Preliminary Staff Assessment

OTAY MESA GENERATING PROJECT

Application For Certification 99-AFC-5
San Diego County

CALIFORNIA
ENERGY
COMMISSION

STAFF REPORT

MAY 2000
(99-AFC-5)

Gray Davis, *Governor*

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EXECUTIVE SUMMARY

INTRODUCTION

This Preliminary Staff Assessment (PSA) contains the California Energy Commission (Energy Commission) staff's evaluation of the Otay Mesa Generating Company (OMGC), Limited Liability Corporation's (referred to as either "OMGC" or "the applicant") Application for Certification (AFC) (99-AFC-1) for the Otay Mesa Generating Project (OMGP). The OMGP electric generating plant and related facilities, such as the electric transmission line, natural gas pipeline and water lines are under the Energy Commission's jurisdiction and cannot be constructed or operated without the Energy Commission's certification.

Staff is an independent party in the proceedings. This PSA is a staff document, presenting staff's independent analysis. It examines engineering and environmental aspects of the OMGP, based on the information available at that time of document creation. The PSA contains analyses similar to those contained in Environmental Impact Reports required by the California Environmental Quality Act (CEQA). It is not a Committee document nor is the PSA a final or proposed decision on the proposal. The PSA presents staff's conclusions and proposed conditions that staff recommends apply to the design, construction, operation, and closure of the proposed facility, if certified.

BACKGROUND

On August 2, 1999, the applicant filed an AFC with the Energy Commission to construct and operate the OMGP. On October 6, 1999, the Energy Commission deemed the AFC data adequate, at which time staff began its analysis of the proposal. The analyses contained in this PSA are based upon information from: 1) the AFC; 2) a subsequent AFC supplement; 3) responses to data requests; 4) supplementary information from local and state agencies and interested individuals; 5) existing documents and publications; and 6) independent field studies and research.

PROJECT DESCRIPTION

The proposed Otay Mesa Generating Project (OMGP) will be a nominal 510-megawatt (MW), natural gas-fired, combined cycle power plant located in western San Diego County. Electrical energy from the proposed merchant power plant will be sold in California's electricity market via the California Power Exchange and to large wholesale customers. The site is about 15 miles southwest of San Diego, California, and about 1.5 miles north of the United States/Mexico border. The 15 acre site is located in the East Otay Mesa region of western San Diego County. The site is currently undeveloped, with non-native grassland vegetation.

A new 230 kilovolt (kV) switchyard at the site is proposed. There will be a 0.1-mile connection to San Diego Gas & Electric's (SDG&E) existing 230 kV Miguel -Tijuana transmission line that passes near the eastern boundary of the OMGP site. SDG&E will build and own this 0.1-mile

segment. A 9.05-mile section of the existing 230 kV line may be modified to accommodate the addition of new conductors (i.e., wires carrying electricity) on existing towers, between an interconnection point east of the plant site and SDG&E's Miguel substation. A new two-mile natural gas pipeline will be built by SDG&E to provide fuel for the project. The gas pipeline will connect to SDG&E's Pipeline 2000 which is currently under construction.

The project will use dry cooling technology, while process water for steam generation and potable water for domestic needs will be supplied by the Otay Water District via a 0.2 –mile pipeline connection. Wastewater from the plant will be transported to San Diego County's sewer system from the plant, via a new 2-mile pipeline that will connect to an existing line in Johnson Canyon. The proposed route for access to the Otay Mesa site will be from Otay Mesa Road, turning north on Alta Road. The proposed site is approximately 700 feet east of Alta Road. OMGC will be building a short access road from Alta Road to the site.

OMGC plans to complete construction and start operation of the OMGP by the Summer or Fall of 2002. During construction, an average of approximately 400 workers would be employed. During operation, the OMGP would employ approximately 20 full-time staff.

STAFF'S ASSESSMENT

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

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation; and
- proposed conditions of certification, where these can be identified at this time.

COMPLETE ANALYSES

Staff believes its analysis of the power plant project is substantially complete for the following 15 technical areas:

Alternatives	Noise
Cultural Resources	Public Health
Facility Design	Socioeconomics
General Conditions/Compliance	Traffic and Transportation

Geology and Paleontology	Transmission Line Safety & Nuisance
Growth Inducement	Waste Management
Hazardous Materials Handling	Worker Safety & Fire Protection
Noise	

POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The visual and biological resources technical areas could have potentially significant environmental impacts. However, it is staff's opinion that the mitigation measures staff has proposed and others that it is considering for these resource areas may reduce any potential significant impacts to less than significant levels.

VISUAL RESOURCES

Staff has identified a potentially significant impact from one viewpoint in the vicinity of the project site. Staff is considering various mitigation measures such as landscape screening and tree planting which may reduce the potential impact to an insignificant level. On April 12, 2000 San Diego County's Board of Supervisors adopted a San Diego County staff report which discussed the need for revisions to the applicant's landscaping and grading plans. When this PSA was prepared, staff had not received the adopted report, or detail on the landscaping plan revisions that the County is proposing. When the applicant has responded to the County's proposed revisions, staff will assess the potential for significant visual resources impacts, and present its conclusions in the FSA.

BIOLOGICAL RESOURCES

The biological resources technical area identified potentially significant environmental impacts. However, it is staff's opinion that the mitigation measures the applicant has proposed will reduce any potentially significant impacts to less than significant levels.

The OMGP's impact on the federally listed quino checkerspot butterfly and Otay Mesa tar plant is an unresolved issue which is discussed below. Therefore, staff has not made any conclusions regarding potentially significant impacts and mitigation options.

FUTURE ANALYSIS

AIR QUALITY

One technical area, air quality, is not included in this PSA due to insufficient information at this time. The air quality PSA will be filed approximately 45 days after staff receives the San Diego Air Pollution Control District's (District) Preliminary Determination of Compliance (PDOC). The staff expects the PDOC to be issued during May, 2000. Staff will

need the District's Final Determination of Compliance (FDOC) prior to completing its air quality section of the FSA. The FDOC is expected to be filed approximately 60 days after the issuance of the PDOC

INCOMPLETE ANALYSES AND UNRESOLVED ISSUES

Seven technical areas, Biological Resources, Efficiency, Land Use, Reliability, Soil and Water Resources, Transmission System Engineering, and Visual Resources have been included in this PSA, but each has some missing information or potential issues that will need to be resolved before the Final Staff Assessment (FSA) can be published. The Reliability and Efficiency areas are discussed together since the unresolved issue affects both.

BIOLOGICAL RESOURCES

The biological resources analysis contained in this PSA is as complete as possible, pending the federal Biological Opinion. The U.S. Fish and Wildlife Service's (USFWS) Biological Opinion, informally initiated by the United States Environmental Protection Agency as a Section 7 consultation, is expected to be issued after the PSA. The applicant expects the formal initiation to take place during May, 2000. The applicant is also preparing its Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), which staff will need in order to complete its FSA. The applicant believes its draft BRMIMP will be filed during May, 2000. Staff cautions that unforeseen issues may arise that could delay the Biological Opinion.

The applicant is completing an analysis of the potential impacts that the project's air emissions may have on the federally listed quino checkerspot butterfly, and the federally listed Otay tar plant, which is part of the butterfly's habitat. However, the analysis has not been completed, and preliminary results have not been provided or discussed, so this issue is currently unresolved. This issue will need to be fully addressed in the FSA.

LAND USE

San Diego County has asked the applicant to revise some of the grading and landscaping provisions in its site plan, in order for the OMGP to be consistent with the East Otay Mesa Specific Plan. Staff will need to review the applicant's revised site plan for consistency with the County's Specific Plan, in order to be able to complete the FSA.

RELIABILITY AND EFFICIENCY

Staff's analyses for both the reliability and efficiency technical areas are affected by unresolved issues related to natural gas supply and gas transmission capacity. Planned and expected demand growth on the SDG&E gas system raises the possibility of inadequate gas transmission

capacity to supply gas to the Otay Mesa project. The existing system may not be able to serve its current customers, in addition to the Otay Mesa project and other planned future customers, without curtailments or service interruptions. This potential issue may lead to cumulative gas supply impacts. Staff has filed data requests addressing this issue and it plans to discuss the topic at a PSA workshop. The issue will need to be fully addressed in the FSA.

TRANSMISSION SYSTEM ENGINEERING

Staff has completed its preliminary transmission system engineering analysis based on a transmission facilities scenario such that the project includes construction of an Otay Mesa 230 kV substation, and reconductoring of the existing 230 kV Miguel-Tijuana line. Staff will need to see the results of the Transmission Facilities Study and the California Independent System Operator's (Cal-ISO) comments before it can complete its FSA. Depending on the results of the Study and the Cal-ISO's comments, staff's conclusions in the FSA may be different than those in the PSA. If transmission system reinforcements in addition to an Otay Mesa substation and reconductoring the Miguel-Tijuana line are going to be needed, those reinforcement projects will need to be added to the project description through an AFC supplement. Any new facilities identified will require staff to perform additional evaluation for inclusion in the FSA. Staff plans to hold a PSA workshop on this topic to permit all interested parties to discuss the Study and their respective positions.

SOIL AND WATER RESOURCES

Staff is missing OMGC's complete application for a pre-treatment water discharge permit from the Otay Water District, which it will need to review in order to complete the FSA.

VISUAL RESOURCES

Staff is missing OMGC's revised landscaping plan consistent with San Diego County's requirements per the East Otay Mesa Specific Plan. When staff has reviewed the revised plan it will present its conclusions in the FSA, as to whether the potentially significant visual impact has been mitigated to an insignificant level.

STAFF RECOMMENDATION

Staff has identified seven technical areas that are incomplete in their analyses: Biological Resources, Efficiency, Land Use, Reliability, Soil and Water Resources, Transmission System Engineering, and Visual Resources. In addition, the Air Quality analysis will be filed approximately 45 days after staff receives the District's PDOC. Although our analysis is potentially complete in 15 areas, resolution of the remaining issues and

provision of missing information in the other areas will be crucial to the Energy Commission's Decision on this project. At this time, staff is unable to recommend that the project be certified.

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INTRODUCTION

Eileen Allen

PURPOSE OF THIS REPORT

The Preliminary Staff Assessment (PSA) presents the California Energy Commission (Energy Commission) staff's independent analysis of the Otay Mesa Generating Company, LLC's Application for Certification (AFC). The PSA is a staff document. It is neither a Committee document, nor a draft decision or proposed decision. The PSA describes the following:

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

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

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

ORGANIZATION OF THE STAFF ASSESSMENT

This **INTRODUCTION** section of this PSA explains the purpose of the PSA and its relationship to the Energy Commission's siting process. The **PROJECT DESCRIPTION** section provides a brief overview of the project including its purpose, location and major project components.

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

ENERGY COMMISSION SITING PROCESS

The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, section 25500). The Energy Commission must review power plant AFCs to assess potential environmental impacts including potential impacts to public health and safety, potential measures to mitigate those impacts (Pub. Resources Code, section 25519), conformance with the most recent integrated assessment of need for new resources (Pub. Resources Code, section 25523(f)), and compliance with applicable governmental laws or standards (Pub. Resources Code, section 25523 (d)).

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

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

Staff conducts its environmental analysis in accordance with the requirements of the California Environmental Quality Act. No Environmental Impact Report (EIR) is required because the Energy Commission's site certification program has been certified by the

Resources Agency (Pub. Resources Code, section 21080.5 and Cal. Code Regs., tit. 14, section 15251 (k)).

The staff prepares both a preliminary and final staff assessment. The Preliminary Staff Assessment (PSA) presents for the applicant, intervenors, agencies, other interested parties and members of the public, the staff's preliminary analysis, conclusions, and recommendations. Where staff believes it is appropriate, the Final Staff Assessment (FSA) incorporates comments received from agencies, the public and parties to the siting case, comments made at the workshops, and comments received on the PSA. The FSA serves as staff's testimony on a proposal.

Staff uses the PSA to resolve issues between the parties and to narrow the scope of adjudicated issues in the evidentiary hearings. During the period between publishing the PSA and FSA, staff conducts workshops to discuss their findings, proposed mitigation, and proposed compliance monitoring requirements. Based on the workshops and written comments, staff will refine their analysis, correct errors, and finalize conditions of certification to reflect areas where we have reached agreement with the parties.

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

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Members' Proposed Decision (PMPD). Following publication, the PMPD is circulated for a minimum of 30 days in order to receive written public comments. At the conclusion of the comment period, the Committee may prepare a revised PMPD. A revised PMPD is required to undergo a 15-day comment period. At the close of the comment period for the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision. Within 30 days of the Energy Commission decision, any party may appeal the decision to the Energy Commission.

