without having a significant negative impact on local traffic and transportation. (Ex. 134, p. 73 et seq.; Ex. 115, p. 3.6-24; 1/30/02 RT 140.)

Public Comment

The only comments from a member of the public regarding traffic-related matters came from Morro Bay resident **Mandy Davis**. Ms. Davis expressed disagreement with the City of Morro Bay's preference for construction of a roundabout at the intersection of Main and Atascadero. She also emphasized her concern for youth safety in light of the many children using Atascadero Road at the high school, the youth center, and the miniature golf center. (1/30/02 RT 226-231.)

The Commission notes that plans for a roundabout at the Main and Atascadero intersection are a matter of City jurisdiction and expressions of concern in that regard should be addressed to the City of Morro Bay. In addition, the evidentiary record shows that the various analysts have taken into account the use of local roads by young people. The Conditions of Certification will control Project-related traffic in a way that avoids the busiest peak traffic periods. (1/30/02 RT 159-161, 169-170.)

Commission Discussion

The expert witness for Duke testified that Applicant concurred with Conditions of Certification TRANS-1, 2, 3, 5 and 8 as stated in the FSA. (Ex. 134, p. 71; 1/30 RT 144.) However, the witness recommended certain modifications and

clarifications to Conditions TRANS-4, 6 and 7. The City of Morro Bay suggested adding TRANS-9. A discussion of these Conditions follows.

TRANS-4

The Duke witness testified that this Condition should be modified to allow for the fact that, in the Agreement to Lease (ATL) with the City of Morro Bay, Duke has already agreed to provide the City $1.4 million in improvements for the Main/Atascadero Road intersection, Atascadero Road extending to the west of this intersection, and Embarcadero Road north of Morro Creek. (Ex. 134, pp. 71-72; 1/30/02 RT 144.) Staff disagreed about the recommended change, stating that without knowing what portion of the $1.4 million would be applicable to roadway resurfacing, Staff did not think it is appropriate to include information from the ATL in Condition of Certification TRANS-4. (1/30/02 RT 171-172.)

While not specifically incorporating the language of the Agreement to Lease into our Decision, we have included language in Condition of Certification TRANS-4 to ensure that in determining the adequacy of Duke's compliance with that Condition, Commission's Compliance Project Manager , (CPM) take into account the $1.4 million to be paid by Duke to the City of Morro Bay for improvements to the Main/Atascadero Road intersection, Atascadero Road extending to the west of this intersection, and Embarcadero Road north of Morro Creek. Absent evidence to contrary, the CPM is to presume the payment will address adequate construction-related road repairs.

Next, Duke recommends that Condition TRANS-4 allow for post-construction assessment of impacts to consider normal wear and tear of pavement based on the volume and nature of Duke traffic using the road compared to the volume and nature of the rest of the daily traffic in the area. Applicant emphasizes this particularly regarding the approximately 10-mile route from the off-site laydown area at Camp San Luis Obispo to the Morro Bay Power Plant (O'Connor to Foothill to Los Osos Valley Road to South Bay Boulevard). (Ex. 134, p. 72;

1/30/02 144.) Staff agrees with Duke's recommendation. (*Id.* at 172.) We have included language to reflect this change.

The Duke witness also recommended that Condition TRANS-4 include representatives from San Luis Obispo County in the repair discussions because the route to the offsite laydown area extends beyond Morro Bay City limits. (Ex. 134, pp. 71-72; 1/30/02 RT 144.) The Staff witness agreed with this recommendation. (1/30/02 RT 172.) We agree and have included reference to San Luis Obispo County in the Condition. Finally, Duke recommends that the CPM have the final word in resolving disagreements among the parties regarding the extent of impacts to roadway conditions that can be attributable to Project construction vehicles. (Ex. 134, pp. 71-72.) Staff supported this change as well. (1/30/02 RT 172-173.) We find the proposed change appropriate and have modified Condition TRANS-4 to reflect the change.

The City of Morro Bay witness recommended that TRANS-4 be modified to require examination and restoration of subsurface roads and utility conditions. (Ex. 138.) The City witness acknowledged that, under the City's proposed condition, the City would want the CPM to presume that any change in the subsurface conditions between the pre and post-construction assessments would be attributable to Duke, notwithstanding the possibility that other forces might be the cause of the change. (1/30/02 RT 201-203.) Both Staff and Applicant testified that this recommendation was impractical and inappropriate. Experts for both testified to the difficulty of assessing subsurface conditions and to the difficulty of determining whether any changes in these subsurface conditions are attributable to the Project rather than to other influences. (1/30/02 RT 151-3, 166-7.) We are persuaded by the concerns expressed by the expert witnesses for Applicant and Staff. In addition, the sandy soils, which support the roads and contain the underground utilities in question may be subject to shifting for reasons not related to the Project. We have not adopted the City of Morro Bay's

recommendation regarding pre-construction recordation of and post-construction compensation for subsurface utilities.

TRANS-6

This Condition requires Applicant to develop a construction Transport Management Plan to limit construction traffic. The Condition sets out a number of components which must be included in the Transportation Management Plan. (Ex. 115, pp. 3.6-26 to 3.6-27.) The Duke witness testified that various clarifications are appropriate to this condition. (Ex. 134, p. 72; 1/30/02 RT 145-147.) The Staff witness supported Duke's recommendations. (1/30/02 RT 173-174.) In addition, the City of Morro Bay recommended that this Condition be modified to include measures that promote the use of carpooling, van pooling and ridesharing. (Ex. 138, p. 4; 1/30/02 RT 193.) Both Duke and Staff witnesses testified that the City suggestion was appropriate. (*Id*. at 153, 166-168.) We have reviewed the recommended changes, found them reasonable and have included them in Condition TRANS-6.

TRANS-7

This Condition is designed to mitigate anticipated impacts to the intersection of Main Street and Atascadero Road. Applicant's witness testified that this Condition should be modified to reflect the agreements between Duke and the City of Morro Bay contained in the ATL. Applicant's witness also supported amending the Condition to state that short-term traffic management (including possibly restriping if approved by Caltrans) should be implemented to reduce any inconvenience during the Project construction period. (Ex. 134, pp. 72-73.) Staff did not support the inclusion of the traffic improvements contained in the Agreement to Lease because Staff was not a party to the ATL and finds the FSA language to be more precise than language in the ATL. (1/30/02 RT 171-2.) We have added language requiring the CPM to take into account payments made pursuant to the ATL.

PROPOSED TRANS-9:

Finally, the City of Morro Bay recommended a new Condition (TRANS-9) that would incorporate specified provisions of the ATL into the Commission's license. (Ex. 138.) Duke generally supported this proposal. (1/30/02 RT 149.) The Staff, however, rejected the proposal because its "nexus to the analysis is not clear." (1/30/02 RT 168.) We do not specifically adopt the language of the ATL, but do require the CPM to take into account payments made by the Project owner pursuant to the ATL in assessing the adequacy of the Project owner's mitigation payments. We, therefore, do not believe that an additional condition is required and do not adopt the City's recommendation for a Condition TRANS-9.

CAPE presented two witnesses, Mr. Crotzer and Ms. Soderbeck. (Ex. 139.) Mr. Crotzer testified that he was concerned regarding the traffic impacts of the pending closure of the Morro Elementary School and transfer of students to Del Mar Elementary School. He further testified regarding his concern about traffic impacts due to the planned relocation of the Morro Bay Youth Center. (*Id.*) However, both Applicant's and Staff's witnesses testified that neither the school closure nor the Youth Center relocation would change their respective analyses or their separate conclusions that traffic impacts from the Project are not significant. (1/30/02 RT 154, 168-9.)

Ms. Soderbeck offered lay testimony regarding her impression of traffic hazards on Highway 1 southbound between Atascadero Road and Main. (Ex. 139.) However, the Duke witness testified that his traffic analysis considered this portion of Highway 1 and that Project traffic would not degrade at all the current acceptable levels of service in that section of road. (1/30/02 RT 154-5.) The witness for the Staff also testified that this portion of Highway 1 had been included in his analysis and that he was satisfied as to safety concerns and traffic impacts there. (1/30/02 RT 171.)

Based on the weight of the evidence, we believe that the concerns expressed by the CAPE witnesses will be adequately addressed through the Conditions of Certification, which follow.

FINDINGS AND CONCLUSIONS

Based on the evidence of record and assuming successful implementation of the Conditions of Certification for Traffic and Transportation, we find as follows:

1. Construction of the Morro Bay Power Plant Project will cause increased traffic on the local area's road network.

2. The operational phase of the Morro Bay Power Plant will require a workforce similar to the number of full-time employees (approximately 75 employees) at the existing plant. Therefore, the operational phase will not increase the number of trips generated to and from the site and will not create a significant impact on the surrounding transportation system.

3. The Project's construction Transportation Management Plan will minimize the Project's contribution to congestion during peak construction hours.

4. The additional amounts of traffic attributable to Project construction will not significantly degrade performance of the region's roads.

5. The transportation of hazardous substances can be mitigated to insignificance by compliance with federal and state standards.

6. Most traffic and transportation impacts resulting from the MBPP will occur during the construction phase.

7. The combination of physical improvements and the scheduling of construction traffic to avoid peak commute hours will likely mitigate the Project's cumulative impacts at the intersection of Main and Atascadero to below the level of significance.

8. Traffic impacts associated with the MBPP will be insignificant after the Project commences operation.

We, therefore, conclude that with implementation of the Conditions of Certification, the construction and operation of the Project will not result in significant adverse impacts to the area road network and that the Project will be constructed and operated in conformity with all applicable traffic and transportation laws, ordinances, regulations, and standards.

CONDITIONS OF CERTIFICATION

TRANS-1 The project shall comply with California Department of Transportation (Caltrans) limitations on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In 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 shall comply with California Department of Transportation (Caltrans) limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans, the City of Morro Bay, and any other 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 shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The project owner shall include in its Monthly Compliance Reports copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 Following completion of construction of the power plant and all related facilities, the project owner shall repair Embarcadero Road adjacent to the project, Main Street between the Southbound SR 1 ramps and Atascadero Road, and Atascadero Road between Embarcadero Road and Main Street and the truck route along O'Conner Road, Foothill Boulevard, Los Osos Valley Road,

and South Bay Boulevard associated with Camp San Luis Obispo off-site laydown areas to pre-construction conditions, or as near as possible.

> Protocol: Prior to start of site mobilization, the project owner shall photograph the roadway segments and intersections described above. The project owner shall provide the CEC Compliance Project Manager (CPM), City of Morro Bay, San Luis Obispo County, and Caltrans with a copy of these photographs.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall photograph the identified roadway segments and intersections, and provide copies to CPM, City of Morro Bay, San Luis Obispo County and Caltrans. Within 30 days after completion of project construction, the project owner shall meet with the CPM, City of Morro Bay, San Luis Obispo County and Caltrans to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to pre-construction conditions, or as near as possible. In determining the amount of project-related wear to local roads, the CPM shall include consideration of normal wear and tear based on the volume and nature of project-related traffic using the roads compared to the volume and nature of normal daily traffic in the area, particularly regarding the approximately 10 mile route from the off-site laydown area to the Morro Bay Power Plant (O'Connor to Foothill to Los Osos Valley Road to South Bay Boulevard). In determining whether the project owner has adequately compensated the relevant jurisdictions for project-related road wear, the CPM shall allow for the fact that, in the Agreement to Lease with the City of Morro Bay, the project owner has agreed to provide the City of Morro Bay with $1.4 million in improvements for the Main/Atascadero Road intersection, Atascadero Road extending to the west of this intersection, and Embarcadero Road north of Morro Creek. Within 30 days of receiving letters from Caltrans, San Luis Obispo County, and the City of Morro Bay stating their satisfaction with the road improvements, the project owner shall provide copies of the letters to the CPM. The CPM shall have the final word in resolving disagreements among the parties regarding the extent of impacts to roadway conditions that can be attributable to project construction vehicles.

TRANS-5 During construction of the power plant and all related facilities, the project shall enforce a policy that all project-related parking occurs on-site or in designated off-site parking areas.

Verification: At least sixty days prior to start of site mobilization, the project owner shall submit a parking and staging plan for all phases of project construction to the City of Morro Bay for review and comment, and to the CPM for review and approval.

TRANS-6 The project shall develop a construction Transportation Management Plan to limit construction traffic impacts in conjunction with

Caltrans, the City of Morro Bay, San Luis Obispo County and other affected jurisdictions. Specifically, this plan shall include the following components:

- requirements for the project owner to follow a designated hazardous material transport route and to comply with all applicable federal, state and local regulations for the transport of hazardous materials;
- establishment of construction "work shifts" that cause construction worker commute times to fall outside of ambient peak traffic periods which are 7:00 am to 9:00 a.m. and 4:00 p.m. to 5:00 p.m.;
- scheduling of oversized/heavy haul vehicle equipment and building materials deliveries to occur during off-peak hours (those hours avoiding the peak traffic period hours of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 5:00 p.m.);
- prohibiting the use of SR 41 east of SR 1 by oversized/heavy haul vehicles for project-related deliveries and prohibiting scheduling of project deliveries that would use the Main/Atascadero Road intersection during the peak traffic periods (alternate routes or time periods for deliveries must be identified);
- including measures to ensure the safety of individuals using the bicycle trails which the CPM agrees are impacted by the construction activity;
- including measures to require compliance with all local planning requirements and ordinances for recreational access;
- including measures to promote the use of carpooling, vanpooling, and/or ridesharing for the project construction workforce.

Verification: At least 30 days prior to start of Stage II construction, the project owner shall provide to Caltrans, the City of Morro Bay, the County of San Luis Obispo and other affected jurisdictions for review and comment, and to the CPM for review and approval, a copy of their construction Transportation Management Plan.

TRANS-7 The project shall mitigate expected LOS D operations at the intersection of Main Street at Atascadero Road to acceptable LOS C or better conditions during the p.m. peak hour under cumulative conditions by contributing its fair share of the cost to mitigate project-related impacts;

Verification: At least 60 days prior to start of intersection improvements, the project owner shall provide to the City of Morro Bay for review and comment, and to the CPM for review and approval, a fair share contribution for the mitigation of any project-related impacts at the intersection of Main Street at Atascadero Road. The fair-share amount shall be determined by the CPM. In evaluating the adequacy of the project owner's fair-share contribution, the CPM shall take into account the sums paid by the project owner for improvements to the

Main/Atascadero intersection in accordance with the terms and conditions of the Agreement to Lease. The CPM, City, Caltrans and Duke will work together to assure that the City's efforts to complete construction of the intersection improvements do not disrupt or delay the project schedule. Intersection construction must be completed no later than the start of construction for the combined cycle facility (not to include tank demolition). If construction on the intersection cannot be commenced in a timely fashion, this fact shall be confirmed by the CPM; and in such event, the project owner, the City and Caltrans shall work with the CPM to identify the earliest practicable date when intersection construction can be completed without disrupting or delaying the project schedule.

TRANS-8 Prior to the start of construction for the Morro Creek Bridge the project owner shall submit to the City of Morro Bay the plans for the Morro Creek Bridge for review and comment and to the CPM for review and approval.

Protocol: The project owner shall consult with the City of Morro Bay on the design and construction of the Morro Creek Bridge.

Verification: At least 120 days prior to the start of construction for the Morro Bay Arch Bridge the project owner shall submit the design and specifications for the bridge to the City of Morro Bay for review and comment, and to the CPM for review and approval.

E. VISUAL RESOURCES

Visual resources are the natural and the cultural features of the environment that one sees. Visual quality is 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.) It is thus relevant to assess whether the Project will create a substantial intrusion upon the viewshed.

1. Visual Setting

The existing MBPP is located on the west side of town, where Morro Creek meets the ocean, between Highway 1 and the Morro Bay shoreline, on the 107-acre MBPP property. The existing power plant is visually prominent in the region due to the three 450-foot tall exhaust stacks. Visual Resources Figure 1 shows the approximate area from which the existing stacks are visible. The figure shows the existing stacks are visible as far north as Cayucos, to the east along Highways 1 and 41, and south to Los Osos. Most viewers within this viewshed consist of residents, motorists on Highway 1, and people on the beaches and Bay. The following paragraphs discuss views of the existing plant from various local areas.

Most views from coastal areas north of Toro Creek to Cayucos are over the water, though some of the nearer views (from near Toro Creek) view directly down the beach. At this distance, the stacks and the main structure are barely discernable on clear days. (Ex. 115, p. 3.8-10.)

Views of the plant from the north part of Morro Bay are diverse in distance, ranging from views abutting the plant to those from a distance of approximately 2.5 miles. The population in the North Morro Bay area is approximately 4,100

people. This area generally encompasses the beach and flatlands north of the site and west of Highway 1 as well as the highlands north of the site and west of Highway 1. The City Planning Areas within this portion of the viewshed include North Morro Bay, Atascadero Beach, and Del Mar. Views of the site from residences in the low lands are partially obscured by other homes and trees. However, many views from highland residences (such as Sunset Plateau and Morro Del Mar Subdivisions 1 & 2) are unobstructed. In the vicinity of Morro Strand State Beach Campground, single-family homes along Beachcomber Drive and parts of Sandalwood Avenue have ocean views that extend as far south as the Project site with some views partially obscured. Closer in to the site, views from The Cloisters residential development are partially obscured by vegetation around Morro Bay High School. However, even from the most distant views within this area, the existing stacks are the prominent features in the viewshed. (*Id*.)

Views from Highway 41 range from a distance of approximately four-tenths of a mile to approximately 3.5 miles. The land uses in this area are mostly agricultural and population density is low. Most viewers in this area are motorists driving westbound on Highway 41, where average Annual Daily Traffic is 4,400 vehicles. Views of the plant are intermittent. The stacks can also be seen from more distant vantage points on westward-facing slopes and hilltops. (*Id*.)

The Morro Highlands are located along the hill slopes east of Highway 1, extending from Highway 41 in the north to the city boundary in the south. The viewing distance to the Project site ranges from approximately three-tenths of a mile to two miles. Many of the views of the Project site from the Morro Highlands are from the Harbor Front Tract residential area and are direct and unobstructed. Approximately 700 people live within this area. (*Id*.)

Highway 1 between Morro Bay and San Luis Obispo follows the agricultural valley floor, which is directed toward the power plant. Thus, there are direct

views of relatively long duration for motorists approaching the plant from the south. Similarly, motorists approaching the site from the north are afforded relatively direct and extended views of the site. Viewing distances range from approximately one-fourth of a mile at the closest point to the proposed plant to approximately six miles to the south and five miles to the north. (*Id*. p. 3.8-11.)

The neighborhoods of Old Town Morro Bay have a relatively high combined population of about 4,300 people. Viewing distances from the MBPP range from approximately 0.35 mile to 1.75 miles. The closest views from this area are from Scott Street, southeast of the power plant. Other direct views are from the Embarcadero and Bayfront areas. The most distant views are to the south near Fairbank Point. Structures and mature landscaping within the historic center of town partially obscure some views of MBPP. (*Id*.)

Views from Los Osos and Baywood Park are approximately three miles distant. According to the 1990 Census for Los Osos, 7,100 people live approximately three to four miles from the plant, 5,900 people live approximately four to five miles away, while an additional 1,700 people live beyond the five-mile study boundary illustrated in Visual Resources Figure 1. While various structures, vegetation, and topography limit views of the power plant for many of these residents, there are unobstructed views of MBPP for boats on Morro and Estero Bays. (*Id*.)

VISUAL RESOURCES - Figure 1

Source: Exhibit 115, Visual Resources Fig 6; Ex. 4, Fig. 6.13-4

The viewshed for the proposed Project would be less than that indicated for the existing power plant in Visual Resources Figure 1 since the stacks of the proposed Project would be less visible due to their substantially lower 145-foot height. However, it is pertinent to identify the broader viewshed since removal of the existing stacks as part of the proposed Project would have a noticeable beneficial effect on much of this area. Project visibility would be attenuated with increasing distance, particularly at times of the year when conditions of poor visibility persist either from haze or fog. Vapor plumes from the Project could be seen from greater distances than the power plant structures, particularly on clear days that coincide with favorable meteorological conditions for plume formation (low temperature and high humidity). The proposed Project would be located just north of the existing plant at the site of the tank farm.

While views of the site are available from all directions, immediate foreground views are now typically dominated by the existing power plant with its three 450-foot tall stacks, tank farm and complex linear features of the switchyard. From the north, most foreground views of the site are at least partially screened by existing development and vegetation. From the west, close-in views are available from Embarcadero Road, Coleman Drive, Coleman Park, the Morro Rock parking areas, and the south end of Morro Strand State Beach. From the east, with the exception of intermittent background views available along Highways 1 and 41, the topography of the coastal hills tends to limit most views of the site to foreground and middleground viewing perspectives. From the south, foreground views of the site are available from nearby residences and the Embarcadero/harbor area though many views are partially screened by vegetation and/or structures. The existing MBPP with its large generation building and dominant three 450-foot stacks creates a strong visual presence in Morro Bay.

2. Project Features

The proposed Project would have four 145-foot tall stacks compared with the existing plant's three 450-foot tall stacks. Visual Resources Figure 2 shows a comparison of the sizes of the proposed and existing structures.

The most visually prominent elements of the new power plant would be the 145-foot tall heat recovery steam generator (HRSG) exhaust stack structures, the four 95-foot tall HRSGs, the four 70-foot tall gas turbine generator (GTG) air inlets, the two 52-foot tall steam turbine generators (STGs), the 34-foot tall administration/warehouse and control room, and the 20-foot high, 1,000-foot long sound wall. (Ex.115, p. 3.8-8.)

The Duke testimony on Visual Resources summarized the various designed improvements of the new Project, some of which reduce visual impacts compared to the existing facility, others minimize visual impacts of the proposed Project. (Ex. 191, p 13; 3/13/02 RT 304-312.) These are listed below:

- Removal of existing power plant & stacks.
- Removal of tank farm.
- Minimized height and bulk of new plant.
- Orientation of new units on the site more distant from most viewers.
- Pipe rack locations lowered and screened from view.
- Color.
- Perimeter wall.
- Landscaping.