A **Compliance Monitoring Plan and General Conditions** will be assembled from conditions contained in the FSA and other evidence presented at the hearings. The Compliance Monitoring Plan and General Conditions will be presented in the PMPD. The Energy Commission

staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed in compliance with the conditions adopted by the Energy Commission. The proposed **Compliance Monitoring Plan and General Conditions** are included at the end of the PSA.

PROJECT DESCRIPTION

Eileen Allen

NATURE AND PURPOSE OF THE PROJECT

The Otay Mesa Generating Company, Limited Liability Company (referred to as either “OMGC” or the “applicant”) proposes to construct and operate the Otay Mesa Generating Project (OMGP), a nominally rated 510 megawatt (MW) natural gas-fired combined cycle facility located in the East Otay Mesa region of western San Diego County. The applicant’s objectives are to:

- Construct and operate a merchant power plant in southwest San Diego County in order to be able to sell power into the California Power Exchange, provide reliability to the San Diego grid, provide ancillary services, and sell power on a bilateral basis.
- Locate the facility on land that is zoned for industrial use and in close proximity to existing key infrastructure, such as a natural gas fuel supply, electric transmission line, water supply, and sewer lines.
- Minimize project environmental and socioeconomic impacts.
- To use proven technology, while taking advantage of recent developments in emission control equipment and water conservation technology.
- To minimize project capital and operating costs and to maximize project revenues to allow project financing on reasonable terms.

PROJECT LOCATION

The site is about 15 miles southeast of San Diego, California near the base of the San Ysidro Mountains, and about 1.5 miles north of the United States/Mexico border. The 15-acre site is a part of a 46-acre property northeast of the intersection of Otay Mesa and Alta Roads. The site is currently undeveloped, fallow agricultural land which is vegetated by non-native grasses...

PROJECT DESCRIPTION

POWER PLANT

PROJECT DESCRIPTION Figure 1 shows the vicinity of the proposed power plant and the proposed linear (related) facilities routes (transmission line; natural gas, raw water supply and wastewater pipelines). The power plant would be located on a 15-acre parcel of previously disturbed land. The site is zoned for mixed industrial uses and is located in an area that is planned for industrial and commercial development. Current land uses in the vicinity include fallow agricultural land, the Richard J.Donovan State Correctional Facility to the northwest, and several businesses located at the former Kuebler Ranch to the north of the project site. An existing 230 kV transmission line owned by the San Diego Gas & Electric Company (SDG&E) is located adjacent to the eastern boundary of the property.

PROJECT DESCRIPTION Figure 2 shows a plan view of the proposed nominal 510-megawatt power plant's site arrangement. Major features of the power plant are two single-shaft, combined cycle power blocks, with each block having a combustion turbine generator (CTG), inlet air evaporative coolers, exhaust stacks, heat recovery steam generators (HRSGs), and steam turbines. Other major components of the project include water treatment equipment and cooling towers. Other facilities will include a control room and administrative building, air cooled condensors, storage tanks, and a transmission switchyard.

PROJECT DESCRIPTION Figure 1
Location of the Proposed Site and Related Facilities

PROJECT DESCRIPTION Figure 2
Power Plant Site Arrangement

The project will use the SCONOX system and dry low NOx combustors to achieve Best Available Control Technology/Lowest Achievable Emission Rate (BACT/LAER) levels for NOx control. The proposed permit NOx level is 2.0 ppm, based on a three-hour rolling average. OMGC proposes to target a NOx emission level of 1.0 ppm. CO is expected to be controlled by a combination of combustion control and the SCONOX system.

OMGC has proposed an offset package that involves both stationary and mobile sources. NOx offsets and volatile organic compounds for NOx offsets will be purchased from the stationary sources market, as well as from mobile sources for mobile emission reduction credits (MERCs). MERCs will be obtained from the conversion of existing fleets of medium and heavy-duty diesel vehicles to vehicles which meet the California Air Resources Board Optional Low NOx emissions standard.

Natural gas will be supplied to the project via SDG&E's Pipeline 2000 Project that is currently under construction. The project includes a new 230 kV switchyard and a new 0.1-mile outlet line to SDG&E's existing 230 kV Miguel-Tijuana transmission line (see the transmission line description below). The source of water for the facility will be potable water supplied by the Otay Water District. Potable water will be used at the facility for service water and as supply to the steam cycle makeup treatment system during operations. The project will use air cooled condensers (i.e., dry cooling instead of wet cooling towers), thus the average daily water needs of the facility will be fairly low (370,000 gallons per day). The applicant will build a short (0.2-mile) pipeline to connect the plant with an existing District water main in Alta Road.

The combined wastewater discharge from the plant will include the following streams: sanitary drains, CTG evaporative cooler blowdown, carbon filter backwash, HRSG blowdown and steam cycle drains, reverse osmosis system reject, and an oil/water separator discharge. The combined waste water stream is estimated to average 104, 000 gallons per day and will BEdirected to the City of San Diego sewer system.

TRANSMISSION LINE OPTIONS

San Diego Gas & Electric (SDG&E) will build a 0.1-mile outlet loop line from the power plant to its existing double circuit, 230 kV Miguel-Tijuana transmission line.

The Miguel-Tijuana line may need to be reconductored between the OMGP interconnection point and SDG&E's existing Miguel substation. The potential reconductoring distance would be approximately nine miles.

NATURAL GAS SUPPLY LINE OPTIONS

Verification: Natural gas will be delivered to the plant site by SDG&E via a new 20-inch diameter steel pipeline. The gas interconnection point will be to SDG&E's Pipeline 2000 project at the existing Harvest Regulator Station south of the intersection of Otay Mesa and Harvest Roads; or alternately at a possible new SDG&E Metering Station near the U.S./Mexico border..

The applicant is considering two routes for the gas pipeline, proposed Route 2A and alternative Route 2B. Route 2A is approximately 2.05- miles long, traversing 0.2-miles undeveloped land west to Alta Road, and continuing within the paved portions of Alta, Otay Mesa, and Harvest Roads to its termination at the SDG&E Harvest Regulator Substation. Route 2B is approximately 1.6-miles long and would involve construction of about 0.1-mile across undeveloped land parallel to the proposed 0.1-mile outlet transmission line. This route would then continue about 1.5 miles parallel to the east side of the existing Miguel-Tijuana transmission line corridor and terminate north of the U.S./Mexico border (see **PROJECT DESCRIPTION** Figure 1).

WASTEWATER LINE OPTIONS

The applicant will build an approximately 2-mile long pipeline to an interconnection point in Johnson Canyon. In response to a request from San Diego County, the applicant has added a 0.85-mile alternate waste water discharge line route, which would connect to the original route planned in Johnson Canyon.

CONSTRUCTION AND OPERATION

The applicant plans to begin construction immediately after certification, which is expected to occur no than the winter of June 2001, and commercial operation by the summer or fall of 2002. There will be a peak work force of approximately 360 individuals and about 25 permanent facility operations personnel.

PUBLIC HEALTH

Obed Odoemelam

INTRODUCTION

Operating the proposed Otay Mesa Generating Project (OMGP) would create combustion products and possibly expose workers and the general public to these pollutants as well as the toxic chemicals associated with other aspects of facility operations. The purpose of this public health analysis is to determine whether a significant health risk would result from public exposure to these chemicals and combustion by-products routinely emitted during project operations. The issue of possible worker exposure is addressed in the Worker Safety and Fire Protection section of this Preliminary Staff Assessment (PSA). Exposure to electric and magnetic fields (EMF) is addressed in the Transmission Line Safety and Nuisance section.

The exposure of primary concern in this section is to pollutants for which no air quality standards have been established. These are known as noncriteria pollutants, toxic air pollutants, or air toxics. Those for which ambient air quality standards have been established are known as criteria pollutants. These criteria pollutants are identified in this section (along with regulations for their control) because of their usually significant contribution to the total pollutant exposure in any given area. Furthermore, the same control technologies may be effective for controlling both types of pollutants when emitted from the same source. Compliance with the required control technologies is discussed in the Air Quality section. Since this project is proposed for an area with existing violations of a specific air quality standard, the potential for impact exacerbation is addressed in this Public Health section in assessing the need for specific mitigation.

LAWS ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

The Clean Air Act of 1970 (42 U.S.C., section 7401 et seq.) required establishment of ambient air quality standards to protect the public from the effects of air pollutants. These standards have been established by the United States Environmental Protection Agency (EPA) for the major air pollutants: nitrogen dioxide, ozone, sulfur dioxide, carbon monoxide, sulfates, particulate matter with a diameter of 10 micron or less (PM10) and lead).

STATE

California Health and Safety Code section 39606 requires the California Air Resources Board (ARB) to establish California's ambient air quality standards to reflect the California-specific conditions that influence its air quality. Such standards have been established by the ARB for ozone, carbon monoxide, sulfur dioxide, PM10, lead, hydrogen sulfide, vinyl chloride and nitrogen dioxide. The same biological mechanisms underlie some of the health

effects of most of these criteria pollutants as well as the noncriteria pollutants. The California standards are listed together with the corresponding federal standards in the Air Quality section.

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

The California Health and Safety Code section 39650 et seq. mandates that the California Environmental Protection Agency (Cal-EPA) establish safe exposure limits for toxic, noncriteria air pollutants and identify the best available methods for their control. These laws also require that the new source review rules for each air district include regulations establishing procedures to control the emission of these pollutants. The toxic emissions from natural gas combustion are listed in ARB's April 11, 1996 California Toxic Emissions Factors (CATEF) database for natural gas-fired combustion turbines. Cal-EPA has developed specific cancer potency estimates for assessing their related cancer risks at specific exposure levels. For noncancer-causing toxic air pollutants, Cal-EPA established specific no-effects levels (known as reference exposure levels, or RELs) for assessing the likelihood of producing health effects at specific exposure levels. Such health effects would be considered significant only when exposure exceeds these reference levels. The Energy Commission staff (staff) uses these Cal-EPA potency estimates and reference exposure values in its health risk assessments.

California Health and Safety Code section 44300 et seq. requires facilities, which emit large quantities of criteria pollutants and any amount of noncriteria pollutants to provide the local air district an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative health risk assessment to address the potential health risks involved. The ARB and the Air Quality Management District will ensure implementation of these requirements for the proposed project.

LOCAL

The San Diego Air Pollution Control District (the District) has no specific rules implementing Health and Safety Code section 44300. It does, however, require the results of a health risk assessment as part of the application for the Determination of Compliance. OMGP has complied with this requirement.

SETTING

The proposed facility will be located within a 46-acre parcel located in the eastern Otay Mesa area of San Diego County. The site is approximately 15 miles from the city of San Diego and about 1.5 miles from the United States/Mexico border. The land is mainly undeveloped fallow agricultural land zoned for mixed commercial and industrial uses. The nearest residence is approximately 0.7 miles to the southwest with four correctional facilities located between 1.73 Km to 2.27 Km generally to the north.

As discussed by the applicant (OMGP 1999, pages 5.2-7 through 5.2-17), the project area is non-attainment (meaning that its ambient levels are currently higher than applicable air quality standards) for ozone at the state and federal levels, and PM10 at only the state level. The applicant has provided a listing of locations with sensitive receptors (such as children and the elderly) within a 5-mile radius of the facility (OMGP 1999, page 5.16-11). These sensitive receptors are usually more susceptible than the general population to the effects of environmental pollutants. Therefore, extra consideration is given to possible effects in these individuals in establishing exposure limits for environmental pollutants.

METHOD OF ANALYSIS

Any significant pollution-related impacts from this type of project would be mainly associated emissions from its natural gas-fired combustion turbines. Potential public exposure in the surrounding area is estimated through air dispersion modeling. It is these exposure estimates that staff uses to establish whether total exposures will be above or below the applicable air quality standards or reference exposure levels established against noncancer effects. For cancer-causing (or carcinogenic) effects, such assessment is made in terms of the potential for exposure at levels whose related cancer risks are considered significant by regulatory agencies. The procedure for evaluating the potential for these cancer and noncancer health effects is known as a health risk assessment process and consists of the following steps:

- A hazard identification step in which each pollutant of concern is identified along with possible health effects;
- A dose-response assessment step in which the relation between the magnitude of exposure and the probability of effects is established;
- An exposure assessment step in which the possible extent of pollutant exposures from a project is established for all possible pathways by dispersion modeling; and
- A risk characterization step in which the nature and the magnitude of the possible human health risk is assessed.

HEALTH EFFECTS ASSESSED

Health risks from a source of air pollutants can result from high-level exposure, which creates immediate-onset (acute) effects, or prolonged low-level exposure, which creates

chronic effects. Since noncancer effects are assumed to result after exposure above specific thresholds, an analysis of the potential for these effects will include consideration of background or ambient levels of the toxic pollutants being assessed. Unfortunately, such background measurements are not usually available for the noncriteria pollutants associated with natural gas combustion unless there are major sources in the area. Such pollutants are generally emitted at relatively low levels as compared to the criteria pollutants normally encountered at significantly higher background levels, which are required to be measured and considered in assessing impacts.

For natural gas-burning facilities such as the proposed OMGP, high-level exposure to toxic pollutants (which could cause acute effects) could occur only during major accidents and is not expected from routine operations when emissions are much lower. When the area is designated as non-attainment for a criteria pollutant, incidents of acute health impacts could increase with further additions of that same pollutant from a project. Since acute health impacts are not associated with normal noncriteria pollutant emissions, effects from chronic exposures are considered of greater concern than acute effects in assessing the potential for impacts. Such chronic effects may manifest as cancer or health effects other than cancer. Only noncancer effects are expected from the similarly chronic exposures to the criteria pollutants which do not cause cancer.

Assessing The Likelihood Of Noncancer Effects

The method used by regulatory agencies to assess the likelihood of acute or chronic pollutant impacts is known as the hazard index method. In this approach, a hazard index is calculated as a numerical representation of the likelihood of significant health impacts at the exposure levels expected for the source in question. This index is calculated by dividing the exposure estimate by the applicable reference exposure level or air quality standard. After calculating the hazard indices for the individual pollutants, these indices are added together for all those that affect the same target organ, to obtain a total hazard index for the health end point involved. Total hazard indices of 1.0 or less are regarded as indicative of a potential lack of significant effects. However, exposure above the REL, or a total hazard index of more than 1.0 may indicate a significant potential for the noncancer effects considered.

In a non-attainment area, the hazard index for background exposures would be more than 1.0 for the criteria pollutant involved. For any proposed project, the hazard index for the operational phase would be obtained by dividing total (background plus project-related) exposure by the applicable air quality standard. Since all air quality standards are health-protective limits that are not to be exceeded, further additions from the project would necessitate additional mitigation with respect to the pollutant in question. The pollutant-specific hazard index that is calculated for the operational-phase exposure would facilitate the Air Quality staff's analysis to establish the level of mitigation necessary.

Assessing The Potential Risk Of Cancer

According to present understanding, cancer from carcinogenic exposure results from biological effects at the molecular level. Since such effects are currently assumed possible from every exposure to a carcinogen, the likelihood of cancer (which is presented as a numerical risk estimate), is generally considered by staff and other regulatory agencies as more sensitive than the likelihood of noncancer effects for assessing the environmental acceptability of a source of pollutants. This accounts for the prominence of theoretical cancer risk estimates in the environmental risk assessment process. For any source of specific concern, the potential risk of cancer is obtained by multiplying the exposure estimate by the potency factors for the individual carcinogens involved. These potency factors are numerical values established to represent the cancer-causing potential of one carcinogen as compared to the others. After calculating these individual risk values, they are added together for the project's carcinogens to obtain the total incremental cancer risk associated with operations. Given the conservatism in the various phases of this risk calculation process, these numerical estimates are regarded as only representing the upper bounds on the cancer risk at issue. The actual risk will likely be lower and could indeed be zero. The significance of these estimates as indicators of a real cancer hazard is assessed according to specific regulative criteria.

STAFF'S SIGNIFICANCE CRITERIA

Various state and federal agencies specify different cancer risk levels as levels of significance with regard to specific sources. For example, a risk of 10 in a million is considered under the Air Toxics "Hot Spots" (AB 2588) and the Proposition 65 programs as

significant, and therefore, used as a threshold for public notification in cases of air toxics emissions from existing sources. The San Diego Air Pollution Control District considers the same risk of 10 in a million as acceptable for a source (such as the proposed OMGP) in which the best available control technology for air toxics (T-BACT) is used. The Energy Commission staff considers a potential cancer risk of one in a million as the de minimis level, which is the level below which the related exposure is negligible (meaning that project operation is not expected to result in any increase in cancer). Above this level, further mitigation could be recommended after consideration of issues related to the limitations of the risk assessment process. For noncarcinogenic pollutants, staff considers significant health impacts to be unlikely when the hazard index estimate is 1.0 or less. If more than 1.0, staff would regard the related emissions as potentially significant from an environmental health perspective but would recommend specific mitigation only after consideration of issues related to the uncertainties in the assessment process.

IMPACTS

PROJECT SPECIFIC IMPACTS

The health impacts from the siting and operation of the proposed OMGP can be considered separately as construction-phase impacts and operation-phase impacts.

CONSTRUCTION PHASE IMPACTS

Construction-phase impacts, as noted by the applicant (OMGP 1999, page 5.2-27), are those from human exposure to (a) the windblown dust from site grading and other construction-related activities and (b) emissions from the heavy equipment and vehicles to be used for such construction. The applicant presented an acceptable procedure for estimating the project's construction-related PM10 levels (OMGP 1999, Appendix I, pages I-4-2 through I-4-4) and specified the total amount to be emitted (OMGP 1999, page 5.2-28) together with the concentrations in the impact areas of potential concern (OMGP 1999, page 5.2-32). Since no hazardous substances were identified from the Environmental Site survey for the project (OMGP 1999, page 5.14-6), any health impacts from dust exposure would result only from the physical presence of the inhaled PM10 fraction, without additional toxicity from toxicants that could have been adsorbed on to them. The procedures for mitigating these short-term PM10 emissions are addressed in the Air Quality section.

The applicant has identified the construction equipment and vehicles to be used, along with their respective emission rates for the 20-month period during which construction will occur (OMGP 1999, page 5.2-30). They also modeled and

presented the concentrations of the pollutants of potential health significance (OMGP 1999, pages 5.2-30 and 5.2-32). Since chronic impacts are not usually expected from equipment emissions within this relatively short construction period, only acute health effects could be significant in the project's impact areas. The applicant has specified the mitigation measures necessary to minimize such emissions (OMGP 1999, page 5.2-28) whose maximum impacts are expected around the project's property line (OMGP 1999, page 5.16-2).

DIRECT OPERATIONAL IMPACTS

The applicant conducted the health risk assessment for the project-related noncriteria pollutants of potential significance. This assessment was conducted according to procedures specified in the 1993 California Air Pollution Control Officer's Association (CAPCOA) guidelines for sources of this type. The results were provided to staff along with documentation of the assumptions used (OMGP 1999 pages 5.16-2 through 5.16-12). Such documentation was provided with regard to the following:

- Pollutants considered;
- Emission levels assumed for the pollutants involved;
- Dispersion modeling used to estimate potential exposure levels;
- Exposure pathways considered;
- The cancer risk estimation process;
- Hazard index calculation; and
- Characterization of project-related risk estimates.

Staff has found these assumptions to be generally accurate and concurs with the applicant's findings with regard to the numerical public health risk estimates expressed either in terms of the hazard index for each noncarcinogenic pollutant, or a cancer risk for estimated levels of the carcinogenic pollutants. These analyses were conducted to establish the potential for acute and chronic effects on body systems such as the liver, central nervous system, the immune system, kidneys, the reproductive system, the skin and the respiratory system.

IMPACTS ASSOCIATED WITH THE PROJECT'S NONCRITERIA POLLUTANTS.

The following noncriteria pollutants were considered with respect to noncancer effects: ammonia, in case of use of the selective catalytic reduction (SCR) system alternative for NOx control, acetaldehyde, acrolein, benzene, 1,3 butadiene; ethylbenzene, formaldehyde, hexane, naphthalene, polycyclic aromatic hydrocarbons (PAHs), propylene oxide, toluene, and xylenes. The following were considered

with regard to a possible cancer risk: acetaldehyde, benzene, 1,3 butadiene, formaldehyde, PAHs and propylene oxide.

A chronic hazard index of 0.118 was calculated (OMGP 2000) for the maximum impact location (approximately 0.5 Km southeast of the project), using the alternative SCR for NOx control. With the use of the SCONOx system as proposed, this hazard index would decrease slightly to 0.116 because of the absence of ammonia. An acute hazard index of 0.665 for the same maximum impact location was calculated for the project as proposed using the SCONOx system. Using SCR, this index would remain the same at 0.665. These indices are all below the levels of potential health significance, suggesting that no significant health impacts would likely be associated with the project's noncriteria pollutants whether NOx is controlled using SCONOx or the alternative SCR system as discussed more fully in the Air Quality section.

The highest combined cancer risk was estimated to be 0.92 in a million for an individual at the same maximum location identified for the total hazard indices for acute and chronic effects. This risk was calculated using existing procedures, which assume that the individual would be exposed at the highest possible levels to all the carcinogenic pollutants from the project for 70 years. This risk value is below staff's de minimis level and would not change with the use of SCR since the ammonia of concern with the use of SCR is not a carcinogen. It is also significantly below the level considered acceptable by the Air District for sources such as OMGP.

Impacts Associated With The Project's Criteria Pollutants

Only ozone and PM10 were considered among the project's criteria pollutants because of the project area's noted designation as non-attainment for both pollutants. According to the applicant (OMGP 1999, page 5.2-15) the highest measured background ozone concentration between the 1993 and 1997 measurement period is 0.16 parts per million (ppm), which when divided by the state's 1-hour 0.09 ppm standard (that is not to be exceeded), yields a background hazard index of 1.8. Since ozone is secondarily formed from the sunlight-driven interaction of its precursor pollutants (NOx and VOCs), mitigation to offset the project's contribution is

aimed at the area's precursor pollutant levels through the offset requirements specified in the Air Quality section.

The hazard index for the area's background PM10 levels will be calculated after the most representative area background data is established by the Air Quality staff. The hazard index from such ambient measurements should facilitate the Air Quality staff's assessment of the extent of any mitigation they might consider necessary to offset the project's contribution to the area's PM10 levels.

CUMULATIVE IMPACTS

When toxic pollutants are emitted from multiple sources within a given area, the cumulative, or additive, impacts of such emissions could, in concept, lead to significant health impacts within the population, even when such pollutants are emitted at insignificant levels from the individual sources involved. Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. Toxic pollutant levels beyond the point of maximum impact normally fall within ambient background levels. We note in this case that the point of maximum impacts was identified as a location only 0.5 Km from the project. Therefore, potentially significant cumulative impacts are only expected in situations where new sources are located adjacent to one another. Since no significant pollutant sources are presently located or proposed for the OMGP's impact areas, no exposures of a cumulative nature are expected during the project operational phase.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff has determined that the construction and operation of the proposed natural gas-burning project will not pose a significant public health risk to the surrounding population with regard to the toxic pollutants considered. However ozone and PM10 levels are encountered at background levels capable of significant health impacts, pointing to the need to mitigate any project-related additions to the ambient levels.

RECOMMENDATIONS

Since ozone and PM10 are encountered in the project area at potentially hazardous levels, staff recommends adoption of the ozone and PM10-specific mitigation measures and conditions of certification specified in the Air Quality section. No significant public health impacts are considered likely by staff with regard to toxic emissions from the proposed project. Therefore, no Public Health Conditions of Certification are proposed with respect to these pollutants.

REFERENCES

California Air Resources Board (ARB) 1996. California Toxic Emissions Factors (CATEF) Database for Natural Gas-Fired Combustion Turbine Cogeneration.

California Air Pollution Control Officers Association (CAPCOA) 1993. Air Toxics “Hot Spots” Program, Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee, October 1993.

Otay Mesa Generating Project (OMGP) 1999a. Application for Certification (99-AFC-3). Submitted to the California Energy Commission, August 2, 1999.

Otay Mesa Generating Project I (OMGP) 2000). Response to Comments: Revised Risk Assessment. Letter the San Diego County Air Quality Control District. April 14, 2000.

WORKER SAFETY AND FIRE PROTECTION

Testimony of Terri Wallace

INTRODUCTION

Worker safety and fire protection is legislated by laws, ordinances, regulations, and standards (LORS), and enforced through regulations codified at the Federal, State, and local levels. Worker safety is of utmost priority at the project location and is documented through worker safety practices and training. Industrial workers at the facility operate process equipment and handle hazardous materials daily, and may face hazards, which can result in accidents and serious injury. Protection measures are employed to either eliminate these hazards or minimize the risk through special training, protective equipment or procedural controls.

The purpose of this analysis is to assess the worker safety and fire protection measures proposed by the Otay Mesa Generating Company, LLC for the Otay Mesa Generating Project (OMGP). Staff has reviewed both the original Application for Certification (August, 1999), and the September 10, 1999 Data Adequacy Responses to determine whether Otay Mesa Generating Project has proposed adequate measures to:

- comply with applicable safety laws, ordinances, regulations and standards (LORS);
- protect the workers during construction and operation of the facility;
- protect against fire; and
- provide adequate emergency response procedures.