VISUAL RESOURCES - Figure 2

Source: Exhibit 4, p. 2-17, Fig. 2-7

3. Methodology

The Duke witness explained the nine-step methodology Applicant used in carrying out its analysis of the Project's visual impacts, and its evaluation of ways to mitigate visual impacts. (Ex. 4, p. 6.13-4, Fig. 6.13-1; 3/13/02 RT 296-312.) The steps are shown in Visual Resources Figure 3. Applicant's witness explained that Duke and Staff agreed upon 20 different key observation points (KOPs) which both parties analyzed to determine Project impacts on the views from those various KOPs.[1] Locations of the 20 KOPs are shown in Visual Impacts Figure 4. Following Figure 4 is a table which summarizes each KOP, the Project's visual effect and a brief narrative of the effect from Applicant's perspective.

While Staff applied a different methodology from that used by Applicant, Staff reached the same conclusions as Applicant for each of the 20 KOPs. The Staff approach is summarized in table form in Appendix A of the Visual Resources section of the FSA. (Ex. 115, p. 3.8-64, Appendix A.)

For each KOP the analysts looked at a number of factors, including the field of view, the area of change in that view, how much contrast the Project would impose on the view including blockage of the skyline and ocean, and what design improvements could mitigate impacts to the KOP. (3/13/02 RT 302.) Applicant used a "wireframe model" for its analysis which creates a three dimensional model on which to base the photo-simulations used to depict the appearance of the Project from an individual KOP. The model was tested for accuracy against known dimensions within the viewshed. (*Id.*; Ex. 30.) The testimony describes the process for transferring the wireframes to the finished simulations. (*Id.*; Ex. 4, Att. 2, p. 207.)

[1] The 20 KOPs were distilled from an original total of 82 potential KOP derived through input from the City of Morro Bay, local citizens, Applicant, and Staff. (3/13/02 RT 301; Ex. 191, pp. 8-11.)

VISUAL RESOURCES - Figure 3
Applicant's Methodology for Visual Resource Analysis

Source: Exhibit 4, p. 6.13-4, Fig. 6.13-1

VISUAL RESOURCES - Figure 4
Location of 20 Key Observation Points

Source: Exhibit 191, p. 10

4. Visual Effects of the Project

Applicant's witness testified that the replacement of the existing power plant with a new facility less than one-third as tall results in dramatic visual benefits at most locations in the Morro Bay community. Views were significantly improved at no less than 17 of the 20 KOP's observation points. (3/13/02 RT 313-321; Ex. 191, p. 19.) The only views adversely affected were the two immediately to the north of the Project where the new power plant will be closer to viewers than the existing one (from the RV Park and Morro Strand State Beach west of the Atascadero Road parking area, KOPs 5 and 6.) (Id. RT 315-316.) Staff agreed that only these two views are potentially adversely affected. (Ex. 115, p. 3.8-43 and 3.8-44.)

Staff further concluded that the impact on the two adversely affected views could be mitigated to a level of insignificance through the imposition of proposed Conditions of Certification discussed below. (Ex. 115 at p. 3.8-43 and 3.8-44.)

Applicant's witness testified that the new Project will also have a visible day-time steam plume for less than 70 hours per year. (3/12/02 RT 322.) Neither Staff nor Applicant found this to cause a significant visual impact.

Both Staff and Applicant agreed that the Project will impose no adverse cumulative impacts on visual resources. (Ex. 191 at p. 20; Ex. 115 at p. 3.8-44 and 3.8-45; 3/13/02 RT 323-324.) No other party offered any witness on visual issues. Thus, the record is undisputed that the Project will not cause any significant, adverse impacts on visual resources either directly, indirectly, or cumulatively with other projects. (3/13/02 RT 323.)

5. LORS Compliance

The Duke witness stated that Applicant analyzed LORS compliance in terms of visual quality, visual resources, and landscaping. He found that the Project complied with all applicable LORS. (3/13/02 RT 322.) Staff carried out an independent analysis of LORS compliance which was included in the FSA. (Ex. 115, pp. 3.8-46 through 3.8-51.) Staff too concluded that the Project will comply with all pertinent LORS pertaining to visual resources, provided there is effective implementation of Applicant's mitigation measures, planting and screening plans, and the Conditions of Certification. (Ex. 115, p. 3.8-57.)

Commission Discussion

The substantial evidence of record establishes that the Project will have a significant benefit upon the visual resources of Morro Bay. The new facility will be less than one third as tall as the existing plant, have significantly less visual bulk, and be located to improve most views in the area. Staff found that the two KOPs (out of a total of 20 KOPs) which will suffer significant impacts can have those impacts mitigated to levels of insignificance through implementation of the Conditions of Certification. Furthermore, it is undisputed that the Project will have no cumulative impacts on visual resources. In summary, the evidence of record establishes that the Project will cause no significant, adverse impacts, either directly, indirectly or cumulatively to visual resources. The evidence is furthermore undisputed that the Project will comply with all applicable LORS.

By the time reply briefs were filed, the parties did not dispute most of the Conditions of Certification. The exceptions were disagreements on Condition VIS-1, which deals with partial enclosure of the facility, and landscaping Condition VIS-2, which Duke seeks to modify to acknowledge the adjacent Environmentally Sensitive Habitat Area (ESHA).

In addition, the City of Morro Bay seeks to extend the filing deadlines for some conditions to allow 90 days advance review. However, in the case of some recommended language changes, the City also seeks *approval* authority. (See City of Morro Bay's Opening Brief Re; Group III Topics, pp. 36-42.) Granting such authority is not consistent with Commission jurisdiction and we have rejected such recommendations. We have, however, included the City in a review and *comment* role. In addition, we basically adopt the City's recommendation for an additional Condition VIS-7, requiring Applicant to develop remodeling designs for the cooling intake building which will be acceptable to the community and to the Coastal Commission. The condition was supported by both Staff and Duke and has desirable aims.

Visual Enclosure

On December 4, 2001 the Committee issued a Hearing Order directing Applicant and Staff to begin analysis of the feasibility of visually enclosing the Project.[2] The Committee Order was in response to a direct request from California Coastal Commission Executive Director, Peter M. Douglas to the Chairman Keese, as Presiding Committee Member. The letter asked the Committee to direct an analysis of "…a fully-enclosed facility or other innovative shields or screens that block from view, to the maximum extent feasible, the industrial appearance and character off the power plant…" (Ex. 194, letter of Peter M. Douglas to William J. Keese, dated November 15, 2001.) Accordingly, both Staff and Applicant conducted detailed and extensive analyses of both full and partial enclosure designs for the Project. Duke submitted such an analysis on January 2, 2002 and Staff submitted its evaluation of the Duke study on February 14, 2002.

Concerning full enclosure, both Staff and Applicant found that it would involve a structure 620 feet by 550 feet with a height of 130 feet. (Ex. 191, p. 29.) The

[2] *Notice of First Set of Evidentiary Hearings and Initial Hearing Order and Notice of Scheduling Conference*, p. 4.

structure would require an increase in HRSG stack height from 145 feet (for the proposed Project) to 190 feet to offset the increase in building downwash of stack emissions caused by the enclosure. (*Id*.) Both Applicant and Staff concluded that full enclosure creates more impacts than the proposed Project because it substantially blocks views and creates a greater visual impact. (3/14/02 RT 38.) Based upon the analysis, the Coastal Commission agreed that full enclosure would impose greater impacts than the proposed Project. However, it favors further consideration of a "structural shield concept" put forth by Staff in its testimony. (Letter from Peter Douglas to William Keese, dated March 5, 2002.)

The Duke witnesses did not embrace the Staff's partial enclosure proposal for several reasons. First, they questioned the feasibility of the concept, noting that "there exist fundamental viability issues" regarding it.[3] Second, they noted that there is no legal basis for requiring such screening since there is no adverse visual impact from the project to mitigate. (Id.) Third, using the standard industry rule of thumb for the relationship of the HRSG height to stack height, they concluded that screening would raise stack heights from 145 feet to 165 feet-- an outcome that would have a significant, adverse visual effect. (Ex. 191, RT 37.) Fourth, they concluded that this proposal would be inconsistent with Duke's and the City's desire to "keep the height of all structures as low as possible and to prevent the Project from blocking any views of the ocean, beach or inlet." (Ex. 191 RT 36.) The Duke witnesses stated that by solidifying the top of the HRSGs at a height of 90 to 110 feet, the screening would increase the structure's mass and prominence and block important views of the water. (*Id*.) Thus, they testified that there is no basis for requiring structural screening for the Project. A profile comparing the existing and proposed plant profiles, and the proposed plant with and without full enclosure appears in Visual Resources Figure 5.

[3] These issues include the following: 1) feasibility of creating removable shields; 2) potential layout impacts on configuration of the facility; 3) the effect of the height increase of the HRSG stacks; 4) crane access and laydown areas for removal of upper and lower shields; 5) operational safety of the removable shields; and 6) the cost to design and implement the concept. (Exh. 191 at p. 36.)

VISUAL RESOURCES - Figure 5

Source: Exhibit 194, p. 6.

While Staff acknowledged that the structural screening proposal is merely "a concept," subject to the potential legal and technical flaws, Staff urges that the potential costs and benefits of partial enclosure cannot be fully evaluated until the final design of the Project is more developed. (3/14/02 RT 32-41.)

We recognize that, from most views, the proposed Project represents a significant visual improvement over existing conditions. The exceptions are the negative visual impacts presented from KOP 5 at Morro Strand State Beach and from KOP 6 at the Morro Dunes Trailer Park and Resort Campground. From these locations the Project presents a strong industrial appearance. In its December report to the Energy Commission, the California Coastal Commission noted that from these viewing locations the Project would be larger than the existing plant. "More importantly, unlike the existing plant, the proposed plant would not be fully enclosed and therefore the heavy-industrial, metallic features of the plant, including the pipe racks, would be in view of the beach users."[4] Accordingly, the Coastal Commission supports Staff's position in favor of Condition VIS-1 and its requirement to explore additional screening.

We share the concerns of the Energy Commission staff and the Coastal Commission regarding the strong industrial element which, after applying all mitigation, the Project still exhibits in a highly scenic area. Furthermore, we are not convinced by the evidence that it is infeasible to reduce its apparent industrial nature. We believe the Applicant should explore options to reduce the Project's industrial appearance which do not significantly harm other views and which do not significantly increase the apparent height and bulk of the Project. Without such balancing of values, proposals to partially screen the Project for the benefit of beach users could result in merely enhancing the visual experience of those transient viewers on the beach at the expense of many other viewers within the Morro Bay community. This screening effort may require exploring architectural

[4] *Coastal Commission's 30413(d) Report for Proposed Duke Energy Morro Bay Power Plant Project*, dated 12/12/02 p. 30.

treatments which are less substantial than the "partial enclosure" envisioned by Staff. We have modified Staff's proposed language for VIS-1 to reflect these concerns. Ultimately, the CPM may only approve architectural modifications which are 1) feasible and, 2) will not cause further harm to the environment.

Regarding Condition VIS-2, we adopt Applicant's recommended approach. If Staff's visual resources witnesses are correct that the required landscaping will not invade the requisite ESHA buffer, then Applicant's change will do no harm. However, failure to include the proposed language could present Applicant with conflicting legal requirements.

FINDINGS and CONCLUSIONS

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

1. For the purposes of the Commission's visual analysis pursuant to CEQA and the Warren-Alquist Act, the baseline against which Project impacts are evaluated consists of the existing Morro Bay viewscape, including the existing power plant with its three 450-foot stacks, its power plant building measuring 500-feet long, 300-feet deep, and 148-feet high, as well as an adjacent tank farm. The Project calls for demolition and removal of these facilities.

2. The Morro Bay Power Plant Project is proposed to be located entirely within the boundaries of the existing Morro Bay Power Plant site.

3. Project components that may result in visual impacts include the heat recovery steam generators (HRSGs) and their 145-foot stacks, an array of steel topworks and piping, night lighting, and occasional water vapor plumes from exhaust stacks.

4. 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 existing Morro Bay switchyard immediately east of the Project location.

5. The tying of natural gas, water, and wastewater connections to existing underground systems will create no visual impacts.

6. The weight of evidence indicates that the Project will not create any significant adverse visual impacts.

7. The Project's removal of three 450-foot tall stacks, demolition of the existing power plant, and the removal of six oil storage tanks as well as replacing these facilities with a new plant having a smaller visual effect, 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 LORS relating to visual resources which are contained in Appendix A of this Decision. We, therefore, conclude that construction and operation of the Morro Bay Power Plant Project will not cause any significant direct, indirect, or cumulative adverse visual impacts.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to first turbine roll, the project owner shall treat project structures, buildings, and soundwall in appropriate colors or hues that minimize visual intrusion and contrast by blending with the surrounding landscape, and shall treat those items in a non-reflective, appropriately textured finish. In addition, the treatment plan shall include options to partially enclose or screen the more industrial appearing elements (such as pipe racks) in order to reduce the industrial appearance of these components from views from KOPs 5, 6, and 7. The plan shall be submitted to the CEC for approval sufficiently early to ensure that any precolored buildings, structures, linear facilities, or pipe or facility coverings will have colors approved and included in bid specifications for such buildings or structures.

Protocol: The project owner shall submit a treatment plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment. 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 list of each major project structure, building, and tank, specifying the color(s) proposed for each item;
- documentation that a non-reflective finish will be used on all project elements visible to the public;
- specifications, and 11" x 17" color simulations (from KOPs 5, 6, and 7), of optional pipe/facility covers and or enclosures;
- a detailed schedule for completion of the treatment and implementation of optional covers/enclosures; 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 a revised plan to the CPM. The CPM shall balance any options in light of the benefits to views from KOPs 5, 6, and 7 versus the additional harm such options may have to views from the majority of KOPS. The CPM shall not approve a treatment plan which the CPM determines is not feasible or which would result in greater harm to the overall visual environment.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

The project owner shall notify the CPM within one week after all precolored structures have been erected, all structures to be treated in the field have been treated, all optional covers/enclosures have been installed, and the structures are ready for inspection.

Verification: At least ninety (90) days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty (30) days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture, all structures treated in the field, and all optional covers/enclosures are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 The project owner shall provide landscaping that is effective in screening a majority of project components from views from Morro Strand State Beach (KOP 5), the Morro Dunes Trailer Park and Resort Campground (KOP 6), and the area just west of the proposed Class II Bike Path (KOP 7). Trees and other vegetation must be strategically placed and of sufficient density to screen the sound wall and most lower structural forms (not the upper portions of the stacks or the upper piping). Taking into consideration the Environmentally Sensitive Habitat Area (ESHA) buffer around Morro Creek, trees must be planted sufficiently close to the southern boundary of the trailer park to effectively screen the power plant from views within the trailer park. Screening vegetation to be planted along the western (ocean) side of the project site must be extended to the north to intersect the screening vegetation to be planted along the north side of the site (see **VISUAL RESOURCES Figure 16**). Vegetation must reach effective screening potential within eight (8) years of completion of construction of the new power plant in order to avoid the occurrence of a long-term, significant visual impact.

> Protocol: The project owner shall submit a landscaping plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment. The Plan shall include photosimulations of the landscaping at maturity as viewed from KOPs 5 and 6. The submittal shall also include evidence that the plan is satisfactory to the City of Morro Bay.
>
> If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the submittal, the project owner shall submit to the CPM a revised plan.
>
> The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

Verification: Prior to first turbine roll and at least ninety (90) days prior to installing the landscaping, the project owner shall submit the plan to the CPM for

review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within thirty 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven (7) days after completing installation of the landscaping, that the landscaping is ready for inspection.

VIS-3 Prior to first turbine roll of the second unit completed, the project owner shall design and install all permanent lighting with the objective that, to the maximum extent feasible (as determined by the CPM), light bulbs and reflectors are not visible from public and private viewing areas, and illumination of the vicinity and the nighttime sky is minimized.

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment. 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 basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied;

- A lighting complaint resolution form (following the general format of that in Attachment 1, [FSA Exhibit 115, p. 3.8-64.]) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least ninety (90) days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven (7) days of completing exterior lighting installation that the lighting is ready for inspection.

VIS-4 The project owner shall appropriately locate and screen the demolition rubble such that, to the maximum extent reasonable as determined by the CPM, it is not visible from The Embarcadero.

> Protocol: The project owner shall submit a plan for screening the demolition rubble to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.
>
> If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the submittal, the project owner shall submit to the CPM a revised plan.
>
> The project owner shall not implement the plan until receiving written approval of the submittal from the CPM.

Verification: At least ninety (90) days prior to beginning stack demolition, the project owner shall submit the plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

VIS-5 The project owner shall develop a design for the Embarcadero bike and pedestrian bridge over Morro Creek that is responsive to the concerns of the City of Morro Bay and the Executive Director of the California Coastal Commission, as determined by the CPM in consultation with the CCC and the City.

> Protocol: The project owner shall submit a bridge design to the CPM for review and approval and to the Executive Director of the California

Coastal Commission and City of Morro Bay for review and comment. The design shall include at least one photosimulation of the bridge from KOP 7 and additional simulations from other view areas as necessary to convey the design and scope of the bridge and its environmental context.

If the CPM notifies the project owner that revisions of the design are needed before the CPM will approve the submittal, the project owner shall submit to the CPM a revised design.

The project owner shall not implement the design until the project owner receives approval of the submittal from the CPM.

Verification: At least ninety (90) days prior to construction of the bridge, the project owner shall submit the bridge design to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within 7 (seven) days after completing construction of the bridge, that the bridge is ready for inspection.

VIS-6 The project owner shall ensure that visual impacts of project construction are adequately mitigated. To accomplish this, the project owner shall require the following as a condition of contract with its contractors to construct the proposed project:

Protocol: All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction as required by the approved landscaping, grading, or site restoration plans. Any vegetation removed in the course of construction will be replaced on a 1-to-1 in-kind basis. Such replacement planting shall be monitored for a period of three years to ensure survival. During this period, all dead plant material shall be replaced.

The project owner shall submit a site restoration plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and the City of Morro Bay for review and comment.

The project owner shall not implement the restoration plan until receiving written approval from the CPM.

Verification: At least ninety (90) days prior to beginning implementation of the surface restoration, the project owner shall submit the restoration plan to the CPM for review and approval and to the Executive Director of the California Coastal Commission and City of Morro Bay for review and comment.

If the CPM notifies the project owner that any revisions of the restoration plan are needed before the CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven (7) days after completing the surface restoration that it is ready for inspection.

VIS-7 The project owner shall develop a remodeling design for the cooling water intake structure that is responsive to the concerns of the City of Morro Bay and the Executive Director of the California Coastal Commission.

> Protocol: The project owner shall submit, at a minimum, architectural elevations, color boards, landscaping plan and site plan for the cooling water intake structure. The submittal shall be consistent with the City of Morro Bay Waterfront Master Plan Design Guidelines.

Verification: Prior to the first turbine roll and at least ninety (90) days prior to construction remodeling of the intake structure, the project owner shall submit the design to the CPM for review and approval and to the Executive Director of the California Coastal Commission and the City of Morro Bay for review and comment.

The project owner shall obtain all approvals and modify the cooling water structure prior to the first turbine roll.

VII. PROJECT ALTERNATIVES

Because of the extent of public interest in this case, we have included an alternatives discussion even though we have made findings that the proposed Project would not have any significant or potentially significant effects on the environment.

In cases such as the Morro Bay 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).]

Under both the traditional environmental impact report process and our "functionally equivalent" process, the key issue is whether the selection and discussion of alternatives fosters informed decision making and informed public

participation. (*Laurel Heights Improvement Association of San Francisco* v. *The Regents of the University of California* (1988) 47 Cal.3d 376.) To put the alternatives analysis into perspective, however, it is important to recognize that alternatives are considered at two stages in our process and that differing factors come into play at each stage. Alternatives are identified, and refined, beginning with the AFC filing,[1] and continuing through the preliminary and final staff assessments, and examined once again during the evidentiary hearing stage. When selecting different alternatives as part of its project analysis, Staff's task is to identify a range of alternatives that will satisfy basic project objectives while reducing significant impacts. At the time in the process when Staff must carry out its alternatives analysis, the Committee has not yet determined whether the project will have any significant impacts on the environment. Thus, Staff must often assume a "worst case" and examine alternatives which could reduce potential impacts of the project. Alternatives that are not at least potentially feasible are excluded at this stage because there is no point in studying alternatives that cannot succeed. Alternatives are scrutinized to a lesser level of detail than the proposed project and the focus is on the question of whether an alternative can, as a practical matter, be implemented.

At the project approval stage, the decision-makers evaluate the relative advantages and disadvantages of the project and its impacts, as well as any alternatives deemed to be potentially feasible, as developed through the foregoing process. "Feasibility" takes into account environmental, economic, legal, social, technological, and other considerations. The decision-makers can approve the project as fully mitigated, approve the project even with significant unmitigated impacts if there are overriding considerations, or deny the project. The Commission makes this decision after considering the entire range of issues

[1] In the case of the AFC for the Morro Bay Power Plant Project, the Commission accepted the filing without requiring Applicant to include a discussion of alternative sites. (Ex. 4, pp. 5-1 through 5-47.) This is appropriate under Public Resources Code § 25540.6 (b) where a project is proposed at an existing industrial site and where the proposed project has a strong relationship to the site.

and policies relevant to its action on the Project. (See, Pub. Resources Code, §21081 (a) (3); 14 Cal. Code of Regs., §15091; see also, *Practice Under the California Environmental Quality Act* (Kosta and Zischke) Section 15.9, p. 592.) CEQA does not mandate the choice of the environmentally "best" feasible project if, through the imposition of appropriate mitigation measures, a project's impacts can be reduced to an acceptable level. (*Laurel Hills Homeowners Association* v. *City Council of City of Los Angeles* (1978) 83 Cal. App. 3d 515.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Exemption from Alternative Site Analysis

Duke argues that the Project is a modification of an existing facility with a strong relationship to the existing industrial site, and therefore the Project is exempt from an alternative site analysis under CEQA and the Warren-Alquist Act. [Public Resources Code §§ 25540.6(a)(2) and (b).] That provision contemplates three prongs for satisfying Code sections 25540.6(a)(2) and (b): (1) modification of an existing facility; (2) that the project has a strong relationship to the existing industrial site; and (3) it is reasonable not to analyze alternative sites. (Ex 195, pp. 2, 8-9.)

Staff counters that the statutory language in question does not expressly exempt the Commission from the requirement to conduct an alternatives analysis. Rather it exempts an applicant meeting the statutory criteria from having to include a discussion of site alternatives in its AFC for the purpose of getting its application accepted by the Commission as complete.

Applicant is correct that the Project meets the criteria of Public Resources Code section 25540.6 (b). Its modernization Project is proposed for an existing industrial facility to which the proposed Project has a strong relationship.

Accordingly, the Commission accepted Applicant's AFC without requiring a discussion of site alternatives. However, this fact does not preclude the Staff from conducting an analysis of alternative sites pursuant to CEQA, in an effort to reduce or eliminate any significant environmental impacts of the proposed Project. At the time Staff filed its alternatives analysis, Staff had determined that the Project posed a potential significant impact to aquatic biological resources. While Staff also proposed cooling water alternatives which could mitigate the potential impact, the Committee had not ruled on the feasibility of these alternatives as mitigation for the potential impact – or for that matter, on the existence of a significant impact. Thus, it was not unreasonable *per se* for Staff to examine alternative sites.

2. Offsite Alternative Analysis

Staff conducted an analysis of six alternative sites to those proposed by the Project. Applicant expressed numerous disagreements with the Staff analysis, alleging that:

- the Project is exempt from any alternative site analysis under Public Resources Code sections 25540.6(a)(2) and(b),
- the Project has mitigated all significant impacts to a level below significance thus leaving no need to analyze alternative sites which could reduce impacts,
- the Staff alternative sites fail to obtain most of the Project objectives, and
- the offsite alternatives identified by Staff have their own potential to have significant impacts. (6/4/02 RT13-15.)

As noted above, CEQA requires a description of a reasonable range of feasible alternatives to a project or project location that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any significant environmental impacts of the proposed project. However, as stated in this Decision, the Commission has found that, with implementation of the Conditions

of Certification, the Project can be constructed and operated without having any significant effects on the environment as defined under CEQA. Logically, this finding of no significant Project impacts obviates the need to examine each alternative site which could reduce significant impacts. Therefore, we have not done so. Nevertheless, in the interest of presenting a complete record of the case, we think it is useful to briefly discuss the alternative site analyses carried out by Staff, (Ex. 195, p. 4-1 through 4-34.) and the Evaluation of Alternative sites submitted by Duke. (Ex. 197.)

Not knowing in advance what findings the Commission would make on the question of significant impacts, Staff set about examining a total of six alternative sites.[2] First, Staff identified what, in its view, were the Project objectives:

- The construction and operation of a highly efficient merchant power plant in the San Luis Obispo County region that supplies economic, reliable, and environmentally sound electric energy and capacity;
- Replacement of capacity of the existing facility. The existing facility has a capacity of approximately 1,000 megawatts (MW) as does the proposed facility without duct firing);[3]
- The location of the site near key infrastructure, such as transmission line interconnections (230 kV or greater), and supplies of process water and natural gas; and
- Maintenance of local electric reliability while reducing electric system losses.

In its testimony, the Staff witness noted that Applicant's objectives also include use of the existing site. However, while the Staff witness acknowledged that there clearly are advantages to using the existing infrastructure at the site, Staff

[2] Staff carried out a site screening analysis which narrowed the sites to six. The six sites are identified as: Tank Farm Alternative, Morro Creek Alternative, Gates Station Alternative, Lemoore Naval Air Station, Pleasant Valley State Prison, and Avenal State Prison. (Ex. 195, p.4-14, through 4-29.)

[3] Duke commented on the PSA that the Energy Commission's consideration of alternatives is limited to those that can produce 1,200 MW. Staff did not agree, but Staff did look for alternative sites that could support a power plant with that approximate capacity. In its Cooling Options Report (Ex 197, Appendix A), Staff also evaluated project configurations using dry cooling and hybrid cooling that would limit duct firing in certain circumstances and so would not produce 1,200 MW at those times.

also identified in its FSA, the potential environmental impacts of continued operation at the existing site. (Ex. 115, Ex. 143, and Ex. 197.) Therefore, Staff did not include the Applicant's objective of using the existing site in its analysis. (Ex. 197, p. 4-2.) Nevertheless, during cross-examination the Staff witness acknowledged that if the Commission determines that Applicant's Project objectives are legitimate ones, those objectives, "should be used as a guide to define objective alternative sites." (6/4/02 RT 69:18-19.)

Duke responded that the implementation of the No Project alternative or any of the six alternative sites identified in the FSA fails to satisfy the majority of the basic Project objectives. (6/4/02 RT 14.) First, Applicant states that modernization is the primary objective of the Project. Thus, the Staff alternative sites and the No Project alternative would eliminate Applicant's proposed use of the existing site and the existing infrastructure at the site, including natural gas and water pipelines, the electrical switchyard, cooling water intake and discharge structures, communication, fire water, septic, potable water, nonpotable water, and oily water separator systems. (Ex. 195, p. 5.) Other Project objectives which are infeasible under the Staff approach include installation of a roadway around the MBPP property, construction of a bridge across Morro Creek, as well as demolition of the existing facilities including the 450-foot power plant stacks, the existing power building, and the existing oil tank farm. Duke points out that it would also not be able to meet most of the objectives of its MOU with the City of Morro Bay, many of which involve benefits to the Morro Bay community. (Ex. 195, Table 1.)

Staff argues that Applicant has defined its project objectives "so narrowly" as to eliminate any alternatives, thus forcing Staff to look beyond Applicant's objectives for a reasonable range of alternatives. (Staff Reply Brief on Group IV Topics, p 2-3.) We have determined otherwise. Applicant has included in its Project description its objective to make extensive use of existing infrastructure as well as other relationships of the Project to the MBPP site. Many of these

relationships are physical connections, fundamental to this Project. To ignore them is to ignore many essential parts of the Project. While CEQA Guidelines allow an examination of alternatives which impede the attainment of project objectives by *some* degree, it appears that in this case the Staff alternatives would impede *fundamental* objectives of this project. [See CEQA Guideline § 15126.6(b).] Therefore, we find that Staff has presented a range of alternative sites which are reasonable only in light of Staff's identification of Project objectives. However, we find that Staff erred in ignoring the Applicant's fundamental Project objectives which connect this particular project to the existing MBPP site. Few noncogeneration project applications are as tightly integrated to a particular site as is this Project.

Although not the case with this project, if one assumes the existence of significant impacts and further assumes that alternative sites meet basic project objectives, the CEQA process for analyzing alternatives also requires consideration of whether the alternative sites reduce or avoid significant impacts and are feasible. Applicant argues that none of the Staff alternative sites are feasible. (6/4/02 RT 14.) In Duke's view, out of six sites analyzed, even the two sites which Staff determined to be "potentially better" than the proposed site have serious problems which render them infeasible.[4] The problems for the Morro Creek site identified by Duke include: lack of site control, flood plain risk, and incompatible zoning. For the Gates Substation the problems are: site control, eighty-mile distance from Morro Bay, one-mile distant from natural gas, insufficient cooling water, and habitat for sensitive species. (Duke Opening Brief on Group IV Topics, pp. 109-110.)

Many of these problems would not necessarily eliminate a site for consideration under an alternatives analysis. Numerous potential environmental problems can be mitigated and even a lack of site control may not prohibit consideration of an

[4] The Little Morro Creek Alternative site (Ex. 197, p. 4-22 to 4-23, 4-31; Ex. 196, pp. 4-14.) and the Gates Substation Alternative site (Ex. 197, p. 4-23 to 4-24, 4-31; Ex. 196, pp. 22-25.)

alternative site. (*Citizens of Goleta Valley v. Board of Supervisors of County of Santa Barbara* (1990) 52 Cal.3rd 553, 276 Cal. Rptr. 410.) However, the Staff analysis assumes that the impacts of putting a power plant at the alternative sites are not in addition to the impacts of the existing plant. When continued operation of the existing plant is accounted for, Staff acknowledged that the combined impacts of the existing plant and a plant at one of the alternative sites would not create fewer impacts compared to the Project.[5] (6/4/02 RT 57-58.)

In addition, we point out that the Morro Creek site is located within the Coastal Zone as defined by the San Luis Obispo County's Local Coastal Program, and is an area designated by the California Coastal Commission as not suitable for siting a new power plant. We view this as a significant failure of the site to comply with LORS.

3. Generation Technology Alternatives

Applicant and Staff each conducted analyses comparing various alternative technologies with that of the proposed Project. They examined the principal electricity generation technologies that do not burn fossil fuels including geothermal, solar, hydroelectricity, wind, biomass, and waste-to-energy. They also considered coal and nuclear power generation to provide a thorough analysis of alternative generation technologies. Applicant's analysis of alternative generation technologies is contained in the AFC.[6] (Ex. 4, pp. 5-38 through 5-47.) The Staff analysis is detailed in its FSA, Part 3. [7] (Ex. 197, pp. 4-1 through 4-34.)

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[5] Cessation of operation and demolition of the existing plant is part of the proposed Project. There is no basis to assume that use of an alternative site would also terminate the existing plant.

[6] Applicant analyzed alternative onsite configurations, design alternatives, alternative generation technologies including combined-cycle, conventional boiler-steam turbines, fuel cells and cogeneration, as well as technologies using oil, coal, nuclear hydro, biomass, solid waste, and solar. (Ex. 4, pp. 5-18 to 5-45.)

[7] Staff considered generation technology alternatives including geothermal, solar, wind, hydroelectric, biomass, coal, nuclear, and demand side management.

Applicant determined that of the technologies analyzed, only combine-cycle using natural gas was feasible. Most of the other technologies would result in greater environmental impacts and each alternative was less cost-effective and would not be competitive as a merchant plant. (Ex. 4, p. 5-47.) Staff determined that for non-fossil fuel burning energy sources there would be significant biological, land use, air quality, noise and visual effects. Coal and nuclear technologies are not permittable at this time. (Ex. 197, p. 4-6.)

4. Alternative Onsite Configurations

In the AFC, Duke considered several other alternatives: (1) different structure alternatives for enclosing the new units, (2) alternative cooling technologies, (3) changes to the cooling water discharge location or the water intake system, and (4) alternative configurations of the new units within the existing MBPP site. (Ex. 4, pp. 5-17 to 5-38.) Alternative cooling technologies are described and discussed in detail in the **Biological Resources** section of this Decision. Structural alternatives intended to mitigate visual impacts are considered in the **Visual Resources** section of this Decision, which includes a Condition of Certification requiring that the Applicant explore additional shielding designs.

The AFC also presented four configurations within the onsite tank farm area as alternatives to the configuration proposed for the project. (Ex. 4, pp. 5-15 to 5-16 and Figure 5-2.).

- The new units perpendicular to each other (the configuration selected as the Project as defined by this AFC);
- Stacks back to back, plant configuration perpendicular to the coast (shift to northern most section of the tank farm);
- Stacks in a row, perpendicular to the coast; and
- Stacks back to back, plant configuration perpendicular and parallel to the coast to form two sides and the corner of a square.

These configurations were the subject of detailed discussions between Duke, the City of Morro Bay, and residents. The result of these discussions was the development of the proposed Project's configuration, which was determined to be preferred over the alternative configurations. These are essentially design options that lead to the development of the proposed Project.

5. The No Project Alternative

Staff concluded that the No Project scenario would avoid both the demolition and construction-related impacts of the proposed Project because no demolition and new construction would occur. Staff assumed continuing visual, noise, and biological impacts of the existing plant. Overall, Staff concluded that differences in air quality emissions or impacts are not major factors in comparing the proposed plant with the No Project scenario. (Ex. 197, p. 4-12.) Under the No Project scenario, existing operational impacts would continue to occur. Staff assumed that these would occur at diminishing levels due to the Staff's assumption of a reduction in operational levels at the existing plant over time. However, the Staff witness acknowledged knowing of no commercial reason for the existing plant to cease operations. (6/4/02 RT 60.) In addition, Staff offered no evidence in support of its assumption of diminishing plant use. (Ex. 197, p. 4-13.)

Duke disagreed with the Staff definition of the No Project alternative contained in the FSA. (Ex. 197, pp. 4-10 and 4-11; Ex. 195, p.11.) Applicant's witness argued that Staff provided no basis for its assumptions under the No Project alternative that the existing power plant Units 1 and 2 would go out of service in approximately 5 years. The Duke witness stated that recent determinations prepared by the staff of the California Consumer Power and Conservation Financing Authority (CPA) state that the collapse of new power plant applications and construction suggests that the existing MBPP plant would likely experience higher capacity factors than those assumed by Staff. (Ex.195, p. 12.)

Yet even without this assumption, Duke argues that under a No Project alternative, there is no basis to assume closure of existing Units 1 through 4 after 5 years. Rather, the Duke witness stated that the existing plant would be expected to operate at capacity levels similar to those experienced over the last two years.[8] He testified that with appropriate retrofits and upgrades, the existing plant would continue to operate for an indefinite period. (*Id*. p. 13, 20.) He concluded that because of reduced impacts in noise, visual, the amount of cooling water use and air emissions, the Project represents an overall reduction in baseline impacts over the No Project alternative. (*Id*.)

With the exception of the mitigable impacts which the Project will impose during construction, we find that the No Project alternative would have greater negative effects on the environment than would the proposed Project. Therefore the No Project alternative is not superior to the Project.

Public Comment

Garry Johnson identified himself as a retired metallurgical engineer and a resident of the City of Morro Bay. He stated that he supports the Project because of the need for reliable power from various regions within in California. (6/4/02 RT 78-82.) **Mandy Davis,** is a City of Morro Bay resident who is opposed to the Project and stated her opinion that it will have worse environmental impacts than the existing plant. She also believes that if left to operate, the existing plant will gradually decline its generation and related impacts. Because of this she favors the No Project alternative. She also disagreed with Duke's position that for this AFC it is inappropriate to examine alternative sites. (*Id*. 82-87.)

[8] During cross-examination one Duke witness expressed his expectation that sometime in the future, the existing plant could achieve a 59% capacity factor, or more. (6/4/02 RT 43.)

Marla Morrissey is a resident of Los Osos, drives an electric vehicle, and advocates greater application of time-of-use electric meters. (*Id.* 87-89.) **David Nelson** is a resident of Morro Bay who thinks more analysis should have been carried out on the Morro Bay tank farm as an alternative site. He believes that the risks to the estuary of withdrawing once-through cooling water are not well understood, that the Army Corps of Engineers is already addressing the estuary's siltation problem, and that a private company such as Duke should not benefit from its impacts to the estuary. For these reasons he favors the use of an alternative site such as the tank farm. (*Id*. RT 89-92.)

FINDINGS AND CONCLUSIONS

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

1. The Project is proposed for a location within the existing Morro Bay Power Plant site, a part of the City of Morro Bay community already dedicated to heavy industry.

2. Substantial reliance of the Project upon the existing MBPP site and its existing infrastructure is a legitimate Project objective.

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

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

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

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

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

8. The evidentiary record contains a reasonable review of six alternative sites for the Project, none of which are superior to the proposed site.

9. Staff identification of Project objectives used in its analysis of alternative sites does not include most legitimate objectives of the Project.

10. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the Morro Bay Power Plant Project will not create any significant direct, indirect, or cumulative significant adverse environmental impacts. Therefore, the use of an alternative site would not reduce any significant effect of the Project.

We conclude that 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.

Appendix A: *Laws, Ordinances, Regulations , and Standards*

Appendix B: *Proof of Service List*

Appendix C: *Exhibit List*

Appendix D: *Glossary of Terms*

APPENDICES

AIR QUALITY

FEDERAL

The federal Clean Air Act requires any new major stationary sources of air pollution and any major modifications to major stationary sources to obtain an air pollution permit before commencing construction. This process is known as New Source Review (NSR). Its requirements differ depending on the attainment status of the area where the major facility is to be located. Prevention of Significant Deterioration (PSD) requirements apply in areas that are in attainment of the national ambient air quality standards. The non-attainment area NSR requirements apply to areas that have not been able to demonstrate compliance with national ambient air quality standards. The entire program, including both PSD and Non-attainment NSR permit reviews, is referred to as the federal NSR program.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in the Code of Federal Regulations 40, part 70. A Title V permit contains all of the requirements specified in different air quality regulations which affect an individual project.

The U.S. Environmental Protection Agency (EPA) has reviewed and approved the District regulations and has delegated to the District the implementation of the Title IV including the acid rain program and NSR programs. The District implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations. However, PSD analysis will be performed by the EPA staff.

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 causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, response, health, or safety of any such person or the public, or which causes, or have a natural tendency to cause, injury or damage to business or property."

The California Air Resources Board (CARB) promulgates state-level ambient air quality standards, which are, in general, more stringent than the national ambient air quality standards. Table 6.2-8 in the Application for Certification (AFC) presents a summary of the current national and state ambient air quality standards. The California Clean Air Act requires the establishment of allowable maximum ambient concentrations of air pollutants, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more protective) than the federal AAQS.

LOCAL

As part of the Energy Commission's licensing process, in lieu of issuing a construction permit to the Applicant for the Morro Bay Power Plant Project, the District will prepare and present to the Commission a Determination of Compliance (DOC). The DOC will evaluate whether and under what conditions the proposed project will comply with the District's applicable rules and regulations, as described below. The project is subject to the following District major rules.

District Rule NO. 113 - Continuous Emissions Monitoring (CEM)

The requirements of this Rule are applicable to all the combustion equipment contained in these applications. CEMs will be installed, calibrated, maintained, and operated in accordance with EPA standards. Pollutants monitoring may include NO, O2, CO and ammonia (NH3).

District Rule NO. 203 - applications

The District used the AFC as an application for the Morro Bay Power Plant Project. The AFC includes each permit unit and utilized the District's permit application forms as required by this Rule.

District rule no. 204 – requirements

An Application for an Authority to Construct (ATC) can not be granted unless the new unit is equipped with the current Best Available Control Technology (BACT) for all air contaminants and can comply with all BACT, offsets, and operation requirements.

District rule no. 216 – federal part 70 permits

This rule specifies the requirements and procedures by which a specific source, such as the proposed project, may obtain a Federally enforceable operating permit in accordance with the requirements of Part 70 to Title 40 of the Code of Federal Regulations (CFR).

District rule no. 217 – federal part 72 permits

The provisions of this Rule shall apply to any acid rain source, as defined in 40 CFR Part 72.

District rule no. 403 – particulate matter emission standards

A person shall not discharge into the atmosphere from any source particulate matter in excess of 0.3 grains per cubic foot of dry gas at standard conditions.

District rule no. 404 – Sulfur compounds emission standards, limitations and prohibitions

A person shall not discharge elemental sulfur into the atmosphere from any new or modified recovery unit producing, effluent gas containing more than; a) 0.2

percent by volume of sulfur compounds calculated as sulfur dioxide, b) 10 ppm by volume of hydrogen sulfide, c) 200 pounds per hour of sulfur compounds calculated as sulfur dioxide.

District rule no. 405 – nitrogen oxides emission standards and limitations

A person shall not build, erect, install or expand any non-mobil burning equipment unit unless the discharge into the atmosphere does not exceed 140 pounds per hour of nitrogen dioxide.

District rule no. 406 – Carbon monoxide emission standards and limitations

A person shall not discharge into the atmosphere carbon monoxide in concentration exceeding 2000 ppm by volume measured on a dry basis.

District rule no. 601 – new source performance standards (nsps)

This Rule applies to all new, modified or reconstructed stationary sources of air pollution. The most stringent provision shall apply whenever any source is subject to more than one rule, regulation, provision, or requirement relating to the control of any air contaminant.

ACID RAIN

The Morro Bay Power Plant Project will be subject to the requirements of Title IV of the federal Clean Air Act. The requirements of the Acid Rain Program are outlined in 40 CFR Part 72. The specifications for the type and operation of continuous emission monitors (CEMs) for pollutants that contribute to the formation of acid rain are given in 40 CFR Part 75. District Rule 217 incorporates by reference the provisions of 40 CFR Part 72. Pursuant to 40 CFR Part 72.30(b)(2)(ii), Morro Bay Power Plant Project must submit an Acid Rain Permit Application to the District at least 24 months prior to the date on which each unit commences operation. Pursuant to 40 CFR Part 72.2, "commence operation" includes the start-up of the unit's combustion chamber.

AQUATIC BIOLOGICAL RESOURCES
(MARINE AND ESTUARINE RESOURCES)

FEDERAL

- **The Endangered Species Act** of 1973 (16 USC, §1531 et seq.), and implementing regulations, (50 CFR. §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 USC §701-718) and implementing regulations (50 C.F.R.) Subchapter B (§10.1-24.12) prohibits take of migratory birds.
- **Marine Mammal Protection Act** (16 USC Chapter 31 §1361-1375) provides protection for marine mammals.
- **Clean Water Act of 1972** (33 USC §404 et seq.) requires issuance of permits to dredge or fill waterways. A Nationwide Permit 7 (NWP7) is required to construct outfall structures. Effluent discharge must be permitted by the National Pollution Discharge Elimination System Program (NPDES Section 402). Under Section 316(b) of the Clean Water Act (CWA), the Applicant is required to utilize best technology available (BTA) to minimize any adverse impacts to biological resources due to the use of a once-through cooling water system. The 316(b) study results assist in the determination of BTA for the proposed project. In addition, thermal discharge is subject to the requirements of the California Thermal Plan as an “existing” discharge. The thermal discharge studies will be used to determine if the proposed project can meet the Thermal Plan discharge requirements.
- In 1987, Section 320, was added to the Clean Water Act to establish the National Estuary Program (NEP). The goal of the NEP is to identify, restore, and protect nationally significant estuaries of the United States. Morro Bay is one of 28 designated estuaries nationwide under this program. Section 303(d) allows for the designation of impaired water bodies and results in Total Maximum Daily Load requirements for the estuary and watershed. Morro Bay has been placed on the impaired water body list due to declining quality and health of the system and is afforded extra protection due to this designation.
- **Rivers and Harbors Act** of 1899 (§10: 33 USC §401 et seq.; CFR §114-116 and 321) requires U.S. Army Corps of Engineer permitting when building in or altering of a national waterway.
- **Magnuson-Stevens Fishery Management and Conservation Act, as amended (16 U.S.C. 1801 et seq.)** The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act set forth a number of new mandates for the NMFS, regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The Councils, with assistance from the NMFS,

are required to delineate “essential fish habitat” (EFH) for all managed species. The Act defines EFH as “… those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Federal agency actions which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the NMFS regarding the potential effects of their actions on EFH, and respond in writing to the fishery service’s recommendations. For the Pacific region, EFH has been identified for a total of 89 species covered by three fishery management plans (FMPs) under the auspices of the Pacific Fishery Management Council.