Staff has determined that the features of the project comply with applicable LORS and do not present unusual industrial safety or fire protection problems. Issues relating to the project's impacts to local fire protection service capabilities and appropriate mitigation have not yet been resolved and will be addressed in the Final Staff Assessment.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970 (the Act). The Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards, Parts 1910.1 through 1910.1450 (29 CFR Part 1910.1 - 1910.1450) and clearly 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 safety and health standards now in force under the Act for general industry represent a compilation of materials authorized by the Act from existing federal standards and national consensus standards. These include standards from the

voluntary membership organizations of the American National Standards Institute (ANSI), and the National Fire Protection Association (NFPA) which publishes the National Fire Codes.

The congressional purpose of the Act is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources," (29 USC § 651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the Act.

Applicable Federal requirements include:

- 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970)
- 29 CFR Part 1910.1 - 1910.1450 (Occupational Safety and Health
- Administration Safety and Health Regulations)
- 29 CFR Part 1952.170 – 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR Part 1910.1 – 1910.1500)

STATE

California passed the Occupational Safety and Health Act of 1973 ("Cal/OSHA") as published in the California Labor Code § 6300. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with Part 450 (8 CCR Part 450 et seq.) The California Labor Code requires that the State Standards Board must adopt standards at least as effective as the federal standards (Calif. Labor Code §142.3(a)). Health and Safety laws meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 CFR Parts 1910.1 - 1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible to insure that their employees are informed about workplace hazards, potential exposure and the work environment (Calif. Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Material Safety Data Sheet (MSDS) (8 CCR § 5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1990 (1990 Calif. § 874 and Calif. Labor Code §§ 6360-6399.7). It mirrored the Federal Hazard Communication Standard (29 CFR Part 1910.1200) which established an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers.

Finally, California Senate Bill 198 required that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee training program
(8 CCR 3203).

Applicable State requirements include:

- 8 CCR § 339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act
- 8 CCR § 450, et seq. Cal / OSHA regulations
- 24 CCR § 3, et seq. - incorporates the current 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, (24 CCR § 3 , et seq.) is comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning/building & safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of

combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of Title 24 the California Code of Regulations pertaining to the California Fire Code.
Similarly, the Uniform Fire Code Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local 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.)

SETTING

The Otay Mesa Generating Project (OMGP) site encompasses approximately 15 acres within a 46-acre property on the eastern portion of the Otay Mesa in southwestern San Diego County. Current land uses in the site vicinity include fallow agricultural land, the Richard J. Donovan State Correctional Facility to the west-northwest, and several businesses located at the former Kuebler Ranch to the north of the plant site. Fire support services to the site will be under the jurisdiction of the Rural Fire Protection District (RFPD) of San Diego County. Currently the RFPD has limited presence in the Otay Mesa area.

WORKER SAFETY AND FIRE PROTECTION Table 1
Fire Station/Fire Protection Capabilities

Station	**Response time**	Equipment	**Number of Firefighters**
San Diego Rural Fire District Station 11 14145 Hwy 94 Jamal, CA 91935	Approximately 20 to 30 minutes	1 – Type I Engine 1 – Rescue/Light &Air 1 – Type III Brush Patrol	4-6
San Diego City Fire Station No. 43 Brown Field	Approximately 5 minutes	1 – Type I Engine 1 – 100 Foot Fire Truck (not currently staffed)	4
Donovan State Prison 444 Alta Rd. (Primary responding engine company until new station is established at Otay Mesa Rd. and Alta Rd.)	Approximately 3 to 5 minutes	1 – Type II Engine (1000 GPM)	5

Fire Station 11, as shown on **WORKER SAFETY AND FIRE PROTECTION Table 1**, is the RFPD Station closest to the Otay Mesa site, a 20-30 minute response time. The engine company serving the Otay Mesa proposed site would be Station 14 with one fire engine stationed at Donovan State Prison. The nearest fire station closest to the proposed site is Station No. 43 of City of San Diego Fire at Brown Field with a response time of approximately five minutes. Fire support to the Otay Mesa site from Station No. 43 is through a mutual aid agreement. The RFPD is a signatory to the County of San Diego Master Mutual Aid Agreement. This agreement entitles the district to receive aid from surrounding fire agencies in the case of fire or related incident. The Donovan engine station is the primary engine company or first in until the district opens its new station planned for the intersection of Otay Mesa and Alta Roads in 2001or 2002.

In addition to fire response capabilities, these fire stations have first responder HAZMAT capabilities (Nissen, 2000). "First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property or the environment from the effects of the release (Code of Federal Regulations 1910.120)."

WORKER SAFETY Table 1 provides an outline of the equipment and personnel at each fire station. Following is a general description of the response equipment listed:

- The Fire Engine is a primary response unit. It has a 600 gallon water tank, a minimum of 1,500 gallon per minute (gpm) pump, 2,400 feet of hose and a advance life support (ALS) medical response unit.
- Fire Trucks are also primary response units, and have a 500-gallon water tank, a 1,250-gpm pump, 1,000 feet of hose and an aerial ladder with stream capability of 1000 gpm.
- Brush Patrol Trucks are primarily used for fighting wild fires such as grass fires. Each truck consists of a 265-gallon water tank, 150 gpm-water pump, and comes with 4-wheel drive.
- The Light Unit is a separate vehicle and consists of a 20 kw generator and lighting capability for night operations and for use with rescue equipment on fire truck.

IMPACTS

PROJECT SPECIFIC IMPACTS

WORKER SAFETY

Industrial environments are potentially dangerous, both during construction and operation of facilities. Workers at the proposed OMGP will be exposed to loud noises, moving equipment, trenches, confined space entry and egress problems.The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures,

chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for the Otay Mesa Generating Company to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers.

FIRE HAZARDS

During construction and operation of the proposed Otay Mesa Generating facilities there is the potential for both incipient (small) fires and major structural fires. Incipient fires may be caused by electrical sparks, combustion of fuel oil, natural gas or flammable liquids, explosions, and over-heated equipment. Major structural fires may develop from uncontrolled incipient fires or be caused by large explosions of natural gas or other flammable gasses or liquids.

CUMULATIVE IMPACTS

The construction and operation of the Otay Mesa Generating Project could result in impacts on the fire and emergency service capabilities of the RFPD. In addition to impacts from the OMGP, cumulative impacts from proposed projects in the area are anticipated.

Projects that would potentially contribute to cumulative impacts with the OMGP are those located in the same geographic area of influence. The area of influence is defined as locations within a 5-mile radius of the power plant or within one mile of the linear facilities. This area includes City of San Diego, County of San Diego, and the City of Chula Vista.

Projects that were identified for consideration in the assessment include those: 1) that have submitted an application to local jurisdictions for required approvals and permits: 2) that have been previously approved and may be implemented in the near future; and 3) that are contemplated and reasonably anticipated, but have not been formally proposed. General Plans, local area plans (e.g., Specific Plans, special studies, resource management plans) and recent Environmental Impact Reports (EIRs) were used also to identify future projects.

Potential cumulative impacts are identified if the Otay Mesa Generating Project impacts would contribute to the impacts of reasonably anticipated future projects under construction at the same time. For the purposes of this cumulative impact assessment, it is anticipated that the construction phase for the Otay Mesa Generating Project is Septmenber 2000 through April 2002. The potential projects outlined in the AFC and considered in the cumulative impact assessment include:

- East Otay Mesa Specific Plan
- Otay Ranch
- Otay Ranch Sectional Planning Area (SPA) One
- State Route 125 Extension
- Route 905 Upgrade
- Prison Projects: State Prison-San Diego County II and George F. Bailey Correctional Facility
- Multiple Species Conservation Program
- Otay Valley Regional Park
- Otay Mountain/Kuchamma Cooperative Management Area
- San Diego National Wildlife Refuge/Otay-Sweetwater Planning Area
- Brown Field Airport Master Plan
- San Miguel Ranch
- Otay Mountain Wilderness Area.

The portion of San Diego County where the proposed OMGP is located is expected to grow significantly over the 50 years. Mitigation measures for these potential cumulative impacts are discussed under **Mitigation of Cumulative Impacts** in the following section.

MITIGATION

MITIGATION OF DIRECT IMPACTS

WORKER SAFETY

A Safety and Health Program will be prepared by the applicant to minimize worker hazards during construction and operation. Staff uses the phrase "Safety and Health Program" to refer to the measures that will be taken to ensure compliance with the applicable LORS during the construction and operational phases of the project.

CONSTRUCTION SAFETY AND HEALTH PROGRAM

The Otay Mesa Generating Project encompasses construction and operation of a natural gas fired facility with ancillary facilities such as transmission lines and pipelines. Workers will be exposed to hazards typical of construction and operation of a gas-fired combined cycle facility.

Construction Safety Orders are published at Title 8 of the California Code of Regulations beginning with section 1502 (8 CCR § 1502, et seq.). These requirements are promulgated by Cal/OSHA and are applicable to the construction phase of the project. The Construction Safety and Health Program will include the following:

- Construction Injury and Illness Prevention Program (8 CCR § 1509)
- Construction Fire Protection and Prevention Plan (8 CCR § 1920)

- Personal Protective Equipment Program (8 CCR §§ 1514 - 1522)

Additional programs under General Industry Safety Orders (8 CCR §§ 3200 - 6184), Electrical Safety Orders (8 CCR §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 - 544) will include:

- Electrical Safety Program
- Unfired Pressure Vessel Safety Orders
- Equipment Safety Program
- Forklift Operation Program
- Excavation/Trenching Program
- Fall Prevention Program
- Scaffolding/Ladder Safety Program
- Articulating Boom Platforms Program
- Crane and Material Handling Program
- Housekeeping and Material Handling and Storage Program
- Hot Work Safety Program
- Respiratory Protection Program
- Employee Exposure Monitoring Program
- Confined Space Entry Program
- Hand and Portable Power Tool Safety Program
- Hearing Conservation Program
- Back Injury Prevention Program
- Hazard Communication Program
- Air Monitoring Program
- Heat and Cold Stress Monitoring and Control Program
- Pressure Vessel and Pipeline Safety Program

The AFC includes adequate outlines of each of the above programs. Prior to construction of the Otay Mesa Generating Project, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

OPERATION SAFETY AND HEALTH PROGRAM

Upon completion of construction and prior to operations at Otay Mesa Generating Project, the Operations Safety and Health Program will be prepared pursuant to regulatory requirements of Title 8 of the California Code of Regulations. Otay Mesa's Plant Operational Safety Program will include the following programs and plans:

- Injury and Illness Prevention Program (8 CCR § 3203)
- Emergency Action Program/Plan (8 CCR § 3220);
- Fire Protection and Prevention Program (8 CCR § 3221); and

- Personal Protective Equipment Program (8 CCR §§ 3401-3411)

In addition, the requirements under General Industry Safety Orders (8 CCR §§ 3200 - 6184), Electrical Safety Orders (8 CCR §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 - 544) will be applicable to the project. Written safety programs the applicant will develop for the Otay Mesa Generating Project to ensure compliance with the above-mentioned requirements include:

- Safety committee
- Job hazard analysis
- Blood-borne pathogens program
- Emergency action plan, including evacuation procedures
- Fire protection and prevention plan
- Hazard communication plan
- Respiratory protection program
- Hearing conservation program
- Lock out/tag out safety procedure
- Hazardous materials handling procedures and hazardous waste control
- Confined space entry and rescue procedures
- Code of safety practices for equipment and operation
- Abrasive grinders
- Prevention of back problems
- Compressed gas and air handling systems
- Prevention of cumulative trauma disorder/ergonomics/repetitive stress injuries
- Electrical equipment safety
- Forklift safety
- Eye and face protection
- Gas cylinders
- Good housekeeping
- Hand protection
- Hand tools and equipment guarding
- Hoist/chain/wire rope/webs/rope slings/cranes
- Portable electric and air-power tools
- Portable ladders and scaffolding
- Preventing slips, trips and falls
- Welding, cutting, and brazing
- Signs, tags, and barricades
- Contractor safety.

These plans may require updating if operations change of if new equipment is added.

The AFC includes adequate outlines of each of the above programs. Prior to operation of the Otay Mesa Generating Project, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-2**.

SAFETY AND HEALTH PROGRAM ELEMENTS

Otay Mesa Generating Project provided the proposed outlines for both a Construction Safety and Health Program and an Operation Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major items required in both Safety and Health Programs are as follows:

INJURY AND ILLNESS PREVENTION PROGRAM (IIPP)

Otay Mesa Generating Project will submit an expanded Construction and Operations Illness and Injury Prevention Programs to Cal/OSHA for review and comment 30 days prior to both construction and operation of the project.