STATE

- **California Environmental Quality Act** (CEQA), PRC §21000 et seq. Mandates protection of California’s environment and natural resources to develop and maintain a high-quality environment now and in the future. Specific goals of CEQA are for California's public agencies to: 1) identify the significant environmental effects of their actions; and, either 2) avoid those significant environmental effects, where feasible; or 3) mitigate those significant environmental effects, where feasible.
- **California Endangered Species Act** of 1984 (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 and plants of California declared to be threatened or endangered.
- **California Coastal Act** of 1976 (PRC §30000 et seq.) requires the protection of coastal waters from adverse impacts of wastewater discharges and entrainment.

  Section 30230 of the Coastal Act states that marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be provided to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

  Section 30231 of Coastal Act requires actions that minimize adverse impacts to biological productivity of coastal waters. Such actions may include: the control of run-off, minimization of discharge and entrainment, prevention of interference with surface waterflow (and streams), prevention of groundwater depletion, use of wastewater reclamation, and maintenance of natural vegetation in buffer areas that protect riparian habitats.
- Section 30240 of Coastal mandates protection of environmentally sensitive habitats from the degradation of habitat value.

- **Warren Alquist Act** Section 25527 mandates that certain areas, such as estuaries, state parks, wilderness, scenic or natural reserves, and areas for wildlife protection, are prohibited areas as sites for facilities.

- **California Porter-Cologne Water Quality Control Act 1972**; California Water Code §13000-14957; Division 7, Water Quality. The administering agency for the above authority is the Central Coast RWQCB. Section 13000 et seq. establishes the framework for regulation of activities affecting water quality in the state, as well as the state policies that shall be followed in implementing this water quality control program. Section 13142.5 (b) establishes an explicit state policy that new or expanded powerplants proposing to use seawater for cooling shall implement the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

- The California Thermal Plan requires that "existing" thermal discharges ensure protection of beneficial uses. The beneficial uses of concern are included in Duke Energy's NPDES permit from the Regional Water Quality Control Board. The main beneficial use of concern is marine habitat.
- **Shellfish Protection Act** (Water Code §§14951-14958) protects commercial shellfish cultivation habitats from point and non-point source pollution.
- **Fully Protected Species** (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.
- **State Natural Preserves** (Public Resources Code, section 5019.71), natural preserves consist of distinct non-marine areas of outstanding natural or scientific significance established within the boundaries of state park system units. The purpose of natural preserves shall be to preserve such features as rare or endangered plant and animal species and their supporting ecosystems, representative examples of plant or animal communities existing in California prior to the impact of civilization, geological features illustrative of geological processes, significant fossil occurrences or geological features of cultural or economic interest, or topographic features illustrative of representative or unique biogeographical patterns.
- **Eelgrass Habitat Protection** (30.10 of Title 14 of Cal. Code of Regulations) provides protection for eelgrass habitat.

TERRESTRIAL BIOLOGICAL RESOURCES

FEDERAL

- The Endangered Species Act of 1973 (16 USC, §1531 et seq.), and implementing regulations, (50 CFR. §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 USC §701-718) and implementing regulations (50 C.F.R.) Subchapter B (§10.1-24.12) prohibits “take” of migratory birds.
- Rivers and Harbors Act of 1899 (§10: 33 USC §401 et seq.; CFR §114-116 and 321) requires U.S. Army Corps of Engineer permit to build in or alter national waterways such as harbors.

STATE

- California Environmental Quality Act (CEQA), PRC §21000 et seq. mandates protection of California’s environment and natural resources to develop and maintain a high-quality environment now and in the future. Specific goals of CEQA are for California's public agencies to:1) identify the significant environmental effects of their actions; and, either 2) avoid those significant environmental effects, where feasible; or 3) mitigate those significant environmental effects, where feasible.
- California Endangered Species Act of 1984 (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.
- Warren-Alquist Act Section 25527 mandates that certain areas, such as estuaries, state parks, and wilderness and scenic or natural reserves, areas for wildlife protection, are prohibited for installation of industrial facilities.
- California Coastal Act of 1976, sets state policies for the conservation and development of California's 1,100 mile coastline, particularly issues such as public access, coastal recreation, the marine environment, coastal land resources, and coastal development.
- Section 30240.states that (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

- 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.
- 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, §1600 et seq. 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 planning to use any material from the streambeds, must notify the Department prior to such activity. Under this code, the Department provides a Streambed Alteration Agreement designed to protect fish and wildlife from impacts of the proposed action(s).
- 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.
- Native Plant Protection Act of 1977 (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.

LOCAL

- City of Morro Bay General Plan. Requires protection of environmentally sensitive habitats. Restricts permitted uses and specifies requirements for buffers zones, and conservation easements. Please refer to the Land Use section of the FSA for additional details on local policies.
- Program LU-22-4 states that no development or use or clearing of natural vegetative land shall occur in the City areas without review and approval of the City.
- Program LU-55 mandates that all Environmentally Sensitive Habitat Areas shall be protected against adverse impacts to the maximum extent possible.
- City of Morro Bay Coastal Land Use Plan. Requires protection of environmentally sensitive habitats along coastline and restricts permitted uses.
- City of Morro Bay Zoning Ordinance (Municipal Code Section 17). Requires protection of Environmentally Sensitive Habitats (ESH). Restricts permitted uses and specifies requirements for buffers zones, and conservation easements. Biological surveys (BS) are required for all proposed development that is or may be located within 100 feet of an ESH.

CULTURAL RESOURCES

FEDERAL

Code of Federal Regulations, 36 CFR Part 61. Federal Guidelines for Historic Preservation Projects: The U.S. Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.

National Historic Preservation Act, 16 U.S.C. § 470, commonly referred to as Section 106, requires federal agencies to take into account the effects of their undertakings on historic properties through consultations beginning at the early stages of project planning. Regulation revised in 1997 (36 CFR Part 800) set forth procedures to be followed for determining eligibility of cultural resources, determining the effect of the undertaking on the historic properties, and how the effect will be taken into account. The eligibility criteria and the process are used by federal agencies. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the California Register of Historical Resources.

STATE

- California Code of Regulations, Title 14, Chapter 11.5, Section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.
- Public Resources Code, Section 5000 establishes a California Register of Historic Places; determines significance of and defines eligible properties. It identifies any unauthorized removal or destruction of historic resources on sites located on public land as a misdemeanor. It also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and establishes the penalty for possession of such artifacts with intent to sell or vandalize them as a felony. This section defines procedures for the notification of discovery of Native American artifacts or remains, and; states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.
- The California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.; Title 14, California Code of Regulations, Section 15000 et seq.) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

- Public Resources Code Section 21083.2 states that the lead agency determines whether a project may have a significant effect on "unique" archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the Applicant's cost of mitigation; sets time frames for excavation; defines "unique and non-unique archaeological resources"; and provides for mitigation of unexpected resources.

CITY OF MORRO BAY

The Proposed Land Use Plan of the Local Coastal Program provides policies to address the City's concerns regarding cultural resources. The Plan was adopted in June of 1981 and amended in January and September of 1982. Since the City adopted these policies, there have been additions to state law that offer additional protection for human remains and grave related goods on private property. (See list of relevant state laws in this analysis).

The General Plan of Morro Bay, adopted in 1988, also provides protection for archaeological resources. The policies adopted by the City include a requirement that a qualified archaeologist perform an archaeological reconnaissance before a permit is issued in any areas containing potential archaeological sites. If a site is found, the City will require mitigation measures to protect it (City of Morro Bay General Plan,1988, Chapter II p. 114-117).

If any property in public ownership that contains a site is transferred from City to private ownership, there will be a deed restriction with provisions that protect the archaeological site. In addition, "All available measures, including purchases, tax relief purchase of development right etc. shall be explored to avoid development on significant archaeological sites" (City of Morro Bay Coastal Land Use Plan, 1981, Chap. 4 p. 95 to 98).

Ordinance 17.48.310 addresses the protection of archaeological resources. The ordinance asserts that it is the City's intent that significant archaeological and historic resources be protected. The ordinance identifies the steps necessary to ensure protection of the resources (City of Morro Bay Zoning Ordinance, Adopted 1995, p. 527).

CHARACTERIZATION OF IDENTIFIED RESOURCES

Laws identified in the LORS section of this document apply to the treatment of cultural resources. These laws require the Energy Commission to categorize resources by determining whether they meet several sets of specified criteria. These categories then in turn influence the analysis of impacts to the resources and the activities that may be required to mitigate any such impacts.

Under federal law, only historic or prehistoric sites, objects or features, or architectural resources that are determined by a qualified evaluator to be "important" or "significant' in accordance with federal guidelines typically need to be considered during the planning process. The significance of historic and prehistoric cultural resources is judged in accordance with the criteria for eligibility for nomination to the National Register of Historic Places as defined in 36 CFR 60.4 or to the California Register of Historic Resources. If such resources are determined to be significant, and therefore eligible for listing in either of these registers, they are afforded certain considerations under the National Historic Preservation Act.

The **National Register of Historic Places** criteria state that "eligible historic properties" are: "districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history;
(b) That are associated with the lives of persons significant in our past;
(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or
(d) that have yielded or may be likely to yield, information important to history or prehistory" (Code of Federal Regulations, Title 36, Part 60).

Isolated finds by definition do not meet these criteria. Resources determined not to be significant under the NHPA, that is not eligible for National Register listing, are subject to recording and documentation only and are afforded no further consideration. However, occasionally certain resources, although they may not be eligible for inclusion in the NRHP, may nonetheless be of local or regional importance such that mitigation may be warranted regardless of their assessed NRHP significance. A resource is considered to be "historically significant" and eligible for listing in the **California Register of Historical Resources** if it meets one of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
4. It has yielded, or may be likely to yield, information important in prehistory or history [California Code of Regulations, Title 14, Section 15064.5(a)(3)].

The CEQA guidelines require the lead agency (in this case, the Energy Commission) to make a determination of whether a proposed project will affect "historical resources" and sets forth a listing of criteria for making this determination. As used in CEQA, the term "historical resources" includes any resource, regardless of age, that meets any of these criteria. If the criteria are met, the Energy Commission must evaluate whether the project will cause a substantial adverse change in the significance of that historical resource, which the regulations define as a significant effect on the environment. Title 14, California Code of Regulations, Section 15064.5 states cultural resources are greater than 45 years old and that meet the following criteria and retain integrity are historical resource:

- "A resource listed in, or determined to be eligible by, the State Historical Resources Commission, for listing in the California Register of Historical Resources
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, science, economic, agricultural, educational, social, political, military or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record" (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et seq.);
-

If the criteria are met, the Energy Commission must evaluate whether the project will cause a substantial adverse change in the significance of that historical resource, which the regulations define as a significant effect on the environment.

Using the above criteria, the CEC determined that the cultural resource sites described in the AFC meet one or more of the criteria for being an historical resource.

CEQA establishes limitations on Applicants' costs of mitigation for archeological resources that are unique and does not require discussion of non-unique archeological resources in an environmental impact report (Public Resources Code, section 21083.2). The statute also provides a definition of unique archeological resources. However, the CEQA Guidelines state that this prohibition does not apply when an archeological resource also meets the

definition of an historical resource (California Code of Regulations, Title 14, Section 15064.5).

FACILITY DESIGN

The applicable LORS for each engineering discipline (civil, structural, mechanical and electrical) are summarized in Exhibit 4, Section 7.2 and Table 7.1 of Volume 1B. The following appendices, included in Volume IV of Exhibit 4 describe the applicable LORS and design standards for each engineering discipline:

- Civil Engineering – Appendix 8-3
- Structural Engineering – Appendix 8-4
- Mechanical Engineering – Appendix 8-5
- Electrical Engineering – Appendix 8-6
- Control Systems Engineering – Appendix 8-7
- Chemical Engineering – Appendix 8-8

GEOLOGY AND PALEONTOLOGY

FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control. The Morro Bay Power Project is not located on lands owned by the United States Government.

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 for investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The CBC supplements the UBC's grading and construction ordinances and regulations.

The California Environmental Quality Act (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.
- Section (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.
- Section (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 1994) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. §11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.

The Clean Air Act (CAA) of 1990 (42 U.S.C. §7401 et seq. as amended) established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The CAA section on Risk Management Plans - codified in 42 U.S.C. §112(r) - requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of the CAA are reflected in the California Health and Safety Code, section 25531 et seq.

Currently, due to the high volume of petroleum-containing hazardous materials already in place on this site, the applicant is required to have a Spill Prevention Control and Countermeasure Plan (SPCC) in place (Hazardous Waste Contingency Plan Title 40 C.F.R., Part 112.7).

STATE

The California Accidental Release Prevention Program (Cal-ARP) - Health and Safety Code, section 25531 - directs facility owners storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This program supersedes the California Risk Management and Prevention Plan (RMPP).

Section 25503.5 of the California Health and Safety Code requires facilities which store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case the San Luis Obispo County Health Department, Division of Environmental Health. This

Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.

Title 8, California Code of Regulations, section 5189, requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Title 8, California Code of Regulations, section 458 and sections 500 – 515, set forth requirements for design, construction and operation of vessels and equipment used to store and transfer anhydrous ammonia. These sections generally codify the requirements of several industry codes, including the ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and Pressure Vessel Inspection Code. While these codes apply to anhydrous ammonia, they may also be used to design storage facilities for aqueous ammonia.

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

Gas Pipeline

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

- Class 1: Pipelines in locations with ten or fewer buildings intended for human occupancy.
- Class 2: Pipelines in locations with more than ten but fewer than 46 buildings intended for human occupancy. This class also includes drainage ditches of public roads and railroad crossings.
- Class 3: Pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (The days and weeks need not be consecutive).

The natural gas pipeline will be designed for Class 3 service and will meet California Public Utilities Commission General Order 112-D and 58-A standards as well as various PG&E standards. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of

Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192:

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

LOCAL AND REGIONAL

The Uniform Fire Code (UFC 1997) contains provisions regarding the storage and handling of hazardous materials in Articles 4 and 79. The most recent version of the UFC was adopted in 1997. The City of Morro Bay adopted this version of the UFC into the municipal code in 1999.

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

The City of Morro Bay Zoning Ordinance, Chapter 17.52, Section 17.52.100 is administered by the Morro Bay Fire Department and contains a requirement that hazardous materials may not be stored or used within 100 feet of residences.

LAND USE

STATE

Warren-Alquist Act (Pub. Resources Code § 25500 et seq.)

Pursuant to § 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 as follows:

"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."

Subdivision Map Act (Pub. Resources Code § 66410-66499.58)

The Subdivision Map Act provides procedures and requirements regulating land divisions (subdivisions) and the determining of parcel legality. Regulation and control of the design and improvement of subdivisions, by this Act, has been vested in the legislative bodies of local agencies. Each local agency by ordinance regulates and controls the initial design and improvement of common interest developments and subdivisions for which the Map Act requires a tentative and final map.

California Coastal Act of 1976 (Pub. Resources Code §30000 et seq.)

The California Coastal Act (Coastal Act) establishes a comprehensive scheme to govern land use planning along the entire California coast. The Act also sets forth general policies (Public Resources Code §30200 et seq.) which govern the California Coastal Commission's review of permit applications and local plans.

In the case of energy facilities Section 30600 of the Coastal Act states; (a) Except as provided in subdivision (e), and in addition to obtaining any other permit required by law from any local government or from any state, regional, or local agency, any person, as defined in Section 21066, wishing to perform or undertake any development in the coastal zone, ***other than a facility subject to***

Section 25500, shall obtain a coastal development permit. (Emphasis added), Section 25500 specifically identifies the Warren-Alquist Act and the Energy Commission's exclusive power to certify sites for 50 MW or greater power generation facilities or related facilities anywhere in the state.

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)).

The Coastal Commission has not designated the existing Morro Bay power generation facility as a site that is inappropriate for the facility or for reasonable expansion. The existing Morro Bay facility is shown on "Coastal Commission Power Plant Siting Study" maps 102 and 104.

Section 30260 of the Coastal Act states that coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.

Section 30264. Notwithstanding any other provision of this division except subdivisions (b) and (c) of Section 30413, new or expanded thermal electric generating plants may be constructed in the coastal zone if the proposed coastal site has been determined by the State Energy Resources Conservation and Development Commission (Energy Commission) to have greater relative merit pursuant to the provisions of Section 25516.1 than available alternative sites and related facilities for an applicant's service area which have been determined to be acceptable pursuant to the provisions of Section 25516.

Pursuant to § 30500 of the Coastal Act, 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. The California Coastal Commission retains permit authority over development until such time as the local LCP is adopted and certified by the Commission. Once the Coastal Commission certifies a LCP, the authority to issue Coastal Development Permits (CDPs) for development within the Coastal Zone is delegated to the local jurisdiction (§30519(a)). Notwithstanding § 30519(a), § 30600(a) of the Coastal Act specifies that a project proponent must obtain a CDP 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).

The City of Morro Bay has a LCP (a.k.a. Morro Bay Local Coastal Program) certified by the Coastal Commission that includes a Coastal Land Use Plan (CLUP), Zoning Ordinance and Land Use Map. Currently, the City is combining the CLUP with its General Plan.

State Tide and Submerged Lands Leasing (Pub. Resources Code § 6701-6706)

The California State Lands Commission (State Lands Commission) is responsible for the management and administration of all lands owned by the State, including the leasing of tide and submerged lands within State jurisdiction (Division 6, Part 2, § 6701-6706 of the Public Resources Code).

During the late1930's the State Legislature statutorily transferred (granted) tide and submerged lands located along the coast in trust to local cities and counties in accordance to the Tideland Doctrine. Granted lands are monitored by the State Lands Commission to ensure compliance with the terms of the statutory grant. "These grants encourage the development of tidelands consistent with the public trust, while requiring grantees to re-invest revenues produced from lands back into lands where they are generated" (State Lands Commission, 2001). The coastal cities and counties were then required to develop harbors to further State and national commerce (State Lands Commission, 2001).

LOCAL

City Of Morro Bay General Plan

Under California State planning law, each incorporated City and County must adopt a comprehensive, long-term General Plan that governs the physical development of all lands under its jurisdiction. The General Plan consists of a statement of development policies and must include a diagram and text setting forth the objectives, principles, standards and proposals of the document. At a minimum, a General Plan has seven mandatory elements including Land Use; Circulation; Housing; Conservation; Open Space; Noise and Safety. The City adopted its comprehensive General Plan in 1988 (Duke 2000a). The City is currently combining its General Plan with its CLUP. As currently proposed, the combined General Plan/CLUP does not change any of the zoning or planning related issues associated with the project.

City of Morro Bay Coastal Land Use Plan

The City's certified LCP includes the City's CLUP, Zoning Ordinance, and Land Use Map. The CLUP states the City's plans and policies for coastal areas consistent with the Coastal Act. The CLUP must be consistent with the City's General Plan; however, where inconsistencies occur between the two documents, the CLUP takes precedence. The CLUP primarily consists of: (1) a Land Use Map; and, (2) policies necessary to ensure the protection of resources and the regulation of development within the Coastal Zone. Elements of the

CLUP are currently being incorporated into the City's General Plan to create a combined General Plan/CLUP. Under the City's Land Use Map, which serves as the combined map for the General Plan and CLUP, the MBPP property as a whole is designated Coastal Development Industrial with Planned Development, and includes Interim/Open Space Uses in Industrial Categories and Environmentally Sensitive Habitat overlays (Sheppard, Mullin, Richter & Hampton, 2001, Duke, 2000a). The term Coastal Development Industrial is not defined in the General Plan, CLUP or City Zoning Ordinance; it appears in the legend of the Land Use Map only. However, Coastal-Dependent Industrial is defined in all of the City's land use planning documents. Attorneys for the City have determined that, for the purposes of its land use planning documents, Coastal-Dependent Industrial and Coastal Development Industrial are synonymous (Sheppard, Mullin, Richter & Hampton, 2001). The City Coastal Land Use Plan defines the land use of the property as "Coastal-Dependent Industrial." Chapter II, page 23 of the LCP defines this term:

"Coastal-Dependent Industrial Land Use: This land use specifically relates to those industrial land uses which are given priority by the Coastal Act of 1976 for location adjacent to the coastline. Examples of uses in this designation are thermal power plants, seawater intake structures, discharge structures, tanker support facilities, and other similar uses which must be located on or adjacent to the sea in order to function. The Morro Bay wastewater treatment facilities are protected in their present location since an important operational element, the outfall line, is coastal-dependent."

The LCP also contains the "Coastal Commission Power Plant Siting Study" (Figure 16) which shows the Morro Bay power generating facility property south of Morro Creek as "UNDESIGNATED CITY LAND AREA Power Plants Allowed." As stated in the City's Coastal Plan:

"According to a California Energy Commission report entitled "Feasibility of Expansion of Existing Coastal Zone Power Plants," the power plant site is the minimal adequate area for expansion of small facilities whose location would not further affect the unique view corridor of Morro Rock and the report indicates that conversion is unfeasible due to a variety of factors. The study does conclude that expansion is feasible of a small scale facility utilizing either steam turbine, the existing generating system, combined cycle or combustion turbine."

City of Morro Bay Zoning Ordinance

Consistent with the City's General Plan and CLUP, the City's Zoning Ordinance (Municipal Code 17) designates the project site M-2, Coastal-Dependent Industrial district, with Planned Development and Interim/Open Space Uses in Industrial Categories overlays (Duke, 2000a; City of Morro Bay, 2001a).