The IIPP will include the following components as presented in Otay Mesa Generating Project AFC:

- Identity of person(s) with authority and responsibility for implementing the program
- System ensuring employees comply with safe and healthy work practices
- System facilitating employer-employee communications
- Procedures identifying and evaluating workplace hazards, including inspections to identify hazards and unsafe conditions
- Methods for correcting unhealthy/unsafe conditions in a timely manner
- A training program for:
- introducing the program
- new, transferred, or promoted employees
- new processes and equipment
- supervisors
- contractors
- Methods of documenting inspections and training, and for maintaining records

Cal/OSHA will review and provide comments on the IIPP as the result of an onsite consultation at OMGP's request. A Cal/OSHA representative will complete a physical survey of the site, analyze work practices, and assess those practices that may likely result in illness or injury. This on-site consultation will give

CAL/OSHA an opportunity to evaluate OMGP's IIPP in conjunction with the activities occurring on site.

Emergency Action Plan

California regulations require an Emergency Action Plan (8 CCR § 3220). The AFC contains a satisfactory outline for an emergency action plan.

The outline lists the following features:

- Purpose and Scope of Emergency Action Plan
- Personnel Responsibilities during Emergencies
- Plan to Account for Employee During Emergencies
- Specific Response Procedures
- Evacuation Plan
- Emergency Equipment Locations
- Fire Extinguisher Locations
- Site Security
- Accident Reporting and Investigation
- Lockout/Tagout
- Hazard Communication
- Spill Containment and Reporting
- First Aid and Medical Response
- Respiratory Protection
- Personal Protective Equipment
- Sanitation
- Work Site Inspections

Staff proposes condition of certification **WORKER SAFETY-2**, which requires OMGP to submit a final Operation's Emergency Action Plan to Cal/OSHA for review and comment after an on-site consultation.

Fire Prevention Plan

California Code of Regulations requires an Operation Fire Prevention Plan (8 CCR § 3221). The AFC contains a draft proposed fire prevention plan which is acceptable to staff. The plan will include the following topics:

- Names and/or job titles of personnel responsible for maintaining equipment and accumulation of flammable or combustible material control
- Procedures in the event of fire

- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly and annual Inspections
- Housekeeping practices
- Training

Staff proposes that OMGP submit a final Fire Prevention Plan to the California Energy Commission Compliance Project Manager (CPM) and the RFPD for review and approval to satisfy proposed conditions of certification **WORKER SAFETY 1** and **2**.

Personal Protective Equipment Program

California regulations stipulate that Personal Protective Equipment (PPE) and first aid supplies are required whenever hazards are encountered which, due to process, environment, chemicals or mechanical irritants can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (8 CCR § 3380-3400). OMGP's operational environment will likely require PPE.

Information provided in the AFC indicates that all employees required to use PPE will be checked for proper fit and to see if they are medically capable of wearing the equipment. All safety equipment will meet NIOSH or ANSI standards and will carry markings, numbers, or certificates of approval. Respirators will meet NIOSH and California Department of Health and Human Services Standards. Each employee will be provided with the following information pertaining to the protective clothing and equipment:

- Proper use, maintenance, and storage
- When the protective clothing and equipment are to be used
- Benefits and limitations
- When and how the protective clothing and equipment are to be replaced

The PPE Program ensures that employers comply with the applicable requirements for PPE and provide employees with the information and training necessary to implement the program. Staff evaluated

OMGP's outline and assessed that the proposed PPE Program contains the elements that will meet applicable regulations and will significantly reduce the potential impact upon workers.

General Safety

In addition to the specific plans listed above, there are additional LORS applicable to the project, which are called "safe work practices". Both the Construction and the Operations Safety Programs will address safe work practices under a variety of programs. The components of these programs are presented in the following paragraphs.

Motor Vehicle and Heavy Equipment Safety Program

This program concerns the operation and maintenance of vehicles, inspections, personal protective equipment and traffic safety training for employees working on, near, or with heavy equipment or vehicles. A safe driving training program will be included in the operations safety program.

Forklift Operation Program

Forklift operation will utilize only trained and certified operators. The training program will include safe fueling procedures and forklift driving.

Evacuation/Trenching Program

A Cal/OSHA permit is required for certain trenches, excavations, structures, scaffolding and dismantling. OMGP's program will include:

- Shoring, sloping, and benching requirements
- Cal/OSHA permit requirements
- Inspection
- Air monitoring
- Access and egress

Fall Protection Program

Worker training will identify fall hazards and evaluate the appropriate protection devices, such as safety harnesses.

Scaffolding / Ladder Safety Program

Workers will be trained in the construction, inspection and proper use of ladder and scaffolding equipment, and the appropriate safety and protective equipment to use.

Articulating Boom Platforms Program

This program consists of:

- Inspection of equipment
- Load ratings
- Safe operating parameters
- Operator training

Crane and Material Handling Program

Only certified and licensed operators will permitted to operate crane. Worker training will include:

- Inspection of equipment
- Load ratings
- Safe operating parameters

Hot Work Safety Program

Hot work is activity which causes a spark and can ignite a fuel source, such as welding, cutting and brazing. Before proceeding with hot work, workers will request a work authorization from the project's assigned Safety Officer. The control operator, and/or shift supervisor will determine if hot work is required. Before proceeding, the area will be inspected and the job posted. OMGP's proposed Hot Work Safety Program will include:

- Welding and cutting procedures
- Fire watch
- Hot work permit
- Personnel protective equipment
- Training

Electrical Safety Program

Otay Mesa Generating Project Electrical Safety Program will include procedures for grounding, lock-out/tag-out, overhead and underground utilities, utility clearance and employee training. Lock-out/tag-out requirements are specified under Title 8 of the California Code of Regulations (8 CCR Sections 2320.4, 2320.5, 2320.6, 2530.43, 2530.86, 3314, 3340 and 3341). These procedures reduce employee exposure to moving equipment, electrical shock, and hazardous and toxic materials. Lockout is the placement of a padlock, blank flange, or similar device on equipment to ensure it will not be operated until the lockout device is removed. Tag-out procedures utilize warning signs that caution personnel when equipment can't be energized until the lockout

device is removed. Warning signs are used to alert employees to the presence of hazardous and toxic materials. OMGP's lock-out/tag-out program will include steps for applying and removing locks and tags, and employee training procedures.

Confined Space Entry

The California Code of Regulations identifies the minimal standards for preventing employee exposure to dangerous air contaminants and/or oxygen deficiency in confined spaces, where there is an oxygen-deficient atmosphere, a limited means of egress, or a source of toxic or flammable contaminants (8 CCR Sections 5156-5168). Confined spaces include silos, tanks, vats, vessels, boilers, compartments, ducts, sewers, pipelines, vaults, bins and pits.

Before entering a confined space, site personnel will evacuate or purge the space and disconnect the lines that would permit air contaminants and/or oxygen deficiency into the space. The air in the vessel will be tested for oxygen deficiency, and the presence of toxic and explosive gases and vapors. Employees will wear lifelines or safety harnesses when entering the confined space, and a person will be stationed outside the confined space to handle the lifeline/harness and summon assistance in case of emergency. Appropriate respirators will be available under hazardous conditions.

Hand and Portable Power Tool Safety Program

This program applies to construction and operations. It will include guarding and proper operations of power tools and worker training.

Housekeeping and Material Handling and Storage Program

This program concerns storage requirements and proper handling of equipment, and keeping walkways and work surfaces clean and safe. Worker training includes good housekeeping practices.

Hearing Conservation Program

This program identifies high-noise environments and assigns hearing protective devices appropriate to the noise level. Although hearing protection is included in personal protective equipment, this program

includes exposure monitoring and medical surveillance, along with worker training.

Back Injury Prevention Program

Worker training in this program will consider proper lifting practices and material handling procedures.

Hazard Communication Program

The Hazard Communications Standard establishes an employee's right to know about chemical hazards in the workplace. In accordance with federal and State requirements, OMGP will prepare a list of hazardous substances and provide a Material Safety Data Sheet (MSDS) for each substance on the list found in the workplace. OMGP will train workers to understand MSDSs and to work safely with hazardous substances. Worker training in this program will also include proper labeling, storage and handling of hazardous materials.

Respiratory Protection Program

Respiratory protection is also incorporated in the personal protective equipment. This program includes:

- Proper selection and use of a respirator
- Fit testing
- Medical requirements
- Inspection, repair, cleaning and storage of respirator
- Training

Heat and Cold Stress Monitoring and Control Program

This program includes monitoring, prevention and control for workers in hot or cold environments.

Pressure Vessel and Pipeline Safety Program

Workers at pressure vessels and pipelines will be trained in the following procedures:

- Line-breaking policy
- Equipment inspection and maintenance
- Blocking , bleeding, and blanking
- Communication

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment (OMGP Application for Certification (AFC) Sections 3.4.11 Fire Protection and 4.1.2.3.1 Fire Protection Systems), to

determine if the project would adequately protect workers and if it would affect the fire protection services in the area. The project will rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for incipient fires. In the event of a major fire, fire support services including trained firefighters and equipment for a sustained response would be required by the local fire protection service.

The information in the AFC indicates that the project intends to meet the minimum fire protection requirements. The fire water supply and pumping system will provide an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and sprinkler systems. The motor driven fire pump will be capable of supplying maximum water demand for any automatic sprinkler system plus water for fire hydrants and hose stations. A diesel-driven fire pump will provide back up to the primary electric-motor driven fire pump. The storage water tank supplying fire water to the pumps has a reserve capacity dedicated to fire water service of approximately 260,000 gallons in accordance with NFPA 13.

The fire water distribution system will have sectionalizing valves so that a failure in any part of the system can be isolated while allowing the remainder of the system to function. Fire hydrants with hose houses will be spaced at approximately 250 foot intervals around the fire loop in accordance with NFPA 24 and local fire codes.

Fixed fire protection systems will be provided for the steam turbine bearings and lube oil equipment station transformers. Sprinkler and fixed spray systems will be designed and installed in accordance with NFPA 13 and NFPA 15, respectively.

In addition to the fixed fire protection system, portable CO_2 and dry chemical extinguishers will be located throughout the plant (including the switchgear rooms), with size, rating, and spacing in accordance with NFPA 10. Handcart CO_2 extinguishers will also be provide in the turbine area. Local building fire alarms will be provided in accordance with NFPA 72.

The applicant will be required to provide final diagrams and plans to staff and to the RFPD, prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

The RFPD has identified in a letter submitted to the CEC that the project will cause impacts to their service capabilities. The RFPD is working jointly with the County of San Diego to develop a plan that identifies the level of emergency medical and fire protection services necessary for the proposed project's impacts on the RFPD's fire protection service capabilities. This plan will include a funding strategy which identifies the amount of fees and the timing of payment the OMGP will be required to provide to cover project-specific and (if deemed necessary) cumulative impacts associated with providing fire protection services to the project. The plan will also identify training to be provided by OMGP in order for the RFPD to properly respond to the types of emergencies specific to the project (hazardous material spills, high voltage emergencies, etc.) Staff's recommended condition of certification **WORKER SAFETY-4** will assure that the OMGP's contribution to project-specific and cumulative impacts to the RFPD's fire protection and emergency service capabilities are adequately mitigated.

MITIGATION OF CUMULATIVE IMPACTS

The portion of San Diego County where the proposed OMGP is located is expected to grow significantly over the next 50 years. The worker safety protection programs being proposed by Otay Mesa Generating Company will be applicable to the construction and operation of the OMGP facility and will provide adequate protection for workers at that facility. Staff's recommended condition of certification **WORKER SAFETY-4** will assure that the OMGP's contribution to any cumulative impacts to the Fire Department's fire protection and emergency service capabilities are adequately mitigated.

FACILITY CLOSURE

The project owner/operator is responsible for maintaining an operational fire protection system during closure activities. The project must also stay in compliance with all applicable health and safety LORS during that time.

CONCLUSION AND RECOMMENDATIONS

CONCLUSIONS

If OMGP provides (1) a Construction Safety and Health Plan, and an Operation Safety and Health Plan, as required by conditions of certification **WORKER SAFETY 1** and **2**, and (2) provides funding for additional fire protection service capabilities as required by condition of certification **WORKER SAFETY-3**, staff believes that the project will incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable LORS.

RECOMMENDATIONS

If the Commission certifies the project, staff recommends that the Commission adopt the following proposed conditions of certification. The proposed conditions of certification provide assurance that the Project Construction and Operation Safety and Health Programs proposed by OMGP will be reviewed by the

appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable LORS.

PROPOSED CONDITIONS OF CERTIFICATION

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

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

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

The Construction Fire Protection and Prevention Plan shall be submitted to the RFPD for review and comment.

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

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

- an operation Injury and Illness Prevention Plan
- an emergency Action Plan
- an operation Fire Protection Plan
- a personal Protective Equipment Program

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

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

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program. It shall incorporate Cal/OSHA's Consultation Service comments, stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.
The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

WORKER SAFETY-3 The project owner shall submit automatic fire extinguishing system plans, fire alarm system plans, and detailed architectural plan(s) to the RFPD for review and comment before beginning construction.