Section 17.24.150 of the City of Morro Bay Zoning Ordinance, adopted September 25, 1995 states:

"The purpose of the M-2 district is to "provide districts for industrial development wherein manufacturing and other industries which require a site on or close to the ocean or harbor can locate and operate while maintaining an environment minimizing offensive or objectionable noise, dust, odor or other nuisances, all well designed and properly landscaped."

Section 17.40.030 of the City's Zoning Ordinance states:

"The purpose of the planned development (PD) overlay zone, is to provide for detailed and substantial analysis of development on parcels which, because of location, size or public ownership, warrant special review. This overlay zone is also intended to allow for the modification of or exemption from the development standards of the primary zone which would otherwise apply if such action would result in better design or other public benefit."

(PD) requires that development must occur in accordance with a Precise Development Plan, which has received discretionary approval from the City. Development is defined as "on land... the placement or erection of any solid material or structure...including any facility of any private, public or municipal utility" (Sheppard, Mullin, Richter & Hampton, 2001).

City of Morro Bay Waterfront Master Plan

In 1989 the City Council authorized the establishment of a Waterfront Committee to develop a comprehensive Waterfront Master Plan (Master Plan) that would enhance and protect waterfront resources and a fishing village image. Draft Plans were prepared from 1993 through 1995 (City of Morro Bay, 2000b). In May, 1996, the City Council adopted Chapter 5 of the Master Plan, which provides design guidelines for the "waterfront area" (City Resolution No. 43-96). The City's Planned Development (PD) overlay states "for those areas of the city which are covered by the waterfront master plan, all new development projects requiring discretionary permits (conditional use permit, etc) shall be consistent with the design guidelines contained in Chapter 5 of the waterfront master plan (City of Morro Bay Zoning Ordinance section 17.40.030(d)) However, other portions of the Master Plan, including transportation and harbor improvements are currently considered recommendations only (City of Morro Bay, 2000a). The Master Plan has not been certified by the Coastal Commission (Duke, 2000a).

The Master Plan outlines several improvement projects in the vicinity of the existing MBPP. These include: connection of the two portions of the Embarcadero across Morro Creek; additional pedestrian and bicycle access surrounding the boundaries of the MBPP; improved transportation and circulation adjacent to the MBPP; low-impact recreational development within portions of the "Den Dulk" property (a project-related property); and, visual/design improvements within the harbor area (City of Morro Bay, 1996).

The Master Plan identifies four planning areas within the "waterfront area;" transportation and harbor improvement projects within these planning areas;

development proposals and related approval conditions for other types of projects within the planning areas; and, the above-referenced design guidelines (Chapter 5). The four planning areas identified include the: Morro Rock/Coleman Park Area (Area 1); T-Piers/Fisherman Working Area (Area 2); Embarcadero Visitor Area (Area 3); and, Tidelands Park Area (Area 4) (City of Morro Bay, 1996).

Figure 2.1 of the Master Plan provides a map of the four planning areas. The boundaries of these planning areas are clearly marked as they run in a direction perpendicular to the harbor/coastline; however, they are not specifically marked as they run in a horizontal direction to the coast. The City of Morro Bay maintains that the MBPP property is subject to the design criteria specified by Chapter 5 of the Master Plan (i.e. is located within the "waterfront area") (City of Morro Bay, 2001d); however, the Applicant maintains the position that the MBPP facility is located outside of the "waterfront area" (Duke Energy, 2001a).

In reviewing the Master Plan, it appears that the planning intent of Area 2 is primarily focused on the harbor's two T-piers and the fisherman's working area, which are located on the harbor side of the Embarcadero. This is supported by: (1) the inland termination points of Area 2's perpendicular boundaries, which end (a) at the intersection of Harbor Street and the Embarcadero, and (b) approximately 50 feet west/southwest of the corner of the existing MBPP (within the plant's "buffer" zone); (2) that plans presented in Map E.7 of the Master Plan do not extend inland past a proposed bike and pedestrian path immediately adjacent to the Embarcadero; and, (3) that proposals for Area 2 as presented in Chapter 4 of the Master Plan only address the MBPP site in the capacity of providing an educational center and "static display" of the facility's history, energy use and conservation, and alternative energy sources. In conclusion, the CEC concurs with the Applicant that only the seawater intake structure is subject to the design guidelines of Chapter 5 of the Master Plan, and that the MBPP facility itself is located outside of the "waterfront area."

In 1997 City Staff was pursuing a possible grant from the Department of Boating and Waterways for development of a boat launch ramp near the end of Coleman Drive, as part of implementation of the Master Plan. However, based upon public testimony and infeasible design components, the project was terminated and a Boating Access Facility (BAF) Committee was formed by City Council.

The BAF Committee was directed to provide recommendations for improvements to the Master Plan. Specific recommendations made by the BAF Committee included: elimination of boat launch ramp at "Target Rock;" increasing the width of a proposed pedestrian/bike bridge over Morro Creek for emergency access; and, a conceptual plan for boating access, storage facilities, and development of recreational and some commercial opportunities within the Master Plan planning areas. In September 1997 City Council concurred to amend the Master Plan to incorporate these recommendations (City of Morro Bay, 1997a).

The conceptual plan amended to the Master Plan includes development within a portion of the "Den Dulk" property. Development would include recreational facilities, including a skateboard park and parking area ("Area 5"), as well as a boat hoist/access area and associated parking lot ("Area 3") (City of Morro Bay, 1996). It is noted, however, that in September, 1997 City Staff recommended that development of these features should only be undertaken if the City acquires the "Den Dulk" property (City of Morro Bay, 1997b). Duke has since taken ownership of this property.

City of Morro Bay Flood Damage Prevention Ordinance (No. 477)

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available in communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage.

The NFIP is managed by the Federal Emergency Management Agency's (FEMA) Federal Insurance Administration and Mitigation Directorate. The Federal Insurance Administration manages the insurance component of the NFIP, and works closely with FEMA's Mitigation Directorate, which oversees the floodplain management aspect of the program.

The City has adopted a Flood Damage Prevention Ordinance (Ordinance No. 477, codified as Chapter 14.72 of the City's Zoning Ordinance) (Duke, 2000a). The current flood map associated with Ordinance No. 477 shows that the 100-year floodplain includes the lower reaches of the Morro Creek watershed; this area includes portions of the project site (Duke, 2000a).

As required by Ordinance No. 477, the Applicant must provide the City with a hydrologic analysis and facility design specifications that meet the applicable standards and requirements to ensure that: (1) the project does not adversely affect the flood carrying capacity of Morro Creek and the base flood water surface elevation adjacent to or upstream of the project site; and, (2) project features, including the levee system are both reasonably safe from flooding and comply with standards for anchoring, construction materials and methods, and elevation and flood-proofing (Duke, 2000a).

An alternative to the above would be to submit one or more requests to FEMA requesting that the applicable Flood Insurance Rate Map (FIRM) be amended or revised to reflect that the project site is situated above the base flood elevation (e.g. Letter of Map Revision). As may be necessary for this scenario, the dikes and berms surrounding the project site would likely need to be modified to meet construction standards established by FEMA (44 Code of Federal Regulations, § 65.10(b)) (Duke, 2000a).

San Luis Obispo County Land Use Plans and Ordinances

The San Luis Obispo County General Plan provides long term guidelines for land use and development. The Inland and Coastal Zone Land Use Elements (LUEs) of the General Plan designate the general distribution and intensity of both public and private land uses. There are four components that make up the Coastal Zone LUE: (1) a Framework for Planning; (2) Area Plans; (3) Official Maps; and, (4) Coastal Plan Policies (San Luis Obispo County, 2001b).

The County's Framework for Planning document provides a comprehensive overview of policies, and defines land use categories (i.e. designations). It includes a matrix (referred to as "Table O") that specifies what types of uses are allowed under each category. The Area Plans contain area-specific development standards. The Official Maps provide the geographic distribution of land use categories. The Coastal Plan Policies provide the policies for uses within the Coastal Zone.

The two LUEs are implemented and enforced by the Inland and Coastal Zone Land Use Ordinances (LUOs). The LUOs list the standards (requirements) and permit procedures for developing land. These standards include, among others, site design, minimum parcel sizes and setbacks, as well as specifications for grading, drainage, curb and gutter improvements and tree removal (San Luis Obispo County, 2001c).

Both the proposed offsite temporary satellite parking facility and that portion of the construction staging area that falls under the County's jurisdiction are located within the Estero Area Plan. The Estero Area Plan divides this planning area into four subareas: three urban and one rural (San Luis Obispo County, 1996a). Both sites fall within the rural planning subarea. The land use category for the temporary satellite parking facility is Agriculture with combining designations of Flood Hazard, Sensitive Resource Area (Chorro Creek), and Local Coastal Program Area (San Luis Obispo County, 1996a).

According to the County's Official Maps, Camp San Luis Obispo falls under the County's Public Facilities land use category (San Luis Obispo County, 2001a). Typically, the County does not exercise jurisdictional authority within the boundaries of Camp San Luis Obispo. However, Areas A, B and E of the proposed staging area fall within the Coastal Zone. The County does maintain land use and permitting authority over these three areas. The County has indicated that it does not currently have design standards specific to these properties (San Luis Obispo County, 2001a). All five areas that constitute the proposed staging area are adjacent to County designated Geologic Study Area boundaries and Special Resource Area boundaries (Chorro Creek).

CITY OF MORRO BAY/DUKE AGREEMENT

Draft Agreement To Lease and Agreement Regarding Power Plant Modernization

Duke Energy and the City of Morro Bay are currently negotiating a Draft "Agreement to Lease and Agreement Regarding Power Plant Modernization" (herein referenced as "Agreement to Lease") for the project. The Agreement to Lease, upon approval and signature by both parties would be a legally binding document between the City and the Applicant. Both the City and Applicant have stated that the Draft Agreement to Lease will be finalized after the public release of the project's FSA.

The Draft Agreement to Lease, dated August 2001, contains 22 Articles that address numerous project components including, but not limited to, project terms and definitions, time frames for project construction and demolition, public and conservation easements, the project's Outfall Agreement, waterfront improvements, project fees and payments due to the City, and terms for modifications and arbitration.

Attachment A of the Draft Agreement to Lease contains the City's suggested conditions of certification based upon the "essential terms" of the Draft Agreement.

NOISE AND VIBRATION

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time to 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 off-site (community) noise.

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration which have been applied by other jurisdictions. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

California Government Code Section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in **NOISE: Table 1** as follows.

NOISE: Table 1 - Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - Ldn or CNEL (db)													
	50		55		60		65		70		75		80	
Residential - Low Density Single Family, Duplex, Mobile Home														
Residential - Multi-Family														
Transient Lodging – Motel, Hotel														
Schools, Libraries, Churches, Hospitals, Nursing Homes														
Auditorium, Concert Hall, Amphitheaters														
Sports Arena, Outdoor Spectator Sports														
Playgrounds, Neighborhood Parks														
Golf Courses, Riding Stables, Water Recreation, Cemeteries														
Office Buildings, Business Commercial and Professional														
Industrial, Manufacturing, Utilities, Agriculture														

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

Source: State of California General Plan Guidelines, Office of Planning and Research, June 1990.

The State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The Model also contains a definition of "pure tone" in terms of one-third octave band sound pressure levels that can be used to determine whether a noise source contains significant pure tone components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

Other State LORS include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

California Environmental Quality Act

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

a) exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

b) exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

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.

LOCAL

Morro Bay General Plan Noise Element

The City of Morro Bay has adopted specific noise performance standards for stationary sources in the Noise Element of the General Plan (City of Morro Bay 1987). The noise levels considered acceptable for residential land uses are described by **NOISE: Table 2**.

Noise: Table 2 - Morro Bay Noise Element Standards

Noise Level Descriptor	Daytime Standard, dBA (7 a.m. to 10 p.m.)	Nighttime Standard, dBA (10 p.m. to 7 a.m.)
Hourly L_{eq}	50	45
Maximum Level	70	65
Maximum Impulsive Level	65	60

The above noise standards are applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the

standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures (rather than at the property line).

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)].

SOCIOECONOMICS

FEDERAL

Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national programs in all programs or activities receiving federal financial assistance.

STATE

California Government Code, Sections 65996-65997

As amended by SB 50 (Stats. 1998, ch. 407, sec.23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

14 California Code of Regulations, Section 15131

- Economic or social effects of a project shall not be treated as significant effects on the environment.

- Economic or social factors of a project may be used to determine the significance of physical changes caused by the project.

- Economic, social and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce and or avoid the significant effects on the environment.

SOIL AND WATER RESOURCES

FEDERAL

Clean Water Act

The Clean Water Act (33 USC § 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States.

The Clean Water Act requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated by this act, through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. In California, the NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB). The proposed project will be addressed by the Central Coast Regional Water Quality Control Board (CCRWQCB) through issuance of a new NPDES permit for the MBPP. Stormwater discharges related to earthmoving activities involving five or more acres of earth disturbance also fall under this act, and are addressed through a General NPDES Permit for Stormwater Discharges associated with Construction Activities.

Section 316 (33 USC § 1326) of the Clean Water Act specifically addresses thermal discharges and cooling water intake structures. Subsection (a) provides that " … the owner or operator of any such source … can demonstrate to the satisfaction of … the state that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made … the state may impose an effluent limitation … that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water."

Subsection (b) of section 316 requires that " … the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."

Section 404 of the Clean Water Act regulates the discharge of dredged or fill materials into the waters of the United States, including rivers, streams, and wetlands. The U.S. Army Corps of Engineers administers the Section 404 permit. Maintenance dredging associated with the intake and discharge structures may be subject to 404 permit requirements.

Section 401 of the Act requires that the Regional Water Quality Control Board must certify any activity that may result in a discharge into a waterbody. This certification ensures that the proposed activity will not violate state and federal water quality standards.

River and Harbor Act

Section 10 of the River and Harbor Act of 1899 specifies permit requirements for work on structures over, in, and/or under navigable waters of the United States (33 U.S.C. Section 403). The purpose of this law is to preserve the navigability of the waters of the United States by prohibiting the unauthorized obstruction or alteration of any navigable waters. Section 10 is administered by the U.S. Army Corps of Engineers.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards and implementation procedures. The criteria for the project area are contained in the *Basin Water Quality Control Plan – Central Coast Region Basin* (RWQCB 1994), the California Ocean Plan (1997), and the Thermal Plan (1975).

The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges to land. Such discharges are regulated under Title 23, California Code of Regulations, section 2200 et seq. These regulations require that the RWQCB issue a Waste Discharge Requirement regarding the discharge of waste (soil) into surface waters resulting from land disturbance.

California Water Code

California Water Code § 13550 requires the use of reclaimed water, where available. The use of potable domestic water for nonpotable uses, including, industrial uses, is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available.

California Water Code § 13260 requires that, as part of the NPDES permit, any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system must submit a report of waste discharge to the RWQCB.

California Constitution

California Constitution, Article 10, §2: This provision states that the water resources of the state should be put to beneficial use to the fullest extent possible. The waste or unreasonable use or unreasonable method of use of water is prohibited and water conservation is encouraged. The right to water or to the use of the flow of water and riparian rights is to be maintained by reasonable methods of diversion and use.

State Water Resources Control Board Plans

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. The Thermal Plan, which was later amended in 1975, sets limits on the discharge of wastewaters with elevated temperatures into coastal, estuarine and interstate waters in order to meet water quality objectives. The Thermal Plan provides the authority for the RWQCB to grant exceptions to the specific water quality objectives in accordance with Section 316(a) of the Clean Water Act. Such exemptions also require the approval of the SWRCB.

- 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. Two categories of discharges exist: "existing" which are discharges in place or under construction prior to the plan's 1971 adoption and "new" which are discharges developed after the plan was adopted.

California Ocean Plan

In 1997, the SWRCB (Resolution 97-026) adopted the latest version of the Water Quality Control Plan for Ocean Waters of California (California Ocean Plan). The California Ocean Plan establishes beneficial uses and water quality objectives for the state's ocean waters outside of enclosed bays, estuaries and lagoons. The plan also sets forth effluent limitations, management practices and prohibitions. Every three years the plan is reviewed and, if necessary, updated.

California Coastal Act of 1976 (Pub. Resources Code §30000 et seq.)

Chapter 3: Coastal Resources Planning and Management Policies. Article 4. Marine Environment, Section 30231: This section requires that the "…biological productivity and the quality of coastal waters, wetlands, estuaries and lakes shall be maintained by minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of groundwater…".

LOCAL

City of Morro Bay Flood Damage Prevention Ordinance

Chapter 14.72 Flood Damage Prevention – Provisions within this chapter ensure uses within flood prone areas are adequately elevated, protected, or otherwise flood proofed. Flooding may also be induced when obstructions create irregular flood patterns. The purpose of the provisions is to protect public health and safety and to reduce public and private losses due to flooding events.

A Development Permit is required prior to any construction within any area of special flood hazard. The areas of special flood hazard are identified in the 1985 Federal Emergency Management Agency (FEMA) Flood Insurance Study and the accompanying Flood Insurance Rate Map. The Development Permit includes, but is not limited to, verification that all proposed sites are reasonably safe from flooding and will not adversely affect the carrying capacity of a watercourse.

City of Morro Bay Grading Permit

The City of Morro Bay enforces the California Building Code Chapter 33 for grading and excavation activities within the City limits. A geotechnical investigation and a Grading and Drainage Plan must be submitted for review and approval prior to issuance of the grading permit.

City of Morro Bay New Project Water Usage Tracking

The City of Morro Bay requires that net new water usage for development (historical usage less projected new usage) be calculated by the Planning and Building Division staff using the procedures included in the Morro Bay Municipal Code Chapter 13.20. Net new water usage, measured in water equivalency units (weu's, 1 weu = 0.25 acre-feet/year) shall be noted on the building permit and shall also be noted in a water allocation log administered by the Building Official. If the project will involve a net increase of eight (8) or more weu's, review and approval of a "regular" Coastal Development Permit pursuant to Section 17.58.030 of the Morro Bay Zoning Ordinance will be required.

City of Morro Bay Zero Pollution Policy

The City of Morro Bay enforces a groundwater contamination policy that is more stringent than the cleanup requirements of the RWQCB. Under the City of Morro Bay's Public Nuisance Code Municipal Code Chapter 8.14, the City enforces a "zero pollution" policy regarding groundwater and soil contamination.

STATE POLICIES

State Water Resources Control Board Policies

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board

on June 19, 1976 by Resolution 75-58) states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy states that power plant cooling water should, in order of priority, come from wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland wastewaters of low total dissolved solids, and other inland waters. This policy also defines cooling water discharge prohibitions.

The principal policy of the State Board which addresses enclosed bays and estuaries is the “Water Quality Control Policy for the Enclosed Bays and Estuaries of California” (adopted by the Board on May 16, 1974 by Resolution 74-43). This policy contains a number of prohibitions on waste discharges including chemical, biological and petroleum related waste.

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 address the transportation of hazardous materials. Provisions within the California Vehicle Code are:

- Section 353 defines hazardous materials. Sections 31303-31309 regulate 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 which are used for the transportation of hazardous materials.
- Sections 25160 et seq. addresses the safe transport of hazardous materials.
- Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- Sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, the possession of certificates permitting the operation of vehicles transporting hazardous materials is required.
-

California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code, Sections 35780 et seq., require permits for the transportation of oversized loads on county roads.

California Street and Highways Code, Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, 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 City of Morro Bay has guidelines and policies pertinent to development within the City set forth in the Morro Bay General Plan Circulation Element and the City of Morro Bay Coastal Land Use Plan, included as part of the California Coastal Act of 1976. The City of Morro Bay General Plan Circulation Element and Coastal Land Use Plan contain the guiding policies used in the transportation analysis for this project. The City of Morro Bay has local ordinances regarding vehicle weight and size limits in its Municipal Code. The ordinances that limit the size and weight of vehicle traffic on certain roadway segments are included below.

- 10.28.230 Vehicle Weight Limit - No person shall operate or drive a motor vehicle with a gross vehicle weight in excess of five tons on any portion of Ironwood Avenue between California State Highway No. 41 and Avalon Street. Vehicles with bona fide points of destination on this street segment and vehicles subject to Sections 1031 and 1036, inclusive, of the Public Utilities Code are exempt from compliance with this section. (Ord. 345, 1989)
- 10.28.130 Certain vehicles prohibited in central traffic district -
    A. No person shall operate any of the following vehicles in the central traffic district between the hours of seven a.m. and six p.m. of any day:
        1. Any freight vehicle more than eight and one-half feet in width, with load, or any freight vehicle so loaded that any part of its load extends more than twenty feet to the front or rear of said vehicle;
        2. Any vehicle carrying building material that has not been loaded, or is not to be unloaded, for some point within the central traffic district;
    B. Provided that the city engineer may by written permit charged in the Master Fee Schedule authorize the operation of any such vehicle for the purpose of making necessary emergency deliveries to or from

points within the central traffic district. (Ord. 225 § 43,1982; Ord 9 § 1 (part), 1964: prior code § 8512)

- 10.04.030 Central traffic district - Central traffic district includes all streets or portions of streets within the area bounded by the following streets: Bounded on the south by Pacific Street, on the north by Beach Street, Main Street and Quintana Road, on the west by the Embarcadero and Front Street and on the east by Kern Avenue, Morro Bay Boulevard and Quintana Road. Central traffic district means “business district“ as defined in the Vehicle Code of the state. (Ord. 447 § 2A, 1995: amended during 3/88 supplement; Ord. 9 § 1 (part), 1964: prior code § 8102)

TRANSMISSION SYSTEM ENGINEERING

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction", formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.
- CPUC Rule 21 provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.
- Western Systems Coordinating Council (WSCC) Reliability Criteria provides the performance standards used in assessing the reliability of the interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 "Criteria for Transmission System Contingency Performance" which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (loss of load or facility loading outside emergency limits) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas. While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).
- North American Electric Reliability Council (NERC) Planning Standards provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions, however the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Grid Planning Criteria also provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO

Grid Planning Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Grid Planning Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Planning Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid.

- Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied to the assessment of the system reliability implications of the project. Also of major importance to projects, which may sell power to the California deregulated wholesale market, are the Cal-ISO Day/Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the Creation of the Real Time Merit Order Stack (SP 11). The Congestion Management Scheduling Protocol requires that the operation of power plants not violate system criteria when market participants request generation dispatch or the use of major interties. The Real Time Merit Order Stack is developed based on increasing energy bid prices so that the least cost bids are accepted early on and so that if congestion is anticipated, the highest bids are not selected. The Transmission System Loss Management Scheduling Protocol uses the Cal-ISO power flow model to identify total transmission losses at each generating unit and scheduling point. Additional calculations are performed to determine the actual net power output required by the generating units to meet their scheduled obligations. (Cal-ISO 1998a, Cal-ISO 1998b).
- Cal-ISO Participating Generator Agreement consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the paralleled generating unit.

TRANSMISSION LINE SAFETY AND NUISANCE

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 prevent such collisions.

Federal

- Title 14, Part 77 of the Federal Code of Regulations (FCR), 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.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the perceivable impacts produced by the line's 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 or intensity estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

FEDERAL

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications,

even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis.

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 by using 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. 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. The line owner is responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees and other combustible objects.

State

- 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, Sections 2700 through 2974, "High Voltage Electric Safety Orders" of the California Code of Regulations. These safety orders establish essential

requirements and minimum standards for safely installing, operating, working around, 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 together as EMF exposure. As noted by the applicant, Duke Morro Bay LLC, (Duke 2000a, pages 6.18-11), 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, staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. 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 patterns 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 below 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. 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.

In keeping with this CPUC policy, the Energy Commission requires field strength calculations showing 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. Therefore, it is up to each Applicant to ensure that such measures are applied in ways that do not affect line operation.

The extent of the field-reducing measures would be reflected by ground-level field strengths as calculated in the application process and verified through actual measurements during operation. When estimated or measured for each line, such field strengths can be used by the CEC and other regulatory agencies for comparison with fields of lines of similar voltage and current-carrying capacity. These field strength estimates can be made 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.

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.

VISUAL RESOURCES

FEDERAL

The proposed project is located on private land. Therefore, the project is not subject to federal land management requirements.

STATE

The proposed project is located adjacent to Highway 1—a State of California officially designated scenic highway. Official designation of a state scenic highway requires the local jurisdiction to enact a scenic corridor protection program that protects and enhances scenic resources. A properly enforced program can mitigate the effects of uses that might otherwise detract from the scenic values of the corridor landscape. A corridor protection program will typically stipulate specific siting, landscaping, and screening requirements; as well as require appropriate structural characteristics and surface treatments to make the development more compatible with the existing environment.

LOCAL

Local plans and policies relevant to visual resources are contained in the City of Morro Bay Land Use Plan of the Local Coastal Plan (LCP) and the City of Morro Bay General Plan (General Plan). The LCP sets policies, standards, and objectives to guide coastal land use decisions. The General Plan (with specific zoning ordinances) implements policies defined in the LCP.

The LCP addresses visual resources and community character, with the intent, as stated in the California Coastal Act, that "scenic and visual qualities of coastal areas are to be considered and protected as a resource of public importance with full consideration to private property rights." The LCP includes goals and policies to protect, restore, and where feasible enhance visual quality in visually degraded areas. It emphasizes that any development permitted in scenic areas should be designed and located to be visually compatible with, and subordinate to, the natural setting.

The General Plan incorporates and implements visual resource policies from the LCP. The General Plan policies related to visual resources include: Scenic Roadway Establishment; Protection of Coastal Area's Visual Resources; Implementation of LCP; Landscaping Standards; Property Maintenance Standards; Utility Undergrounding; and Roadside Amenities. For each policy, a number of specific programs are recommended.

WASTE MANAGEMENT

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. § 6922)

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

Regulations promulgated by the EPA to implement the requirements 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).

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)

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)

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

City of Morro Bay Zoning Ordinance §17.52.090 requires compliance with standards on the discharge of harmful liquid and solid waste. The Central Coast Regional Water Quality Control Board (CCRWQCB) enforces this ordinance. Compliance with a NPDES permit is adequate to meet these requirements.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500 and clearly define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the general industry safety and health standards now in force under this OSH Act represent a compilation of materials from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA), which publishes the National Fire Codes.

The purpose of the Occupational Safety and Health Act is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources," (29 USC § 651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.
Applicable Federal requirements include:

- 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 CFR §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 CFR §1952.170 – 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR §1910.1 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 ("Cal/OSHA") as published in the California Labor Code § 6300 et seq. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with §337-560 and continuing with §1514 through 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)) and thus all Cal/OSHA health and safety standards meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and

safety regulations, in lieu of the federal requirements published at 29 CFR §1910.1 - 1910.1500. The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible for informing their employees about workplace hazards, potential exposure and the work environment (Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (8 CCR §5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1980. It was later revised to mirror the Federal Hazard Communication Standard (29 CFR §1910.1200) which established on the federal level an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers. A major component of this regulation is the required provision of Material Safety Data Sheets (MSDSs) to workers. MSDSs provide information on the identity, toxicity, and precautions to take when using or handling hazardous materials in the workplace.

Finally, 8 CCR §3203 requires that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Applicable State requirements include:

- 8 CCR §339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- 8 CCR §337, et seq. Cal/OSHA regulations;
- 24 CCR § 3, et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;
- Health and Safety Code § 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations § 3 et seq is comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of Title 24 (H&S Code §18901 et seq.) pertaining to the California Fire Code. Specifically NFPA 850 is included.

Similarly, the Uniform Fire Code (UFC) Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local (or locally enforced) requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);
- California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.).
- Uniform Fire Code, 1997 (and in particular Articles 79 and 80)

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

Application for Certification of Duke Energy for the MORRO BAY Power Plant Project	**Docket No. 00-AFC-12** **PROOF OF SERVICE LIST**

I, **NAME**, declare that on **DATE**, I deposited copies of the attached **DOCUMENT TITLE** in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to the following:

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Attn: Docket No.: 00-AFC-12
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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.

_____

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BEFORE THE STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

APPLICATION FOR CERTIFICATION OF DUKE ENERGY FOR THE MORRO BAY POWER PLANT PROJECT	**DOCKET NO. 00-AFC-12**

EXHIBIT LIST

EXHIBIT 1: Not offered as evidence.

EXHIBIT 2: Not offered as evidence.

EXHIBIT 3: Memorandum of Understanding (MOU) between the City of Morro Bay and Duke Energy Morro Bay LLC, executed February 28, 2000. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 4: Application for Certification (AFC) for the Morro Bay Power Plant Project, filed October 23, 2000, Volumes 1A, 1B, 2, 3, and 4. Sponsored by Applicant; portions admitted into evidence on December 17, 2001; January 29, 2002; January 30, 2002; February 5, 2002; March 12, 2002; and, March 13, 2002; June 4, 2002; and June 6, 2002.

EXHIBIT 5: Letter from Sierra Research to Robert Carr, SLOAPCD, dated November 1, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 6: Letter from Sierra Research to EPA, Region IX Re: Application for Prevention of Significant Deterioration Permit, dated November 1, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 7: Letter from Sierra Research to Magdy Badr, CEC, Re: Confirmation of Meteorological Data, dated November 1, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 8: Letter from Sierra Research to Robert Carr, SLOAPCD, Re: Isopleth Diagrams, dated November 9, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 9: Not offered as evidence.

EXHIBIT 10: Not offered as evidence.

EXHIBIT 11: Not offered as evidence.

EXHIBIT 12: Letter from Sierra Research to Gary Willey, SLOAPCD, Re: Additional Information to Address Permit Data Adequacy Issues, dated November 21, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 13: Not offered as evidence.

EXHIBIT 14: Memo from Nancy Mathews, Sierra Research, to Gary Willey, SLOAPCD, Re: Supporting Information on Baseline Emissions for Units 1 through 4, dated November 28, 2000. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 15: Not offered as evidence.

EXHIBIT 16: Not offered as evidence.

EXHIBIT 17: Not offered as evidence.

EXHIBIT 18: Not offered as evidence.

EXHIBIT 19: Responses to CEC comments on Data Adequacy for the Morro Bay Power Plant Modernization Project relayed to Air Quality, Land Use, Traffic and Transportation, Visual Resources, Cultural Resources, Socioeconomics, Water Resources, and Transmission System Engineering, docketed December 8, 2000. Sponsored by Applicant; portions admitted into evidence on December 17, 2001; February 5, 2002; March 12, 2002; March 13, 2002; and June 6, 2002.

EXHIBIT 20: Not offered as evidence.

EXHIBIT 21: Not offered as evidence.

EXHIBIT 22: Responses to CEC February 9, 2001 Data Requests (1-5, 22-27, 28-34, 55, 56, 57-59, 60-76, 77-80, 81, 82-93, 94-113, 114-124, 125-127, 177-185) on Air Quality, Alternatives, Biology, Cultural, Efficiency, Geology/Paleontology, Land Use, Noise, Reliability, Socioeconomics, Soil/Water Resources, Traffic, Transmission System Engineering, Waste Management, from Duke Energy, dated March 9, 2001. Sponsored by Applicant; portions admitted into evidence on December 17, 2001; January 29, 2002; January 30, 2002; and February 5, 2002; March 12, 2002, March 13, 2002; and June 6, 2002.

EXHIBIT 23: Applicant's responses to Intervenor CAPE's March 9, 2001 Data Requests related to public relations materials distributed May 1999 – October 2000. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 24: Not offered as evidence.

EXHIBIT 25: Not offered as evidence.

EXHIBIT 26: Letter from Gary Rubenstein, Sierra Research, to Kae Lewis, CEC, Re: Source Test Report, dated March 13, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 27: Not offered as evidence.

EXHIBIT 28: Not offered as evidence.

EXHIBIT 29: Applicant's response to CEC February 9, 2001, Data Requests on Visual Resources (218-176), dated April 3, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 30: Applicant's response to February 9, 2001 Visual Data Request-Graphics, dated April 4, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 31: Not offered as evidence.

EXHIBIT 32: Letter from Nancy Matthews, Sierra Research, to David Nelson, CAPE, Re: Modeling of Input and Output Files Regarding Potential Health Risks, dated April 10, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 33: Letter from Nancy Matthews, Sierra Research, to Henrietta Groot, CAPE, Re: BAAQMD Letter Regarding Results of Acrolein Source Testing, dated April 10, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 34: Applicant's responses to Intervenor CAPE's March 9, 2001 Data Requests related to Air Quality, Public Health, Water Resources, Marine Biological Resources, Facility Closure, Alternatives, Land Use, Socioeconomics, Noise, Visual Resources, Transmission Lines, and Community Outreach, docketed April 11, 2001. Sponsored by Applicant; portions admitted into evidence on January 30, 2002; February 5, 2002; March 12, 2002; and March 13, 2002.

EXHIBIT 35: Not offered as evidence.

EXHIBIT 36: Applicant's responses to CEC February 9, 2001 Data Requests (remaining responses 23, 43, 47, 53, 62, 63, 71, 88-91, 106, 116, 121) related to Alternatives, Cultural Resources, Land Use, Socioeconomics, Soil/Water Resources, and Traffic, docketed April 11, 2001. Sponsored by Applicant; portions admitted into evidence on March 12, 2002; March 13, 2002; June 4, 2002; and June 6, 2002.

EXHIBIT 37: Applicant's responses to CEC's April 2, 2001 and February 9, 2001 Data Requests (CEC 149, 99, 128-130, 132, 133, 140, 141, 144, 149, 150, 160, 161, 167, 168, 174, 186-226, and 229) on Air Quality, Alternatives, Cultural, Hazardous Materials, Land Use, Noise, Soil and Water, Transportation, Transmission, Visual Resources, dated April 24, 2001. Sponsored by Applicant; portions admitted into evidence on January 29, 2002; January 30, 2002; February 5, 2002; March 12, 2002; March 13, 2002; and June 4, 2002.

EXHIBIT 38: Applicant's responses to the March 9, 2001 Data Requests from Intervenor CAPE, dated April 24, 2001. Sponsored by Applicant; portions admitted into evidence on December 17, 2001; February 5, 2002; March 12, 2002, June 4, 2002; and June 6, 2002.

EXHIBIT 39: Not offered as evidence.

EXHIBIT 40: Not offered as evidence.

EXHIBIT 41: Not offered as evidence.

EXHIBIT 42: Letter from Nancy Matthews, Sierra Research, to Magdy Badr, CEC, Re: Cumulative Impact Analysis, dated May 2, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 43: Not offered as evidence.

EXHIBIT 44: Applicant's responses to March 9, 2001 Intervenor CAPE Data Requests (Air Quality Data Requests 67-108 and Data Requests 139, 150, 214, and 215), dated May 3, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002; March 12, 2002; and June 6, 2002.

EXHIBIT 45: Memo from Nancy Matthews, Sierra Research, to Gary Willey, SLOAPCD, Re: Health Risk Assessment, dated May 9, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 46: System Impact/Facilities Study for the Morro Bay Power Plant Modernization Project issued by PG&E on May 4, 2001 and docketed May 10, 2001. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 47: Applicant's responses to Outstanding Visual Data Requests (Michael Clayton Email of 4/30/01); Submittal of Figure 6.11-11A for CEC Data Responses 224; and Submittal of Draft Stormwater Prevention Plan; docketed May 8, 2001. Sponsored by Applicant; admitted into evidence on January 29, 2002; and March 13, 2002.

EXHIBIT 48: Letter dated May 11, 2001, from Jeffrey Miller, Cal ISO, to Robert Cochran, Duke Energy, regarding the Cal ISO's review of the System Impact/Facilities Study of the Morro Bay Modernization Project, dated May 4, 2001. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 49: Letter dated May 11, 2001, from Greg Fuz of the City of Morro Bay to Kae Lewis, CEC, enclosing a chart of Duke Energy Morro Bay Modernization Project's consistency with key City policies and regulations applicable to the project. Sponsored by Applicant; admitted into evidence on March 12, 2002; and March 13, 2002.

EXHIBIT 50: Letter dated May 14, 2001, from David H. Sulouff, Eleventh Cost Guard District, to Terry Huffman, Huffman-Broadway Group, discussing the proposed construction of a bridge across Morro Creek. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 51: Duke Energy Proposed Conditions of Certification related to the following set of topics: Worker Safety, Transportation, Cultural Resources, Geology, Civil Engineering, Hazardous Materials, Noise, Biology, Paleontology, Structural, Waste Management, Visual Resources, Soil & Water, General, and Electrical, docketed May 15, 2001. Sponsored by Applicant; portions admitted into evidence on December 17, 2001; January 29, 2002; January 30, 2002; March 13, 2002; and June 6, 2002.

EXHIBIT 52: Applicant's responses to Intervenor CAPE's April 23, 2001, Data Requests (288-290, 293-309, 310-39, 340-342, 343-353) on Air Quality, Project Description, Engineering, Marine Biology, Water Resources, Alternatives, and Noise, dated May 29, 2001. Sponsored by Applicant; portions admitted into evidence on January 30, 2002; February 5, 2002; March 12, 2002; and June 4, 2002.

EXHIBIT 53: Applicant's remaining Data Responses to CEC Staff related to Noise, Transmission System Engineering, Traffic & Transportation, Hazardous Materials, Project Description, Visual Resources, and Cultural Resources, Duke Energy, docketed May 29, 2001. Sponsored by Applicant; portions admitted into evidence on January 30, 2002; March 12, 2002; and March 13, 2002.

EXHIBIT 54: Not offered as evidence.

EXHIBIT 55: Letter from Sierra Research to Intervenor CAPE, Re: Comparison of Measured and Modeled Ambient Pollutant Concentrations, dated June 7, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 56: Final Morro Creek Flood Hazard Evaluation, prepared by WEST Consultants, Inc., dated June 12, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 57: Not offered as evidence.

EXHIBIT 58: Response to CEC Outstanding Visual Data Requests (132, 133, 141, 226, 168, 175), dated June 15, 2001, from Paul Curfman. Sponsored by Applicant; portions admitted into evidence with clarification on February 5, 2002; and March 13, 2002.

EXHIBIT 59: Letter Re: Construction Staging Areas at Camp San Luis Obispo, from California National Guard to the CEC, docketed June 19, 2001. Sponsored by Applicant; admitted into evidence on March 12, 2002; March 13, 2002; and June 4, 2002.

EXHIBIT 60: Not offered as evidence.

EXHIBIT 61: Not offered as evidence.

EXHIBIT 62: Not offered as evidence.

EXHIBIT 63: Not offered as evidence.

EXHIBIT 64: Not offered as evidence.

EXHIBIT 65: Memorandum dated July 11, 2001, from John Torrey, Duke Energy, to Kae Lewis, CEC, providing Ground Water Extraction Evaluations on the Morro Bay Power Plant Modernization Project, prepared by TRC. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 66: Morro Bay Power Plant Modernization Project 316(b) Resource Assessment Report, Tenera Environmental Services, dated July 10, 2001. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 67: Morro Bay Power Plant Historic Property Evaluation, submitted by Duke Energy & TRC on July 16, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 68: Not offered as evidence.

EXHIBIT 69: Not offered as evidence.

EXHIBIT 70: Applicant's responses to Data Requests on Noise, Vibration, Traffic and Transportation, Duke Energy, docketed July 26, 2001. Sponsored by Applicant; portions admitted into evidence on January 30, 2002.

EXHIBIT 71: Applicant's response to Technical Working Group – distribution of relevant information on the Gunderboom aquatic filter barrier intake technology and its biological effectiveness, distributed by Brian Waters, Duke Energy, on July 26, 2001. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 72: Not offered as evidence.

EXHIBIT 73: Applicant's response to Data Request Re: Hazardous Materials, docketed July 30, 2001. Sponsored by Applicant; admitted into evidence on January 29, 2002.

EXHIBIT 74: Applicant's responses to Data Requests: 1) Visual Resources and 2) Report on Construction worker Impacts, docketed July 31, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 75: Applicant's responses to Data Request for information on Offsite Satellite Parking Area prepared by TRC, dated August 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002; March 12, 2002, June 4, 2002.

EXHIBIT 76: Applicant's response to Data Request for information on Land Use, docketed August 1, 2001. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 77: Not offered as evidence.

EXHIBIT 78: Not offered as evidence.

EXHIBIT 79: Applicant's response to Data Request for Geotechnical Investigation, Perimeter Levees, dated August 8, 2001. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 80: Analysis of Potential Effects of Duke Energy Morro Bay, LLC Ground Water Pumping on Flows in Morro Creek, prepared by TRC, docketed August 8, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 81: Construction Access Schematic Road Improvements and Proposed Mixed-Use Path Alignment Schematic Plan, submitted by Applicant, dated August 9, 2001. Sponsored by Applicant; admitted into evidence on _____.

EXHIBIT 82: Morro Bay Planning Commission Resolution on "Dry Air" Cooling, dated August 9, 2001. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 83: Not offered as evidence.

EXHIBIT 84: Information items from Applicant – Report on Costs of Gunderboom Option, Duke Energy, docketed August 13, 2001. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 85: Not offered as evidence.

EXHIBIT 86: Not offered as evidence.

EXHIBIT 87: Various documents: 1) Morro Bay Power Plant Construction Staging Area at Camp San Luis Obispo California National Guard (00-AFC-12) Data Request Response; 2) Cultural Resources – Proposed Staging Area Map; 3) Four letters on Cultural issues at staging area; 4) 442 Page report on Camp SLO Cultural Resources Inventory; 5) 68 page report on Camp SLO Cultural Resources Inventory – Jones & Stokes; 6) 15 page report on Eligibility Determination Studies at select Cultural Resources at Camp SLO. Sponsored by Applicant; admitted into evidence on February 5, 2002; and March 12, 2002.

EXHIBIT 88: Applicant's revised Analysis of Air Quality Impacts During Demolition, docketed August 14, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 89: Confidential Filing. Archeological Testing Report for Tank Farm Area. Sponsored by Applicant; admitted into evidence on _____.

EXHIBIT 90: Applicant's PSA Comments, Set 1 – Air Quality, Cultural Resources, Hazardous Materials, Land Use, Noise, Socioeconomics, Waste Management, Facility Design, submitted by Ellison, Schneider & Harris, dated August 15, 2001. Sponsored by Applicant; portions admitted into evidence on January 29, 2002; January 30, 2002; February 5, 2002, and March 12, 2002.

EXHIBIT 91: Applicant's PSA Comments, Set 2 – Alternatives. Submitted by Ellison, Schneider & Harris, dated August 15, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 92: Applicant's PSA Comments, Set 3, on Biological/Marine Resources, Terrestrial Biology, Soil & Water, submitted by Ellison, Schneider & Harris, dated August 17, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 93: Revised Analysis of Air Quality Impacts During Construction, prepared by Sierra Research, docketed August 21, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 94: Not offered as evidence.

EXHIBIT 95: August 21, 2001 Agreement to Lease/Agreement Regarding Modernization of the Morro Bay Power Plant between the City and Duke Energy. Sponsored by Applicant; admitted into evidence on December 17, 2001; and March 13, 2002.

EXHIBIT 96: Morro Bay City Council Resolution #57-01 Regarding Alternative Cooling Methods Proposed for the MBPP, dated August 31, 2001. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 97: Not offered as evidence.

EXHIBIT 98: Not offered as evidence.

EXHIBIT 99: Not offered as evidence.

EXHIBIT 100: Not offered as evidence.

EXHIBIT 101: City's Response to Land Use Comments submitted by Duke on Morro Bay PSA, City of Morro Bay, dated September 21, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 102: Applicant's response to City of Morro Bay letter, dated September 21, 2001. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 103: Applicant's responses to CEC Committee Ruling Directing Duke Energy to Supply Information Re: Petition of Intervenor Regarding Data Requests 323, 324, 326, 327, 328, 332, 407, 408, and 409, Duke Energy, dated September 24, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 104: Data Request Responses: MBPP Construction Staging Areas at Camp SLO; Environmental Assessment; docketed September 24, 2001. Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 105: Not offered as evidence.

EXHIBIT 106: Not offered as evidence.

EXHIBIT 107: Technical Data in Response to Requests from the Aspen Group Related to Site Layout, Elevations, Equipment Sizes, Technical Data for Proposed Modernization, Air Cooled and Hybrid Condensing System, Duke Fluor Daniel, dated September 20, 2001 and docketed October 4, 2001. Sponsored by Applicant; admitted into evidence on _____.