Protocol: Automatic fire extinguishing system plans, fire alarm system plans, and detailed architectural plan(s) shall be submitted to the RFPD, for review and comment.
Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a letter from the RFPD stating that they have received, reviewed and commented on the automatic fire extinguishing system plans, fire system alarm plans, and detailed architectural plans.

WORKER SAFETY-4 At least 60 days prior to any ground disturbance, the project owner shall reach an agreement with the RFPD on the amount of fees and timing of payment OMGP will provide to cover project-specific impacts and cumulative impacts associated with fire protection.
Verification: Not later than 30 days prior to any ground disturbance, the project owner shall provide the CPM with a copy of an agreement with the RFPD and the owners of the OMGP for funding for project-specific impacts associated with fire protection.

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TRANSMISSION LINE SAFETY AND NUISANCE

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INTRODUCTION

The transmission line for the proposed Otay Mesa Generating Project (OMGP) is a 0.1-mile 230 kV overhead line connecting the project's switchyard to San Diego Electric's (SDG&E's) Miguel Substation via the existing double-circuit Miguel-Tijuana 230 kV transmission line. According to the applicant, the Otay Mesa Generating Company Limited Liability Corporation (OMGP 1999, page 1-5), the Miguel-Tijuana line may need to be reconductored to accommodate the increased energy from the OMGP. The applicant has assessed the potential field impacts of such modification and presented the results as part of their application package. Therefore, staff is assessing the proposed line on assumption of such project-related modification. If this plan is modified, staff will reassess their proposal with respect to the impacts of concern in this analysis. This proposed modification is intended within the existing right-of-way without modifications to the existing towers. According to the applicant, (OMGP 1999, pages 4-8, 4-16 and 4-18), design and construction will be according to existing SDG&E guidelines and practices reflecting compliance with applicable laws, ordinances, regulations and standards (LORS). This new, project-specific section will also be constructed and operated by SDG&E (OMGP 1999, page 3.11-11).

The purpose of this analysis is to assess the proposed construction and operation of the new project-specific and modified Miguel-Tijuana line for appropriate incorporation of the design measures necessary for project compliance with LORS noted by the applicant (OMGP 1999 pages 7.0-6 and 7.0-7). If compliance is established, the Commission staff (staff) will recommend approval; if not, revisions will be recommended as appropriate. The new, project-specific line and the reconductored SDG&E Miguel-Tijuana line will be considered as one in assessing the line-related impacts.

Staff's analysis will focus on the issues noted below which relate primarily to the physical presence of the line, or secondarily to the physical interactions of line electric and magnetic fields.

- Aviation safety;
- Interference with radio-frequency communication;
- Audible noise;
- Fire hazards;
- Hazardous shocks;
- Nuisance shocks; and
- Electric and magnetic field (EMF) exposure.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Discussed below by subject area are design-related LORS applicable to the physical impacts of transmission lines as proposed for the Otay Mesa

Project. The impacts of concern are addressed through specific federal or state regulations or through established industry standards and practices. There presently are no local laws or regulations specifically focused on limiting project impacts related to the physical structure, dimensions, or operation.

AVIATION SAFETY

Any hazard to aircraft in the Otay Mesa area relates to the potential for collision with the electric power line in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the distance and visibility necessary to avoid such collisions.

FEDERAL

- Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting the Navigation Space" Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant hazards to area aviation.
- FAA Advisory Circular (AC) No. 70/460-2H, "Proposed Construction and or Alteration of Objects that may Affect the Navigation Space" This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.
- FAA AC No. 70/460-1G, "Obstruction Marking and Lighting". This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts can be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

FEDERAL

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement.

STATE

- General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

INDUSTRY STANDARDS

There are no design-specific federal regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited instead through design and maintenance standards established from industry research and experience. These standards have proven effective without significant impacts on line safety, efficiency maintainability and reliability. All high-voltage lines are designed to assure compliance with industry standards. Any noise will usually result from the action of the electric field at

the surface of the line conductor and could be perceived as a characteristic crackling, frying, hissing sound, or hum. Since (as with communications interference), the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from lines of less than 345 kV such as the one proposed for OMGP. 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 significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields.

As with lines of the type proposed, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff usually recommends specific conditions of certification to ensure that such grounding is made within the right-of-way by both the applicant and property owners. The applicable condition for this project is TLSN-5.

FIRE HAZARDS

The following regulations address fire hazards those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees and other combustible objects.

STATE

- General Order 95 (GO-95), CPUC, “Rules for Overhead Electric Line Construction” specifies tree-trimming criteria to minimize the potential for power line-related fires.
- Title 14 Section 1250 of the California Code of Regulations, “Fire Prevention Standards for Electric Utilities” specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks that are addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

STATE

- GO-95, CPUC. "Rules for Overhead Line Construction". These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and line workers.
- Title 8, CCR, Section 2700 et seq., "High Voltage Electric Safety Orders". These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.

INDUSTRIAL STANDARDS

There are no design-specific federal regulations to prevent hazardous shocks from power lines. Safety is assured through compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of considering exposure as EMF exposure. As noted by the applicant, (OMGP 1999 pages 4-17, 4-18, 5.16-17, 5.16-18and Appendix M), the available evidence as continually 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. Staff, therefore considers it appropriate, in light of the present uncertainty, to reduce such fields to some degree, where feasible, until the issue is better understood. The challenge has been to establish when, and how far to reduce them.

While there is considerable uncertainty about the EMF/health effects issue, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns relate to the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency and maintainability, depending on the type and extent of such measures.

STATE

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It required each utility 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 in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Utilities not within the jurisdiction of the CPUC voluntarily comply with these CPUC requirements. This PUC policy resulted from assessments made to implement CPUC Decision 93-11-013 of 1989.

In keeping with this CPUC policy, staff requires evidence that each proposed line (whether new or modified) will be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. The service area in this case is that of SDG&E. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability efficiency and maintainability. It is, therefore, up to each applicant to ensure that such measures are applied in ways that have no significant impacts on line operation. The extent of such applications will be reflected by the ground-level field strengths as measured during operation. When estimated or measured for the line, such field strengths can be used by staff and other regulatory agencies for comparison with fields of lines of similar voltage and current-carrying capacity. Such field

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

Since each new line in California is currently required to be designed according to the EMF-reducing guidelines of the utility in the service area involved, their fields are required under existing CPUC policies to be similar to fields from similar lines in that service area. A condition of certification is usually proposed by staff to ensure implementation of the reduction measures necessary. The applicable condition for this project is TLSN-1.

INDUSTRIAL STANDARDS

No federal regulations have been established specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF issue.

In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new or modified lines are generally similar to those from existing lines. Some states (Florida, Minnesota, Montana, New Jersey, and New York) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component, whose effects can manifest as the previously noted radio noise, audible noise and nuisance shocks. The present focus is on the magnetic field because only it can penetrate building materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the strong magnetic fields from the more visible transmission and other high-voltage power lines, staff considers it important for perspective, to note that an individual in a

home could be exposed for short periods to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than the power line environment.

SETTING

The site for the proposed Otay Mesa Project is immediately adjacent to the existing SDG&E Miguel-Tijuana 230 kV line. This is reflected by the short (0.1-mile) length of the two new 230 kV lines proposed for interconnection to the Miguel-Tijuana line. The applicant intends to acquire a right-of-way from property owners for this new segment and will obtain permission from SDG&E for the use of their existing right-of-way in the area around the point of interconnection to the Miguel-Tijuana line (OMGP 1999, page 3.6-3)

As more clearly presented by the applicant (OMGP 1999, pages 4-10 through 4-14), two other lines of 12.47 kV and 69 kV share the same right-of way with the Miguel-Tijuana line in some sections of its route. The interactive effects of their individual fields would be reflected in the field strength values estimated for their shared impact areas. Since there are no residences in the area around the proposed line (OMGP 1999, page 4-10), the residential magnetic field exposure of the present concern would be insignificant with regard to OMGP. The exposure of potential significance would be to line workers and any individuals who may enter the area around the line.

PROJECT DESCRIPTION

According to information from the applicant (OMGP 1999 pages 3.11-11 and 4-5) the project's transmission line will be made up of the specific components listed below:

- Two 0.1-mile 230 kV overhead lines extending from the project site to the existing SDG&E Miguel-Tijuana transmission line;
- A new 230 kV project-specific switchyard at the northeast corner of the project site; and
- The reconductored 9.05-mile Miguel-Tijuana line

The new project-specific lines will be supported on single-shaft tubular steel poles. Details of these structures have been provided by the applicant along with the points of interconnection with the Miguel-Tijuana line, which is supported on lattice steel structures (OMGP 1999 pages 3.6-1, 3.6-2, 3.6-3, and 3.11-11). Each of these new project-specific structures will be designed to provide a conductor-to-ground clearance of at least 30 feet.

IMPACTS

GENERAL IMPACTS

For high-voltage lines in general, GO-95 and Title 8, CCR Section 2700 et seq. provide the minimum regulatory requirements necessary to avoid the direct or indirect contact previously discussed in connection with hazardous shocks and aviation hazards. Of secondary concern are the field-related impacts manifesting as nuisance shocks, radio noise, communications interference and magnetic field exposure. The relative magnitude of such impacts would be reflected in the field strengths characteristic of a given line design. Since the field-reducing measures can affect line operations, the extent of their implementation together with related field strengths, will vary according to environmental and other local conditions bearing on line safety, efficiency, reliability and maintainability. They will therefore, vary from one service area to the other according to prevailing conditions. It would be up to each project proponent to apply such measures to the extent appropriate for the geographic area involved. The potential for all these impacts is assessed separately for each proposed project

PROJECT SPECIFIC IMPACTS

AVIATION SAFETY

According to information from the applicant (OMGP 1999, page 4-5), the nearest airport, Brown Field, is far enough away from the proposed project and its line route, at approximately 2 miles to the southeast. The Tijuana International Airport is located farther away at approximately 3.5 miles to the southwest. While an FAA "Notice of Construction or Alteration" (Form 7460) will not be required for the proposed power line according to existing regulatory criteria, the applicant has (as is general practice for all transmission lines), filed this notice with the FAA with respect to the project's stacks and other prominent structures. They intend to comply with any safety-related requirements of the FAA in terms of lighting or other safety-driven measures. In concluding that the proposed line will not pose a significant hazard to area aviation, the applicant (OMGP 1999 pages 4-5 and 4-6) notes that (a) the project-specific section will be designed and constructed according to SDG&E's practices relative to aviation safety, that (b) the project-related modifications to the existing Miguel-Tijuana line will not affect the height of the towers on which there presently is aviation-related lighting (in the form of flashing red lights), that (c) the proposed route does not traverse agricultural lands, that (d) this route is not in the flight path of area aircraft, and that (e) the use of aircraft for agricultural operations is uncommon in the Otay Mesa area. Staff is in agreement with the applicant's finding of a lack of a significant aviation hazard.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

The previously noted corona-related communications interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware and other irregularities on the conductor surface. The intended use of a low-corona conductor size, configuration and maintenance practices (OMGP 1999 pages 4-6 through 4-9) should minimize the potential for such interference which is usually of concern only for lines of 345 kV and above. The previously noted provisions of the related FCC regulations are important in requiring each project owner to ensure mitigation of any such interference to the satisfaction of the affected individual. Such a mitigation approach is part of present SDG&E policy (OMGP 1999, pages 4-8 and 4-9). Staff has proposed a condition of certification **(TLSN-2)** to ensure mitigation of any interference-related complaints on a case-specific basis, as required by the FCC. **TLSN-1** is also proposed by staff to ensure compliance with GO-52, which is intended to prevent radio interference.

AUDIBLE NOISE

As with radio noise, the low-corona conductor intended for use for the proposed lines will minimize the potential for audible noise. This means, as noted by the applicant (OMGP 1999 page 4-7) that the line will not add significantly to existing background noise levels in the area. For an assessment of the noise from all aspects of facility operations, please refer to staff's analysis in the **Noise** section.

FIRE HAZARDS

As is current SDG&E policy, adequate fire prevention and suppression measures will be maintained in the area around the proposed line as required by related regulations and industry practices (OMGP 1999, page 4-7). Compliance with G-O 95 requirements (OMGP 1999, 3.8-10) will ensure the clearance necessary to prevent fires from direct contact between the proposed line, trees and other objects. Compliance with condition of certification **TLSN-4,** as staff proposes, will prevent accumulation of combustible materials that could contribute to such fires.