EXHIBIT 108: Letter from PG&E to Romulo Barreno regarding Generator Special Facilities Agreement, dated October 16, 2001. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 109: Letter to Fire Chief Jones from Duke Energy, dated October 17, 2001. Sponsored by Applicant; admitted into evidence on January 29, 2002.

EXHIBIT 110: Applicant's Project Description Modifications, Conceptual Plan – Response to City of Morro Bay, dated October 18, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 4, 2002.

EXHIBIT 111: Not offered as evidence.

EXHIBIT 112: Not offered as evidence.

EXHIBIT 113: Not offered as evidence.

EXHIBIT 114: Supplementary Filling: Informational Package for Exhibits Prepared for the November 5th Workshop, submitted by Duke Energy, November 14, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 115: Final Staff Assessment, Part 1 (November 2001). Sponsored by Staff; portions admitted into evidence on December 17, 2001; January 29, 2002; January 30, 2002; January 31, 2002; and, March 14, 2002.

EXHIBIT 116: Errata to Final Staff Assessment, Part 1 (including resumes), dated December 11, 2001. Sponsored by Staff; portions admitted into evidence on December 17, 2001; January 29, 2002; January 31, 2002.

EXHIBIT 117: Applicant's testimony on Group I issues, dated December 11, 2001. Sponsored by Applicant; admitted into evidence on December 17, 2001.

EXHIBIT 118: Prepared testimony of Rick Algert on behalf of Intervenor City of Morro Bay, dated December 11, 2001. Sponsored by Intervenor City; admitted into evidence on December 17, 2001.

EXHIBIT 119: Prepared testimony of Robert Schultz on behalf of Intervenor City of Morro Bay, dated December 11, 2001. Sponsored by Intervenor City; admitted into evidence on December 17, 2001.

EXHIBIT 120: Transmission System Reliability testimony from California Independent System Operator, dated November 15, 2001. Sponsored by Staff; admitted into evidence on December 17, 2001.

EXHIBIT 121: Declaration of Brian Stacy re: compliance matters, submitted as part of Intervenor CAPE's Group I testimony dated December 10, 2001. Sponsored by Intervenor CAPE; admitted into evidence on December 17, 2001.

EXHIBIT 122: Declaration of Jack McCurdy (including FERC policy and five attached newspaper articles), submitted as part of Intervenor CAPE's Group I testimony dated December 10, 2001. Sponsored by Intervenor CAPE; admitted into evidence on December 17, 2001.

EXHIBIT 123: Declaration of Don Boatman re: transmission issues, submitted as part of Intervenor CAPE's Group I testimony dated December 10, 2001. Sponsored by Intervenor CAPE; admitted into evidence on December 17, 2001.

EXHIBIT 124: Erratum and Additional Testimony to Final Staff Assessment, Part 1, dated December 14, 2001. Sponsored by Staff; admitted into evidence on December 17, 2001.

EXHIBIT 125: Applicant's Prehearing Conference Statement dated November 26, 2001. Sponsored by Applicant; admitted into evidence on January 29, 2002; February 5, 2002; March 13, 2002; and June 6, 2002.

EXHIBIT 126: Letter from Gary Rubenstein, Sierra Research, to Robert Carr, SLOCAPCD, regarding voluntary surrender of surplus SOx emissions reduction credits, dated May 3, 2001. (Docketed 1/10/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 127: Letter from Nancy Matthews, Sierra Research, to David Nelson, CAPE, Re: Data Request #108 and transmittal of two reports, dated May 3, 2001. (Docketed 1/10/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 128: Letter dated June 14, 2001 from Sierra Research to SLOCAPCD re: short-term ambient NO_2 impacts during turbine startup. (Docketed 1/10/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 129: Letter dated June 14, 2001 from Sierra Research to SLOCAPCD re: comments on Preliminary Determination of Compliance. (Docketed 1/10/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 130: Memo from Gary Rubenstein, Sierra Research, to Larry Allen, SLOCAPCD, Re: Proposed Modeling Assumptions for Refined Analysis of Construction and Demolition Emissions, dated June 19, 2001. (Docketed 1/10/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 131: Not offered as evidence.

EXHIBIT 132: Gibson, Robert O. "Ethnogeography of the Salinan People." Master Thesis, California State University, Hayward. 1983. (Docketed 1/16/02.) Sponsored by Applicant; admitted into evidence on February 5, 2002.

EXHIBIT 133: Same as Exhibit 75.

EXHIBIT 134: Prefiled Testimony of Applicant, filed on January 15, 2002, entitled "Applicants Testimony on Group II Issues." Sponsored by Applicant; portions admitted into evidence on January 30, 2002.

EXHIBIT 135: Testimony of John Rohrer. Sponsored by Intervenor City of Morro Bay; admitted into evidence on January 29, 2002.

EXHIBIT 136: Corrections to Hazardous Materials Management Testimony and Technical Appendix, docketed January 22, 2002. Marked for identification only. Received into evidence on March 12, 2002.

EXHIBIT 137: Testimony of Jeff Jones Re: Hazardous Materials, Worker Safety and Fire. Sponsored by Intervenor City of Morro Bay; admitted into evidence on January 29, 2002.

EXHIBIT 138: Testimony of Robert W. Schultz on behalf of the City of Morro Bay Re: Traffic and Transportation. Submitted by Intervenor City of Morro Bay; admitted into evidence on January 30, 2002.

EXHIBIT 139: Prefiled Testimony on Traffic and Transportation, Air Quality, and Public Health, offered by Intervenor Coastal Alliance on Plant Expansion on Group II Topics and Sponsored Exhibits. Submitted by Coastal Alliance on Plant Expansion; portions admitted into evidence on January 30, 2002; February 6, 2002; March 12, 2002.

EXHIBIT 140: Testimony of Robert W. Schultz on behalf of City of Morro Bay Re Socioeconomics. Submitted by Intervenor City of Morro Bay; admitted into evidence on January 31, 2002.

EXHIBIT 141: Testimony of Clay Allen Singer (C. A. Singer and Associates) on Cultural Resources on behalf of the San Luis Obispo County Chumash Council (SLOCCC). Submitted by the SLOCCC; admitted into evidence on February 5, 2002.

EXHIBIT 142: Declaration of John W. Burch. Submitted by Intervenor Ms. Patty Dunton; admitted into evidence on February 5, 2002.

EXHIBIT 143: Staff Final Staff Assessment (FSA) - Part 2. Submitted by Staff; portions admitted into evidence on February 5, 2002; and, March 13, 2002. Topics: Cultural Resources, Land Use, Soil and Water, Preparation Team List, Declarations and Resumes

EXHIBIT 144: Staff's Response to Applicant's Motion to Amend the Schedule and Errata to Cultural Resources Testimony. Attachment B to Staff Response to Applicants Motion, docketed January 24, 2002. Sponsored by Staff; admitted into evidence on February 5, 2002.

EXHIBIT 145: Letter from Robert M. Wood, Native American Heritage Commission, to Dorothy Torres. Letter of Primary Concerns and Comments, docketed 3/26/01. Sponsored by Staff; admitted into evidence on February 5, 2002.

EXHIBIT 146: Letter from Robert M. Wood, Native American Heritage Commission, to Dorothy Torres. Comments on Preliminary Staff Assessment, docketed 10/5/01. Sponsored by Staff; admitted into evidence on February 5, 2002.

EXHIBIT 147: Document entitled "Sources of Uncertainty When Measuring Particulate Matter emissions from Natural Gas-Fired Combustion Turbines," authored by Gary Rubenstein, Sierra Research, and presented to the Air and Waste Management Association on March 30, 2001. Sponsored by Intervenor Coastal Alliance on Plant Expansion (CAPE); marked for identification on February 6, 2002.

EXHIBIT 148: Information Items Due from Applicant – Soil & Water Resources. Docketed August 8, 2001 (Docket Transaction No: 21,793). Sponsored by Applicant; portions admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 149: Draft Storm Water Pollution Prevention Plan for Construction of Morro Bay Power Plant Modernization. Docketed June 18, 2001 (Docket Transaction No.: 20,972). Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 150: Letter from Roger Briggs (CRWQCB) to William Keese (CEC), dated August 13, 2001 re: Status Regarding National Pollutant Discharge Elimination System Permit for Duke Energy and Request for Site Specific California Environmental Quality Act (CEQA) Alternatives Analysis (Docket Transaction No.: 21,880). Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 151: Federal Emergency Management Agency, Flood Insurance Study for City of Morro Bay California, and Federal Insurance Rate Map, dated November 1, 1985. (Docketed on February 20, 2002). Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 152: Draft Storm Water Pollution Prevention Plan for the Offsite Construction of Staging Areas Associated with the Morro Bay Power Plant Modernization, Morro Bay California, November, 2001. Docketed November 21, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 4, 2002.

EXHIBIT 153: Draft Storm Water Pollution Prevention Plan for Construction of a Satellite Offsite Parking Area Associated with the Morro Bay Power Plant Modernization, Morro Bay California, November, 2001. Docketed November 21, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 4, 2002.

EXHIBIT 154: Duke Energy's Responses to CEC November 6, 2001 Data Requests, dated November 21, 2001. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 155: Letter from the City of Morro Bay to the CEC, dated April 20, 2001 re: initial comments on land use consistency issues concerning Duke Energy proposal to construct a new power plant. Includes Sheppard Mullen April 16, 2001 letter as an Appendix (Docket Transaction No.: 20,108). Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 156: Letter from David J. Castanon, Chief, North Coast Section, Department of the Army, Los Angeles District, Corps of Engineers, Ventura Field Office to the Huffman-Broadway Group, Inc., dated September 6, 2001. The letter was submitted as Attachment 13 of the Final Biological Assessment for submission to the U.S. Fish and Wildlife Service and National Marine Fisheries Service, Duke Energy Morro Bay Power Plant Modernization Project, prepared by the Huffman-Broadway Group, Inc., dated November, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 157: Applicant's Conceptual Plan – Management of Soil/Groundwater during Demolition Activities, dated October 18, 2001 (Docket Transaction No.: 22,747 and 22,748). Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 158: E-mail message from Geoff Pratt of ARB, Inc., drilling contractors to Al Heep of Duke-Fluor Daniel providing information related to the boring of the gas pipeline and providing a proposed crossing profile (e-mail dated August 15, 2001). Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 159: Duke Energy's Comments on "Cooling Water Intake Analysis, Duke Power Plant - Morro Bay" by Peter Wagner, Docketed December 11, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 160: Morro Bay Power Plant Modernization Project Thermal Discharge Assessment Report, Docketed July 2, 2001 (Docket Transaction No.: 21,294). Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 161: The California Environmental Quality Act Application to Morro Bay Power Plant Modernization Project Cooling Water Intake Structure, Docketed January 7, 2002. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 162: Same as Exhibit 47.

EXHIBIT 163: June 7, 2001 Power Point show presented in Visual Workshop. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 164: Exhibits prepared by Duke Energy for the November 5, 2001 Workshop, Docketed November 9, 2001 (Docket Transaction No.: 23,039). Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 6, 2002.

EXHIBIT 165: Letter dated November 20, 2001, from Andy Trump, Duke, to Peter Douglas, California Coastal Commission, regarding CCC's visual concerns about the MBPP Modernization Project. Docketed on November 28, 2001 by Ellison, Schneider & Harris. Cover letter from Chris Ellison to Andy Trump attached. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 166: Visual Analysis of Full Enclosure of MBPP, Docketed January 2, 2002. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 167: Duke Energy – Updated Analysis of Alternative Cooling Systems for the Morro Bay Modernization Project, dated January 7, 2002. Only sections pertaining to Visual Impacts. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 168: Duke Energy Morro Bay LLC's comments on Draft Appendix A: Morro Bay Power Plant Cooling Options Report, dated February 15, 2002. Only sections pertaining to Visual Impacts. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 169: Portion of Exhibit 37.

EXHIBIT 170: Draft Storm Water Pollution Prevention Plan for Construction of Morro Bay Power Plant Modernization, Morro Bay California, dated November, 2001. Docketed November 21, 2001. Sponsored by Applicant; admitted into evidence on March 13, 2002; and June 4, 2002.

EXHIBIT 171: Hydrazidine vs. Carbohydrazide. Testimony of Alvin Greenberg, Ph.D. Docketed March 5, 2002. Sponsored by Staff; admitted into evidence on March 12, 2002.

EXHIBIT 172: Soil and Water Resources – Revision. Testimony of Joe Crea, Dominique Brocard, Jack Buckley, Jim Henneforth, Jim Thurber and Mike Krolak. Docketed on March 5, 2002. Sponsored by Staff; admitted into evidence on March 13, 2002.

EXHIBIT 173: Testimony of Robert W. Schultz re: Land Use Issues. Docketed on February 27, 2002. Sponsored by the City of Morro Bay; admitted into evidence on March 13, 2002.

EXHIBIT 174: Prefiled Testimony of Jon Rohrer re: Soil and Water Resources. Docketed on February 27, 2002. Sponsored by the City of Morro Bay; admitted into evidence on March 13, 2002.

EXHIBIT 175: Soil and Water Resources. Testimony of Peter Wagner, Ph.D., dated February 26, 2002. Sponsored by Intervenor CAPE; admitted into evidence on March 13, 2002.

EXHIBIT 176: TRC letter to Kae Lewis. Transmittal Information on Carbohydrazide vs. Hydrazine filed by Applicant on February 15, 2002. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 177: Prefiled Testimony: Soil and Water Resources, of witness Robert C. Mason. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 178: Investigation of Artifacts in Condensable Particulate Measurements for Stationary Combustion Source. Sponsored by Intervenor CAPE; admitted into evidence on March 12, 2002.

EXHIBIT 179: CAPE Compendium of AFC's Western Midway Sunset, Elk Hills, and Sunrise Cogeneration Power Projects. Vol. 3, Appendices N-X marked for identification; admitted into evidence on March 12, 2002.

EXHIBIT 180: Emission Test Report for Emission Compliance of 2 General Electric Frame 7EA Turbines at the Frontera Generation Facility in Hildago, Texas. Previously offered. Sponsored by Intervenor CAPE; admitted into evidence on March 12, 2002.

EXHIBIT 181: PM 2.5 Test Goals. Power Point Presentation from CAPE. Offered by CAPE; marked for identification. Sponsored by Intervenor CAPE; admitted into evidence on March 12, 2002.

EXHIBIT 182: Modeling the Benefits of Power Plant Emission Controls in Massachusetts. Marked for identification. Offered by CAPE; admitted into evidence on March 12, 2002.

EXHIBIT 183: Lung Cancer Cardiopulmonary Mortality and Long-Term Exposure to Fine Particulate Air Pollution by C. Arden Pope III. March 6, 2002, Vol. 287, No. 9. Marked for Identification. Offered by CAPE; admitted into evidence on March 12, 2002.

EXHIBIT 184: Review of California Ambient Air Quality Standards for Particulate Matter on Sulfates Report to the Air Quality Advisory Council, dated November 30, 2001. Marked for identification. Sponsored by staff; admitted into evidence on March 12, 2002.

EXHIBIT 185: Duke Energy's Land Use Testimony. Witnesses – Marckwald, Van Buskirk, Paul Curfman, Ferber, Mason, and parts of others. Sponsored by Applicant; admitted into evidence on March 12, 2002.

EXHIBIT 186: Bar Graphic of Morro Bay Power Plant Flow Comparison (MGD). Sponsored by Applicant; admitted into evidence March 13, 2002; and June 6, 2002.

EXHIBIT 187: Memo from the California Regional Water Quality Control Board, Central Coast Region "Duke Energy Morro Bay Power Plant Cooling Water Flow Rates", dated March 11, 2002. Submitted by Applicant, Official Notice of Agency on March 13, 2002; and June 6, 2002.

EXHIBIT 188: Table 2-1. Comparison of Generating Loads, Discharge Flows, Temperatures, etc. Sponsored by Intervenor CAPE; admitted into evidence on March 13, 2002.

EXHIBIT 189: Cooling Water Intake Analysis – Duke Energy Morro Bay. Rebuttal of D. Wagner Test on Soil and Water. Sponsored by Intervenor CAPE; admitted into evidence on March 13, 2002.

EXHIBIT 190: Enlargement of Figure 1-3 of AFC, example 4, showing location of Morro Bay wells. Offered by the City of Morro Bay on March 13, 2002.

EXHIBIT 191: Duke Energy's Visual Resources Testimony of David Blau, Paul Curfman, Jeff Ferber, and Russell Poquette. Sponsored by Applicant; admitted into evidence on March 13, 2002.

EXHIBIT 192: City of Morro Bay Resolution No. 72-01, dated November 13, 2001. Sponsored by Intervenor City of Morro Bay; marked for identification on March 14, 2002.

EXHIBIT 193: Minutes of the November 13, 2001 City Council Meeting. Review of Visual and Aesthetic Issues regarding the MBPP. Marked for identification on March 14, 2002.

EXHIBIT 194: Staff Supplemental Visual Resources Testimony, dated February 14, 2002. Sponsored by Staff; admitted into evidence on March 14, 2002.

EXHIBIT 195: Applicant's Direct Testimony on Alternatives. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 196: Duke's Evaluation of Alternative Sites Identified by CEC Staff Morro Bay Power Plant Modernization Project - docketed on April 17, 2002 (Docket #25,333). Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 197: Final Staff Assessment, Part 3 (April 2002). Sponsored by Staff; portions admitted into evidence on June 4, 2002, June 4, 2002, and June 6, 2002.

EXHIBIT 198: Staff's Rebuttal Testimony. Sponsored by Staff; portions admitted into evidence on June 4, 2002, June 4, 2002, and June 6, 2002.

EXHIBIT 199: Applicant's Errata to Direct Testimony on Terrestrial Biology. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 200A: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Mr. Naficy. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200B: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Wagner and Laurie. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200C: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Dr. Stephens. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200D: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Henderson on FSA Part IV, Marine Biology. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200E: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Powers Testimony on Cooling Options Technologies. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200F: Applicant's Rebuttal Testimony to CAPE – Rebuttal to Henderson Testimony on Gunderboom. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 200G: Applicant's Rebuttal Testimony to the City of Morro Bay. Sponsored by Applicant; Admitted into evidence on June 6, 2002.

EXHIBIT 201: Addendum to March 29,2001 letter report from Brian Walton, Predatory Bird Research Group, University of California, Santa Cruz, to the Huffman-Broadway Group, dated June 6, 2001, regarding peregrine falcons. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 202: Responses to California Energy Commission November 6,2001 Data Requests on Project Modifications, Dated October 19,2001, Biological Resources Section only. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 203: Final Biological Assessment for Submission to the United States Fish and Wildlife Service and National Marine Fisheries Service, Duke Energy Morro Bay Power Plant Modernization Project, prepared by the Huffman-Broadway Group, Inc., November 2001. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 204: Letter to Ms. Diane Noda, U.S. Fish and Wildlife Service from the Huffman Broadway Group, March 6, 2002, submitting additional data. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 205: Letter and attachments to Mr. Mark Sims, U.S Environmental Protection Agency, dated December 6, 2001, transmitting Attachments 16,17, 18,19,20,29 of the Final Biological Assessment. (Coastal Dune Restoration Plan, Stream Protection Plan, Schematic Planting Plan and Plant Species List, O'Connor Way Culvert Improvement Assessment, Draft Storm Water Pollution Prevention Plan for MBPP Modernization, Draft Biological Resources Mitigation Implementation and Monitoring Plan). Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 206: Stream Protection Plan Associated with the Morro Bay Power Plant Modernization Project, Morro Bay, California, The Huffman-Broadway Group, Inc. November 2001 [Docket No. 23258]. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 207: Coastal Dune Restoration Plan, Duke Energy Morro Bay Power Plant Modernization Project, The Huffman-Broadway Group, Inc. November 2001 [Docket No. 23245]. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 208: Letter to Mr. Richard Anderson from Terry Huffman of the Huffman-Broadway Group, re: Morro Bay Power Plant Modernization Project (dated April 4, 2002) transmitting calculation of acreage of riparian habitat within 150' of MBPP and acreage of wooded area between plant and boatyard. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 209: Wildlife Surveys for Burrowing Owl, California Horned Lizard, Western Spadefoot Toad, Coast Range Newt, Two-striped garter Snake and Western Pond Turtle, January to August, 2001, Morro Bay Power Plant, Morro Bay, Ca, Frances Villablanca, Ph.D., October 15, 2001. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 210: Addendum to Wildlife Surveys for Burrowing Owl, California Horned Lizard, Western Spadefoot Toad, Coast Range Newt, Two-striped Garter Snake and Western Pond Turtle, January to August, 2001, Morro Bay Power Plant, Morro Bay, CA, Francis Villablanca, Ph.D., April 19, 2002. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 211: Morro Shoulderband Snail Survey Results for Camp San Luis Obispo and Surrounding Areas, Morro Group, April 8, 2002. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 212: Morro Shoulderband Snail Initial Study, Montana de Oro State Park and the Elfin Forest, Final Report, Prepared by Adams, Mary S,. E. Reeves, V.L. Holland, T Richards, June 2000. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 213: Habitat and Distribution of the Morro Shoulderband Snail, *Helminthoglypta walkeriana*, , Final Report prepared for the California Department of Parks and Recreation, E. Reeves, May 2000. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 214: Monarch Butterfly Winter Roosting Habitat Evaluation, Duke Energy's Morro Bay Power Plant, Morro Bay, CA, Entomological Consulting Services, Ltd., January 23, 2002. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 215: Rare Plant Survey, Morro Bay Power Plant, Morro Bay CA, V.L. Holland, Ph.D., August 30,2001. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 216: Report on Status Surveys and Habitat Assessment for Four Sensitive Invertebrates, Duke Energy Power Plant in Morro Bay, CA, Entomological Consulting Services, Ltd., November 27,2001. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 217: California Red-legged Frog Survey and Habitat Assessment Report for Morro Creek, San Luis Obispo County, CA, Julie Schneider, Small Planet Environmental Consulting Institute, August 23,2000. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 218: Camp San Luis Obispo Training Site, San Luis Obispo County CA, Integrated Natural Resources Management Plan, Draft II, December 2000 For Plan Period FY 2002-2006, California Army National Guard. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 219: Aerial photo of portion of Camp San Luis Obispo showing locations of sensitive plant species, Source: California Army National Guard. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 220: Same as Exhibit 158.

EXHIBIT 221: Updated Morro shoulderband snail survey results for Camp San Luis Obispo, Morro Bay Power Plant and the proposed San Bernardo Creek Road Satellite Parking Area, Morro Group, Inc., April 29, 2002. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 222: Letter to Carol Tyson, U.S. Fish and Wildlife Service, from The Huffman-Broadway Group, Inc., dated December 13, 2001, Endangered Species Act Section 7 Consultation for the Morro Bay Power Plant Modernization Project [Docket No. 23482]. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 223: Letter to Mr. Rodney McInnis, National Marine Fisheries Service, from The Huffman-Broadway Group, Inc., dated February 28, 2002, responding to request for additional information (flows in Morro Creek). Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 224: J. Lilien, Personal Communication with Mr. Vincent Cicero Regarding Western Snowy Plover Nesting on Southern Morro Strand Beach. May 9, 2002, Memorandum to the File. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 225: J. Lilien Personal Communication with Dr. Antony Orme Regarding the Effects of Construction Access Road on Sand Transport. May 9, 2002 Memorandum to the File. Sponsored by Applicant; admitted into evidence on June 4, 2002.

EXHIBIT 226: City of Morro Bay Local Coastal Land Use Plan. Sponsored by City of Morro Bay; admitted into evidence on June 4, 2002.

EXHIBIT 227: City of Morro Bay Certified Zoning Map. Sponsored by City of Morro Bay; admitted into evidence on June 4, 2002.

EXHIBIT 228: Applicant's Direct Testimony on Aquatic Biological Resources, Appendix D, Response to the California Energy Commission Staff's Appendix A: Morro Bay Power Plant Cooling Options Report. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 229: Blank.

EXHIBIT 230: Morro Bay Power Plant Project (00-AFC-12) – Ambient Air Temperature Study. Dated May 28, 2002. Sponsored by Staff; admitted into evidence on June 5, 2002.

EXHIBIT 231: Staff Report entitled "Morro Bay Cooling System Modifications Visual Analysis. Prepared by Michael Clayton. Dated April 4, 2002. Sponsored by Staff; admitted into evidence on June 5, 2002.

EXHIBIT 232: PowerPoint Presentation on Alternative Cooling Options used by Applicant during Group 4 Hearing in Morro Bay. Sponsored by Applicant; admitted into evidence on June 5, 2002.

EXHIBIT 233: Testimony on Cooling Options for Proposed Morro Bay Power Plant offered by Bill Powers on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 5, 2002.

EXHIBIT 234: Direct Testimony Offered by Intervenor CAPE on Group IV Topics and Sponsored Exhibits prepared by Babak Naficy. Sponsored by Intervenor CAPE; admitted into evidence on June 5, 2002.

EXHIBIT 235: Rebuttal Testimony Offered by Intervenors CAPE, prepared by Babak Naficy. Sponsored by Intervenor CAPE; admitted into evidence on June 5, 2002.

EXHIBIT 236: Staff's Response to interrogatories from CAPE on Air Quality. Dated September 13, 2001. Sponsored by Intervenor CAPE; admitted into evidence on June 5, 2002.

EXHIBIT 237: Copy of Brochure entitled Particulate Matter Air Pollution. Dated January 1997. Sponsored by Intervenor CAPE; admitted into evidence on June 5, 2002.

EXHIBIT 238: Testimony of Bill Dohn on behalf of the City of Morro Bay in regard to Aquatic Biological Resources Appendix "A". Sponsored by City of Morro Bay; admitted into evidence on June 5, 2002.

EXHIBIT 239: Testimony of Robert W. Shultz on behalf of the City of Morro Bay in regard to Aquatic Biological Resources Appendix "A". Sponsored by City of Morro Bay; admitted into evidence on June 5, 2002.

EXHIBIT 240: Testimony of Gary R. Clay. Ph.D. on behalf of the City of Morro Bay in regard to Aquatic Biological Resources Appendix "A". Sponsored by City of Morro Bay; admitted into evidence on June 5, 2002.

EXHIBIT 241: Rebuttal Testimony of Gary R. Clay. Ph.D. on behalf of the City of Morro Bay in regard to Aquatic Biological Resources Appendix "A". Sponsored by City of Morro Bay; admitted into evidence on June 5, 2002.

EXHIBIT 242: Planning Commission Resolution 01-01. Sponsored by City of Morro Bay; admitted into evidence on June 5, 2002.

EXHIBIT 243: June 29, 2001, Letter to Roger Briggs from Wayne Hoffman Re: Morro Bay Power Plant Thermal Discharge (Docket # 21,297). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 244: Letter dated September 11, 2001, from Jeff Harris (Duke Energy) to Roger Briggs (CCRWQCB) regarding the August 16, 2001 Status Conference meeting with Mr. Hubner re Site Specific CEQA Analysis & NPDES Permit Schedule. (Docket # 22,463). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 245: Letter from Chris Ellison to CEC Docket Re: Proposed Marine Biology Conditions for Morro Bay Power Plant Modernization (MBPP). (Contains 8 Conditions and chart showing relationship between entrainment and habitat enhancement funding), November 21, 2001. (Docket # 23,153). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 246: Letter dated November 27, 2001, from Wayne Hoffman (Duke Energy) to Roger Briggs (CCRWQCB) RE: Proposed Marine Biology Conditions of Certification for MBPP Modernization. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 247: Duke Energy Comments on Letter "MBPP NPDES Permit" by Tom Laurie, dated December 21, 2001. (Docket # 23,642, #23,700). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 248: Duke Energy – January 24, 2002 Letter from Andrew Trump (Duke Energy) to Paul Richins (CEC) and Roger Briggs (CCRWQCB) RE: Preliminary Evaluation of CEC and Tetra Tech Alternative Cooling Reports. (Docket # 24179). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 249: Letter dated February 15, 2002, from Andrew McCuster (Gunderboom) to Kae Lewis (CEC) providing review of CEC Staff's Draft Power Plant Cooling Options Report. (Docket # 24,627). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 250: Letter dated February 18, 2002, from Bob Dove (Gunderboom) to Kae Lewis (CEC) summarizing the effectiveness of Gunderboom's MLES technology. (Docket # 24,731). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 251: Intervenor City of Morro Bay's Staff Report and Resolution 20-02 RE: Findings in Opposition to the California Energy Commission's Draft Power Plant Cooling Options Report for the MBPP Project. Dated March 11, 2002. (Docket # 24,985). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 252: Assessment of Intervenor Arguments vs. Gunderboom MLES Technology for the Proposed Bowline Unit 3 Project. (Docketed 3/12/02). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 253: Letter dated March 13, 2002, from Andrew Trump (Duke Energy) to Roger Briggs (CCRWQCB) RE: NPDES Permit- Habitat Enhancement Program Proposal. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 254: Duke Energy's presentation at the March 20, 2002 workshop (Docket # 25,469). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 255: Transmittal dated March 29, 2002, from Marc Pryor (CEC) to docket containing an unsolicited submittal from a representative of Gunderboom Inc. enclosing a March 29, 2002 State of New York Decision on BTA for the NY State Pollutant Discharge Elimination System permit for Mirant Bowline, LLC's Bowline Power Plant. (Docket # 25,084). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 256: Letter dated April 4, 2002, from Andrew Trump (Duke Energy) to Roger Briggs (CCRWQCB) RE: MBPP Modernization Project NPDES Permit-Habitat Enhancement Program Proposal. (Docket # 25,207). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 257: Entrainment Mortality and the Morro Bay Power Plant Modernization Project: Technical Comments and Ecological Context, Jim Cowan, April 9, 2000 (Docket # 25,264). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 258: MBPP, Summary of Morro Bay Circulation Issues, Prof. David Jay, April, 2002 (Docketed, April 18, 2002). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 259: Larval Entrainment Impacts of the Morro Bay Power Plant: Distinguishing Total Intake Flow (TIF) and Effective Incremental Intake Flow (EIIF), Prof. David Jay, April, 2002 (Docketed April 18, 2002). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 260: Letter dated May 1, 2002, from Andrew Trump (Duke Energy) to Roger Briggs (CCRWQCB) and Steve Larson (CEC) RE: Morro Bay Power Plant Modernization Project NPDES Permit – Habitat Enhancement Program Proposal. (Docket # 25,478). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 261: Turning the Tide, Executive Summary, Comprehensive Conservation and Management Plan. MBNEP, July 2000 (Docketed May 10, 2002).

EXHIBIT 262: Nearshore Fishery Management Plan (NFMP) California Department of Fish & Game, 2002, Figure 2.2-2, October 9, 2001 (Docketed May 10, 2002). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 263: April 6, 2001 NPDES permit application amendment, Duke Energy (Docketed May 10, 2002). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 264: Habitat Characterization and Assessment Study. Prepared for MBNEP by Tetra Tech, March 10, 1999 (Docketed May 13, 2002). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 265: Letter dated September 17, 2001 from Roger Briggs (CCRWQCB) to William Keese (CEC) RE: Duke Energy Morro Bay Power Plant Project: Site Specific CEQA Analysis and NPDES Permit Schedule. (Docket #22,397). Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 266: Applicant's Direct Testimony on Aquatic Biological Resources (Marine and Estuarine Resources. Dated May 13, 2002. Includes Appendix A – Resumes; Appendix B – Exhibit List; and Appendix C – LORS. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 267: Staff Report prepared by the Central Coast Regional Water Quality Control Board Staff entitled "Status Report on Duke Energy's Proposal to Modernize the Morro Bay Power Plant and Renew their NPDES permit. Request for Direction from the Regional Board." Dated May 9, 2002. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 268: Letter from Andrew Trump (Duke Energy) to Roger Briggs (CCRWQCB) Re: Information for the Board and containing information on proposed Habitat Enhancement Program. Dated May 23, 2002 and contained as attachment to Applicant's Rebuttal Testimony to CAPE. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 269: Applicant's Rebuttal Testimony to CCRWQCB Staff Report (Exhibit 267). Contained as attachment to Applicant's Rebuttal Testimony to CAPE. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 270: Applicant's PowerPoint Presentation Water Resources (Mayer and Cowan) used during June 6, 2002 hearings in Morro Bay. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 271: Applicant's Map with grid depicting MBPP site. Map and Grid were used during Group 4 hearing on alternative cooling technologies. Sponsored by Applicant; admitted into evidence on June 6, 2002.

EXHIBIT 272: Review of Dr. James Cowan's Report for Duke Energy, titled "Entrainment Mortality and the Morro Bay Power Plant Modernization Project: Technical Comments and Ecological Context" by Dr. Peter Raimondi, Ph.D., University of Santa Cruz, dated May 21, 2002. Sponsored by Staff; admitted into evidence on June 6, 2002.

EXHIBIT 273A: PowerPoint presentation used by Dr. Raimondi: Estimation of Impacts Due to Use of Cooling Water at Morro Bay Power Plant Entrainment. Sponsored by Staff; admitted into evidence on June 6, 2002.

EXHIBIT 273B: PowerPoint presentation used by Dr. Raimondi Main Disagreements with the Duke-Cowan Report. Sponsored by Staff; admitted into evidence on June 6, 2002.

EXHIBIT 274: Testimony of Peter Wagner, Ph.D. and Tom Laurie on FSA Part IV, Aquatic Biological Resources, on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 275: Testimony and Comments of Dr. Stephens, Jr. Ph.D. Regarding the MBPP on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 276: Testimony of Dr. Peter Henderson on FSA Part IV, Marine Biology on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 277: **"**Comments on applicant's testimony on group IV issues to the Energy Resources Conservation and Development Commission" by P.A. Henderson, Pisces Conservation Ltd. Dated May 27, 2002. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 278: Rebuttal Testimony of Peter Wagner on Duke Energy Morro Bay LLC, Aquatic Biological Resources Testimony. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 279: Testimony of Dr. Peter Henderson on Gunderboom (99-F-1164) on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 280: "The use and abuse of density-dependent models for the assessment of the impact of power station cooling water intakes on fish populations" dated February 2001. Prepared by Dr. P.A. Henderson. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 281: Letter dated May 11, 2002, from Joseph Giannini to CEC providing personal experience with Morro Bay. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 282: "Observations of Biodiversity and Abundance in Morro Bay Estuary June 1981 – May 2002" by Richard F. Smith, Ph.D. on behalf of Intervenor CAPE. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 283: "Gunderboom Fouling Studies in Bowline Pond – July 2001" by P.A. Henderson et al, Pisces Conservation Ltd. Sponsored by Intervenor CAPE; admitted into evidence on June 6, 2002.

EXHIBIT 284: CCMP for Morro Bay. Sponsored by the City of Morro Bay; admitted into evidence on June 6, 2002.

EXHIBIT 285: Letter from Mr. Robert C. Mason, Vice President of Planning and Development at TRC dated August 8, 2001.

EXHIBIT 286: Duke Energy Testimony regarding its Habitat Enhancement Program. Dated August 30, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 287: Habitat Enhancement Program and Attachments. Dated August 30, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 288: Morro Bay Sedimentation: Historical Changes & Sediment Management Opportunities to Extend the Life of the Bay. Philip Williams & Associates, LTD. Dated August 20, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 289: Duke's Response to CAPE's July 15, 2002 Data Request on Habitat Enhancement Program. Dated August 30, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 290: Duke's Response to CEC's July 15, 2002 Data Request on HEP/AFB. Dated August 30, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 291: Letter dated July 1, 2002, from Andy Trump (Duke Energy) to William Keese (CEC) RE: Morro Bay Power Plant Habitat Enhancement Proposal. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 292: Letter dated April 24, 2002, from Wayne Hoffman (Duke Energy) to Roger Briggs (CCRWQCB) RE: Status Report on Habitat Equivalency Analysis. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 293: Staff Report prepared by the Central Coast Regional Water Quality Control Board Staff entitled "Status Report on Duke Energy's Proposal to Modernize the Morro Bay Power Plant and Renew their NPDES permit." Dated November 6, 2001. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 294: Letter dated October 26, 2001, from Andy Trump (Duke Energy) to Roger Briggs, (CRWQCB) discussing timing and BTA issues, and funding for a reasonable HEP. (Docket # 22,904) Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 295: Letter dated August 31, 2001 from Roger Briggs (CCRWQCB) to Assemblymember Maldonado and Senator O'Connell Re: Duke Energy Morro Bay Power Plant Modernization Project. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 296: Staff Report prepared by the Central Coast Regional Water Quality Control Board Staff entitled "Status Report for Workshop Regarding Duke Energy's Proposal to Modernize the Morro Bay Power Plant and Renew their NPDES permit." Dated July 6, 2001. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 297: Staff Report prepared by the Central Coast Regional Water Quality Control Board Staff entitled "Status Report for Workshop Regarding Duke Energy's Proposal to Modernize the Morro Bay Power Plant and Renew their NPDES permit." Dated May 23, 2001. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 298: Duke Energy Testimony in Rebuttal to CEC Staff Regarding the Habitat Enhancement Program. Dated October 7, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 299: California Regional Water Quality Control Board, Central Coast Region, Resolution No. R3-2002-0051 amending the Water Quality Control Plan for the Central Coast Basin to include Morro Bay Total Maximum Daily Load and Implementation Plan for Sediment including Chorro Creek, Los Osos Creek and the Morro Bay Estuary, adopted May 31, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 300: Duke Energy testimony in rebuttal to CAPE regarding the Habitat Enhancement Plan. Dated October 16, 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 301: Josselyn, Michael, Molly Martindale, John Calloway. 1989. Final Report. Biological Resources of Morro Bay as Impacted by Watershed Development in Los Osos and Chorro Creek Watersheds. Romberg Tiburon Centers Center for Environmental Studies, San Francisco State University, P.O. Box 855, Tiburon, CA 94920. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 302: EPRI, 2002. Enhancement Strategies for Mitigating Potential Operational Impacts to Cooling Water Intake Structures. EPRI Report #1005326. July 2002. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 303: Selected materials relating to the Estuary Enhancement Project, Salem Nuclear Generating Station, PSE&G. Sponsored by Applicant; admitted into evidence on November 4, 2002.

EXHIBIT 304: Staff Testimony entitled "Aquatic Biological Resources – Supplement (Marine and Estuarine Resources)". Supplement to the Energy Commission's Final Staff Assessment – Part 3. Testimony by Andrea Erichsen, Richard Anderson, Michael Foster, Ph.D., and Bruce Barnett, Ph.D., with Appendix A by Richard Ambrose, Ph.D.. Sponsored by Staff; admitted into evidence on November 5, 2002.

EXHIBIT 305: Testimony of Coastal Alliance on Plant Expansion re: Habitat Enhancement Program. Docketed on October 7, 2002. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 306: Article entitled: Synergistic Predation, Density Dependence, and Population Regulation in Marine Fish authored by Mark A. Hixon and Mark H. Carr. August 1997. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 307: Article entitled: Fish communities along an oxygen-poor salinity gradient (Zeeschelde Estuary, Belgium) authored by J. Males, P.A. van Damme, A. Taillieu and F. Ollevier. June 1997. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 308: Article entitled: Between estuaries and the sea authored by R.F. Dame and D.M. Allen. 1996. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 309: U.S. Fish and Wildlife Service study Western Snowy Plover Pacific Coast Population Draft Recovery Program. Dated May 2001. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 310: Letter and supporting documents from Tom Laurie to the Central Coast Regional Water Quality Control Board. Dated May 19, 2002. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 311: Map depicting the locations of the Western Snowy Plover nests on the Morro Bay Sandspit in 2000. Received in the CEC Hearing Office on October 30, 2002. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 312: Administrative Draft Waste Discharge Requirements Order No.: R3-2003-0001 NPDES No. CA0050598 for Duke Energy. Received in the CEC Hearing Office on October 29, 2002. Sponsored by California Regional Water Quality Control Board Central Coast Region; admitted into evidence on November 4, 2002.

EXHIBIT 313: Central Coast Regional Water Quality Control Board Power Point Presentation. Sponsored by California Regional Water Quality Control Board Central Coast Region; admitted into evidence on November 4, 2002.

EXHIBIT 314: Memo dated October 24, 2002 from Philip Williams and Associates to Michael Thomas re: a revised estimate of habitat loss. Sponsored by California Regional Water Quality Control Board Central Coast Region; admitted into evidence on November 4, 2002.

EXHIBIT 315: Errata entitled “Duke Energy Correction to the Record” Sponsored by Duke Energy; admitted into evidence on November 4, 2002.

EXHIBIT 316: Duke Energy HEP testimony and power point presentation. Sponsored by Duke Energy; admitted into evidence on November 4, 2002.

EXHIBIT 317: CEC Staff Direct Testimony Power Point Presentation. Sponsored by staff; admitted into evidence on November 5, 2002.

EXHIBIT 318: Article entitled: Stochastic Dynamics and Deterministic Skeletons: Population Behavior of Dungeness Crab, authored by Kevin Higgins, Alan Hastings, Jacob N. Sarveta, and Louis W. Botsford. Science Magazine, May 1997. Sponsored by CAPE; admitted into evidence on November 5, 2002.

EXHIBIT 319: Critique of CEC Biomass Calculations & power point sheet. Sponsored by Duke Energy; admitted into evidence on November 5, 2002.

EXHIBIT 320: Report pursuant to Coastal Act section 30413(d), submitted by the California Coastal Commission to the California Energy Commission, December 12, 2002; admitted into evidence on November 27, 2002.

GLOSSARY OF TERMS AND ACRONYMS

A

A	Ampere
AAL	all aluminum (electricity conductor)
AAQS	Ambient Air Quality Standards
ABAG	Association of Bay Area Governments
ABM	Anti-Ballistic Missle
AC	alternating current air conditioning
ACE	Argus Cogeneration Expansion Project Army Corps of Engineers
ACSR	aluminum covered steel reinforced (electricity conductor)
ADT	Average Daily Traffic
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
AWS	American Welding Society

B

BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
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
BHP	British Horse Power
BLM	Bureau of Land Management
BPA	U.S. Bonneville Power Administration
BR	Biennial Report
BTA	Best Technology Available
Btu	British thermal unit

C

CAA	U.S. Clean Air Act
CAAQS	California Ambient Air Quality Standards
CALEPA	California Environmental Protection Agency
CAL/OSHA	California Occupational Safety and Health Administration
CALTRANS	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CBO	Chief Building Official
CCAA	California Clean Air Act
CCC	California Coastal Commission
CDF	California Department of Forestry

CDFG	California Department of Fish and Game
CEERT	Coalition for Energy Efficiency and Renewable Technologies
CEC	California Energy Commission
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
CMDP	Court Mandated Demonstration Project
CNEL	Community Noise Equivalent Level
CNG	Compressed Natural Gas
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
DFS	Detailed Facilities Study
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
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
FDMP	Fugitive Dust Mitigation Plan
FDOC	Final Determination of Compliance
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
HEP	Habitat Enhancement Program
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
NCR	Non Compliance Report
NDT	Non-Distructive Testing
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
NOAA	National Oceanic & Atmospheric Administration
NOI	Notice of Intention
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

PDOC	Preliminary Determination of Compliance
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 proportionate mortality
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
ppmvdc	parts per million by volume, corrected
ppt	parts per thousand
PMPD	Presiding Member's Proposed Decision
PRC	California Public Resources Code
PSA	Preliminary Staff Assessment
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
QAQR	Quarterly Air Quality Report
QF	Qualifying Facility

R

RACT	Reasonably Available Control Technology
RAS	Remedial Action Scheme
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
SI/FS	System impact/facility study
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAQMD	San Joaquin Valley Air Quality Management District
SLOAQMD	San Luis Obispo 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
SPS	Special Protection Scheme
STIG	steam injected gas turbine
SWP	State Water Project
SWRCB	State Water Resources Control Board

T

TAC	Toxic Air Contaminant
TBACT	Toxic Best Available Control Technology
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
TMDL	total minimum daily load
TOG	total organic gases
TOU	Time of Use Rates
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