HAZARDOUS SHOCKS

As noted by the applicant (OMGP 1999 3.11-11) the project-specific section will be constructed and the Miguel-Tijuana section modified by SDG&E according to the hazardous shocks-related requirements of GO-95. Therefore, staff does not expect these lines to pose any such hazards to humans and recommends condition of certification **TLSN-1** to ensure implementation of the requisite measures.

NUISANCE SHOCKS

As is current SDG&E practice (OMGP 1999 pages 4-15 and 4-16), the potential for nuisance shocks will be minimized through the grounding and other procedures specified by the applicant. Ensuring the GO-95-required ground clearance as specified by the applicant will minimize the potential for the electrical charging for which such grounding would be necessary. Staff recommends condition for certification **TLSN-5** to ensure the grounding measures necessary.

ELECTRIC AND MAGNETIC FIELD EXPOSURE

The applicant calculated field levels along the route of the proposed line at selected points of maximum intensity. Such calculations were intended to compare the fields from the existing line with fields to be encountered during facility operations. The results from this calculation (OMGP 1999 pages 4-12 through 4-14, and Appendix M) show that the line operation will not significantly increase the intensity of the electric field currently encountered within the right-of-way. These electric field values range from 0.15 kV/m to 0.18 kV/m at the edge of the right-of-way and are thus similar to those of SDG&E lines of the same voltage. These values represent an increase of from 0.03 kV/m to 0. 1 kV/m above existing levels, which range from 0.06 kV/m to 0.19 kV/m. There is a slight decrease of 0.04 kV/m at one of the locations, reflecting the cancellation effects of all the fields involved. As noted by the applicant (OMGP 1999, page 4-11), such a relatively small overall increase is due to the effectiveness of the type of field-reducing design proposed for the project.

The existing magnetic fields at the selected locations were estimated at between 3.85 mG and 13.66 mG at the edge of the right-of-way. The increases from project operations were calculated as between 5.32 mG and 13.66 mG. These represent a relatively small net increase of between 1.04 mG and 1.91 mG. A slight decrease of 0.01 mG was estimated for the right-of-way at one of the locations, reflecting the cancellation effects of all the fields involved. These calculated magnetic field strength values are similar to those from SDG&E lines of the same voltage and current-carrying capacity. Staff has verified the accuracy of the applicant's calculations with regard to parameters bearing on field strength, dissipation, and exposure assessment. Staff has recommended condition of certification **TLSN-3** with respect to field reduction measures to verify achievement of the level of reduction assumed by the applicant.

CUMULATIVE IMPACTS

The strengths of electric and magnetic fields from the proposed and similar lines are usually calculated to factor the interactive effects of

fields from nearby lines. Therefore, the values calculated for the proposed line reflect the levels of any cumulative exposures that could occur at any point along the right-of-way which it shares in some locations with the two other noted lines of 12.47 kV and 69 kV. As reflected in these values, any exposure of a cumulative nature would be at levels associated with similar 230 kV lines within the SDG&E transmission system.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Since electric or magnetic field health effects have neither been established nor ruled out for lines such as those proposed for this project, the public health significance of any project-related field exposure cannot be characterized with certainty. The highest field levels would be expected within the route of the Miguel-Tijuana line proposed for modification to accommodate the additional electric energy from the proposed project. Given this, the applicant focused on its right-of-way in assessing the highest field impacts possible from project operations. Since the calculated field strengths have shown that the project-driven increments would not significantly increase existing levels within this right-of-way, staff is satisfied with the effectiveness of the field-reducing measures proposed for the project. The long-term, mostly residential magnetic exposure at the root of the present health concern will be insignificant for this line, further limiting any concerns about health. The potential for nuisance shocks will be minimized through grounding and other field-reducing measures in keeping with current SDG&E practices in compliance with GO-95 and Title 8, Section 2700 et seq. of the California Code of Regulations. Since the proposed route is not in the path of area aircraft and the line will be designed and constructed according to FAA's safety requirements, any hazard to area aviation will be small. The use of low-corona conductors together with an appropriate line maintenance program will minimize the potential for interference with radio-frequency communication.

RECOMMENDATIONS

Since the new and the modified sections of the proposed project's 230 kV transmission line will be designed and constructed according to applicable safety and field-reducing guidelines, staff has determined that the line will not pose a significant health or safety hazard to individuals around the line. If the Commission approves the project and this proposed line, staff recommends that the following conditions of certification be adopted to ensure implementation of the field-reducing measures necessary to achieve the field reductions assumed by the applicant.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall ensure that construction of the 0.1-mile section of the proposed line and its related switchyard, and modification of the 9.05-mile Miguel-Tijuana section, will comply with

CPUC's GO-95, GO-52, Title 8, Section 2700 et seq. of the California Code of Regulations where applicable. Such construction shall also be made to ensure compliance with SDG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.
Verification: Thirty days before the start of line construction, the project owner shall submit to the Commission's Compliance Project Manager (CPM) evidence of their intention to comply with the above requirements.

TLSN-2 The project owner shall ensure that every reasonable effort will be made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals caused by operation of the project-related line and associated switchyards.

The project owner shall ensure that written records are maintained for a period of five years, of all complaints of radio or television interference attributable to operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action, or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement, with the justification for a lack of action.
Verification: The project owner shall ensure that all reports of line-related complaints are summarized and included in the Annual Compliance Report to the CPM, during the first five years of line operation.

TLSN-3 The project owner shall ensure that a qualified individual is engaged to measure the strengths of the line electric and magnetic fields before and after the line is energized. Measurements should be made at the same points along the route of the Miguel-Tijuana section for which field strength values were presented by the applicant. Measurements should also be made at representative points within the right-of-way along the 0.1-mile route of the new, project-specific section. These points should represent the points of maximum field strengths within and at the edge of the right-of-way.
Verification: The project owner shall ensure that copies of the pre-and post-energization measurements are filed with the CPM within 60 days after completion of the measurements.

TLSN-4 The project owner shall ensure that the right-of-way is kept free of combustible material, as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.
Verification: During the first five years of line operation, the project owner shall provide to the CPM in the Annual Compliance Report, a summary of inspection results and any fire prevention activities carried out along the right-of-way.
TLSN-5 The project owner shall ensure that all permanent metallic objects within the right-of-way are grounded in accordance with industry

standards, regardless of ownership. Such objects shall include fences, gates, and other large metallic objects.

Protocol: In the event of a refusal by any property owner to permit such grounding, the project owner should notify the CPM. Such notification shall Include, when possible, the owner's written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

REFERENCES

Otay Mesa Generating Project (OMGP 1999). Application for Certification, (99-AFC-5). Submitted to the California Energy Commission, August 2, 1999.

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Energy Commission Staff 1992. High Voltage Transmission Lines: Summary of Health Effects Studies. California Energy Commission Publication, P700-92-002

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HAZARDOUS MATERIALS MANAGEMENT

Rick Tyler

INTRODUCTION

The purpose of this analysis is to determine if the proposed Otay Mesa Generating Project (OMGP) (OMGC 1999a) will result in the potential for a significant impact on the public as a result of the use, handling or storage of hazardous materials at the proposed facility. If significant adverse impacts on the public are identified, Energy Commission staff must also evaluate the potential for facility design alternatives and additional mitigation measures to reduce impacts to the extent feasible.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. Employers must inform employees of hazards associated with their work and thus employees, in exchange for compensation, accept a higher level of risk than would be acceptable for general public exposure. Workers are therefore not afforded the same level of protection normally provided to the public. Further, workers can be provided with special protective equipment and training to reduce the potential for health impacts associated with the handling of hazardous materials (see staff's **Worker Safety and Fire Protection** analysis).

The Otay Mesa Generating Company (OMGC) has proposed two options for controlling NO_x emissions from the proposed project. The primary option would utilize the $SCONO_X$ process to control NO_X emissions and would not involve the storage or use of any hazardous materials in reportable quantities. However, there is some uncertainty associated with commercial operation of the $SCONO_X$ process. As a result of this uncertainty the OMGC has also proposed certification of a second option involving the use of Selective Catalytic Reduction (SCR), and aqueous ammonia. Staff analyzed the use of aqueous ammonia to ensure that the potential for impact associated with either option is addressed. Staff also evaluated the use of hydrogen gas for generator cooling. The use of hydrogen could be necessitated by choice of other turbine generator configurations associated with the SCR option.

In the event that SCR is used, the applicant's decision to use the aqueous form of ammonia would significantly reduce the risk that would otherwise be associated with use of the more hazardous anhydrous form of ammonia. Use of the aqueous form eliminates the high internal energy associated with the more hazardous anhydrous form, which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release, which can rapidly introduce large quantities of the material to the ambient air, where it can be transported in the atmosphere and result in high down-wind concentrations. Spills associated with the aqueous form are also much easier to contain than those associated with the anhydrous form. In addition, relatively slow mass transfer from the

free surface of the spilled aqueous solution limits emissions from a spill. Analysis of the potential for impact associated with aqueous ammonia deliveries is addressed in staff's **Traffic and Transportation** analysis. Other hazardous materials stored in smaller quantities, such as mineral and lubricating oils, corrosion inhibitors and water conditioners, will be present at the proposed facility. However, these materials pose no significant potential for off-site impacts as a result of the quantities on site, their relatively low toxicity, and/or their low environmental mobility. Although no natural gas is stored, the project will also involve the construction and operation of a natural gas pipeline connection and handling of large amounts of natural gas. Natural gas poses some risk of both fire and explosion. The project will also require storage and handling of large quantities of hydrogen gas for generator cooling. Hydrogen is both flammable and explosive and would be stored under high pressures.

LAWS, ORDINANCES, REGULATIONS, STANDARDS AND POLICIES

The following federal, state, and local laws and policies generally apply to the protection of public health and hazardous materials management. Staff's analysis examines the project's compliance with these requirements.

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The Act (codified in 40 C. F. R., § 68.110 et seq.) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Health and Safety Code, section 25534, directs facility owners, storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (USEPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Title 8, California Code of Regulations, Section 5189, requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Title 8, California Code of Regulations, Section 458 and Sections 500 – 515, set forth requirements for design, construction and operation of vessels and equipment used to store and transfer anhydrous ammonia. These sections generally codify the requirements of several industry codes, including the ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and Pressure Vessel Inspection Code. While these codes apply to anhydrous ammonia, they may also be used to design storage facilities for aqueous ammonia.

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

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was in 1997 (UFC, 1997). These articles contain minimum setback requirements for outdoor storage of ammonia.

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

SETTING

SITE AND VICINITY DESCRIPTION

Several factors associated with the area in which a project is to be located affect its potential to cause public health impacts from an accidental release of a hazardous material. These include:

- The local meteorology,
- Terrain characteristics, and
- The location of population centers and sensitive receptors relative to the project.

Staff considered these factors, as discussed below, in assessing the potential public health impacts of the project.

METEOROLOGICAL CONDITIONS

Meteorological conditions, including wind speed, wind direction and air temperature, affect the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the level of public exposure to such materials and the associated health risks. When wind speeds are low and stable, dispersion is severely reduced and can lead to increased localized public exposure.

Recorded wind speeds and ambient air temperatures are described in the air quality section of the AFC (OMGC 1999a, AFC Chapter 5.2). This data indicates that wind speeds below 1.5 meters per second and temperatures exceeding 100°F can occur in the project area. The applicant used F stability (stagnated air, very little mixing), 1.5 meters/second wind speed and an ambient temperature of 100° F in its modeling analysis of an accidental release to reflect worst case atmospheric conditions. This is a conservative assumption that provides an upper bound of potential exposure in the event of an accidental release.

TERRAIN CHARACTERISTICS

The location of elevated terrain (terrain above the power plant stack height) is often an important factor to be considered in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations. The principal risk of accidental release at this facility is associated with aqueous ammonia. However, modeling of an accidental release of aqueous ammonia indicates that significant concentrations would be confined almost exclusively to the facility property. Thus, elevated terrain is not an important factor affecting the modeled results.

LOCATION OF EXPOSED POPULATIONS AND SENSITIVE RECEPTORS

The general population includes many sensitive subgroups that may be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses (Calabrese 1978). Also, the location of the population in the area surrounding a project site may have a large bearing on health risk. The nearest residence is about one mile from the facility and the nearest public receptor is 2,600 feet from the facility (OMGC 1999a, AFC Section 5.12).

IMPACTS

The Energy Commission staff has determined that aqueous ammonia, hydrogen and natural gas are the only hazardous materials to be handled that pose a risk of off-site impacts. The following is a project specific analysis of the potential impacts associated with the handling of each of these materials.

AQUEOUS AMMONIA

Aqueous ammonia may be used in controlling the emission of oxides of nitrogen (NOx) from the combustion of natural gas in the facility. However, ammonia would only be used if the $SCONO_x$ process proves infeasible. The accidental release of aqueous ammonia without proper mitigation can result in hazardous down-wind concentrations of ammonia gas.

To assess the potential impacts associated with an accidental release of ammonia, staff typically evaluates where four “bench mark” exposure levels of ammonia gas occur 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 200 ppm, which is also the RMP level 1 criterion used by USEPA and 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. (A detailed discussion of the exposure criteria considered by staff and their applicability to different populations and exposure-specific conditions is provided in Appendix A of this analysis.) If the exposure associated with a potential release would exceed 75 ppm at any public receptor, staff will presume that the potential release poses a risk of significant impact. However, staff may also assess the probability of occurrence of the release and/or the nature of the potentially exposed population. Staff may, based on such analysis, determine that the likelihood and extent of potential exposure are not sufficient to support a finding of potentially significant impact.

Section 5.15 of the AFC (OMGC 1999a) included a discussion of the results of modeling for a worst case accidental release of aqueous ammonia. The worst-case release scenario is associated with a postulated release from the storage tank into a basin below the tank or a release during delivery into the basin below the delivery area in both cases the spill would drain into a sub-grade containment vault. In conducting this analysis, it was assumed that spilled material would be contained in the sub-grade basin below the storage vessel and that winds of 1.5 meters per second and category F stability would exist at the time of the accidental release. This screening analysis was designed to predict the maximum possible impacts based on distance from the storage tank without regard to specific direction of transport. Staff evaluated the model used, the assumptions leading to model

inputs, and the results of the modeling. Based on this, staff concurs with the approach and the results. This analysis indicated that concentrations exceeding 75 PPM would be confined almost completely to the project site and would not affect any public receptor.

NATURAL GAS AND HYDROGEN

Natural gas, which will be used as a fuel by the project, poses a fire and/or explosion risk as a result of its flammability. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems. 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.

The OMGP will also involve the storage and use of hydrogen for generator cooling. Hydrogen is both flammable and explosive. The California Code of Regulations includes specific requirements regarding storage and use of hydrogen. While staff believes that these requirements are generally adequate to ensure safe handling of hydrogen, they do not address all potential external hazards that could be associated with the proposed project such as flammable and explosive materials, turbine over-speed accident and earthquakes. Staff has therefore proposed, in its conditions for certification, a condition requiring a project specific plan for storage and handling of hydrogen.

CUMULATIVE IMPACTS

As proposed, the facility will cause no significant risk of off-site impacts. Thus the direct impacts of the project will not add to any existing accidental release risks, so no cumulative impacts are plausible.

FACILITY CLOSURE

The requirements for handling of hazardous materials remain in effect until such materials are removed from the site regardless of facility closure. Therefore, the facility owners are responsible for continuing to handle such materials in a safe manner, as required by applicable laws. In the event that the facility owner abandons the facility in a manner which poses a risk to surrounding populations, staff will coordinate with the California Office of Emergency Services, San Diego County Department of Environmental Health, and the California Department of Toxic Substances Control (DTSC) to ensure that any unacceptable risk to the public is eliminated. Funding for such emergency action can be provided by

federal, state or local agencies until the cost can be recovered from the responsible parties (O.E.S. 1990).

MITIGATION

Staff has determined that the proposed mitigation for the OMGP is adequate to reduce the potential risk of public health impacts associated with accidental hazardous materials releases to insignificant levels. However, if SCR is used, staff proposes a condition of certification requiring development of a Safety Management Plan for delivery of aqueous ammonia, since the OMGP is not required to develop and implement a Process Safety Plan pursuant to Title 8. The development of a Safety Management Plan addressing delivery of ammonia will further reduce the risk of any accidental release not addressed by the proposed spill prevention mitigation measures associated with the project.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

Staff's evaluation of the project (with staff's proposed mitigation measures) indicates that hazardous materials use will pose no plausible potential for significant impacts on the public. With adoption of the proposed conditions of certification, the project will comply with all applicable laws, ordinances, regulations and standards (LORS). In response to Health and Safety Code, section 25531 et seq., the applicant may be required to develop an RMP.[1] To insure adequacy of the RMP, staff 's proposed conditions of certification require that the RMP, if required, be submitted for concurrent review by EPA, the San Diego County Department of Environmental Health, and staff. In addition, staff's proposed conditions of certification also require San Diego County's acceptance of the RMP and staff's approval of the RMP prior to delivery of any hazardous materials to the facility. With adoption of staff's proposed conditions of certification, the project will also comply with Health and Safety Code, section 41700, and it will not pose any potential for significant impacts to the public from hazardous materials releases.

RECOMMENDATION

Staff recommends the Energy Commission impose the proposed conditions of certification, presented herein, to ensure that the project is designed, constructed and operated to comply with applicable LORS and to protect the public from significant risk of exposure to an accidental materials release.

PROPOSED CONDITIONS OF CERTIFICATION

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

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

HAZ-2 If required the project owner shall provide a Business and Risk Management Plan to the San Diego County Department of Environmental Health and the CPM for review at the time the plans are first submitted to the U.S. Environmental Protection Agency (USEPA). The project owner shall reflect all recommendations of the San Diego County Department of Environmental Health and the CPM in the final document. A copy of the final plans, reflecting all comments, shall be provided to San Diego County and the CPM once approved by USEPA.
Verification: At least sixty (60) days prior to the delivery of aqueous ammonia to the OMGP project, the owner shall provide the final plans, listed above and accepted by San Diego County, to the CPM for approval.

HAZ-3 If aqueous ammonia or hydrogen are used, the project owner shall develop and implement a safety management plan for delivery of ammonia and hydrogen. The plan shall include procedures, protective equipment requirements, training and a checklist. The plan shall also include a project specific plan for the storage and handling of hydrogen, including a plot plan describing the location of the storage in relation to other flammable materials and to areas that could be affected by a turbine over-speed accident, and seismic design criteria for the hydrogen storage and handling systems.
Verification: At least sixty days prior to the delivery of aqueous ammonia or hydrogen to the OMGP facility, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 If aqueous ammonia is used, the ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 150% of the storage volume 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 OMGP, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basins to the CPM for review and approval.

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BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a criterion of 75 ppm to evaluate the significance of impacts associated with potential accidental releases of ammonia. While this criterion is not consistent with the 200 ppm criterion used by EPA and Cal EPA in evaluating such releases pursuant the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in staff's CEQA analysis. The Federal Risk Management Program and the State Accidental Release Program are administrative programs designed to address emergency planning and ensure that appropriate safety management practices are implemented and actions are taken in response to accidental releases. However, the regulations implementing these programs do not provide clear authority to require design changes or other major changes to a proposed facility. The preface to the Emergency Response Planning Guidelines (ERPGs) states that "these values have been derived as planning and emergency response guidelines, **not** exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead they are estimates, by the committee, of the thresholds above which there would be an unacceptable likelihood of observing the defined effects." It is staff's contention that these values apply to healthy adult individuals and are levels that should not be used to evaluate the acceptability of avoidable exposures. While these guidelines are useful in decision making in the event that a release has already occurred (for example, prioritizing evacuations), they are not appropriate for and are not binding on discretionary decisions involving proposed facilities where many options for mitigation are feasible. CEQA requires permitting agencies making discretionary decisions to identify and mitigate potentially significant impacts through changes to the proposed project.

Staff has chosen to use the National Research Council's 30 minute Short Term Public Emergency Limits (STPELs) to determine the potential for significant impact. These limits are designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at these levels should not result in "serious sequelae" but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures of the general public to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. Table

1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75 ppm STPEL.

HAZARDOUS MATERIAL MANAGEMENT
APPENDIX A TABLE 1
Acute Ammonia Exposure Guidelines

Guideline	Responsible Authority	Applicable Exposed Group	Allowable Exposure Level	Allowable* Duration of Exposures	Potential Toxicity at Guideline Level/Intended Purpose of Guideli
IDLH[2]	NIOSH	Workplace standard used to identify appropriate respiratory protection.	300 ppm	30 min.	Exposure above this level requires the use of "highly reliable" respiratory protection and poses th risk of death, serious irreversible injury or impairment of the ability to escape.
IDLH/10[1]	EPA, NIOSH	Work place standard adjusted for general population factor of 10 for variation in sensitivity	30 ppm	30 min.	Protects nearly all segments of ge population from irreversible effects
STEL[2]	NIOSH	Adult healthy male workers	35 ppm	15 min. 4 times per 8 hr day	No toxicity, including avoidance of irritation
EEGL[3]	NRC	Adult healthy workers, military personnel	100 ppm	Generally less than 60 min.	Significant irritation but no impact personnel in performance of emerg work; no irreversible health effects healthy adults. Emergency conditi one time exposure
STPEL[4]	NRC	Most members of general population	50 ppm 75 ppm 100 ppm	60 min. 30 min. 10 min.	Significant irritation but protect nea segments of general population fro irreversible acute or late effects. C time accidental exposure
TWA[2]	NIOSH	Adult healthy male workers	25 ppm	8 hr.	No toxicity or irritation on continuou exposure for repeated 8 hr. work s
ERPG-2[5]	AIHA	Applicable only to emergency response planning for the general population (evacuation) (not intended as exposure criteria) (see preface attached)	200 ppm	60 min.	Exposures above this level entail** unacceptable risk of irreversible ef in healthy adult members of the ge population (no safety margin)

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)
* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.
** The (NRC 1979) describes a study involving young animals which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

REFERENCES

EPA, 1987, U.S. Environmental Protection Agency, Technical Guidance for Hazards Analysis, EPA, Washington, D.C.

NRC, 1985, National Research Council, Criteria and Methods for Preparing Emergency Exposure Guidance Levels (EEGL), Short-Term Public Emergency Guidance Level (SPEGL), and Continuous Exposure Guidance Level (CEGL) Documents, NRC, Washington, D.C.

NRC, 1972, Guideline for Short-Term Exposure of The Public To Air Pollutants. IV. Guide for Ammonia, NRC, Washington, D.C.

AIHA, 1989, American Industrial Hygienists Association, Emergency Response Planning Guideline, Ammonia, (and Preface) AIHA, Akron, OH.

NIOSH, 1994, National Institute of Occupational Safety and Health, Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Washington D.C., Publication number 94-116.

WHO, 1986, World health Organization, Environmental Health Criteria 54, Ammonia, WHO, Geneva, Switzerland.

ABBREVIATIONS

ACGIH, American Conference of Governmental and Industrial Hygienists
AIHA, American Industrial Hygienists Association
EEGL, Emergency Exposure Guidance Level
EPA, Environmental Protection Agency
ERPG, Emergency Response Planning Guidelines
IDLH, Immediately Dangerous to Life and Health Level
NIOSH, National Institute of Occupational Safety and Health
NRC, National Research Council
STEL, Short Term Exposure Limit
STPEL, Short Term Public Emergency Limit
TLV, Threshold Limit Value
WHO, World Health Organization

HAZARDOUS MATERIAL MANAGEMENT
Appendix B

WASTE MANAGEMENT

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INTRODUCTION

Different types of wastes will be generated during the construction and operation of the proposed Otay Mesa Generating Project (OMGP) and must be managed appropriately to minimize the potential for adverse human and environmental impacts. These wastes are designated as hazardous or non-hazardous according to the toxic nature of their respective constituents. This analysis assesses the adequacy of the management plan proposed by the applicant (the Otay Mesa Generating Company, LLC) with respect to handling, storage and disposal of these wastes in the amounts estimated for the project. The handling of the project's wastewater, for which a National Pollutant Discharge Elimination System (NPDES) permit is required, is discussed in the **Soil and Water Resources** section.

This Energy Commission staff (staff) analysis is intended to ensure that all the wastes of concern are handled and disposed of according to the applicable laws, ordinances, regulations, and standards (LORS). These LORS are discussed below.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT, RCRA, (42 U.S.C. § 6922)

RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires the generators of hazardous wastes to comply with requirements regarding:

- Record keeping practices which identify the quantities and disposal of hazardous wastes generated,
- Labeling practices and use of appropriate containers,
- Use of a recording or manifest system for transportation, and
- Submission of periodic reports to the EPA or an authorized state agency.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 260

These sections specify the regulations promulgated by the EPA to implement the requirements of RCRA as described above. To facilitate such implementation, the defining characteristics of each hazardous waste are specified in terms of toxicity, ignitability, corrosivity, and reactivity.

STATE

CALIFORNIA HEALTH AND SAFETY CODE §25100 ET SEQ. (HAZARDOUS WASTE CONTROL ACT OF 1972, AS AMENDED).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control or DTSC, under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt specific criteria and guidelines for classifying such wastes. The act also requires all hazardous waste generators to file specific notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

TITLE 14, CALIFORNIA CODE OF REGULATIONS, §17200 ET SEQ. (MINIMUM STANDARDS FOR SOLID WASTE HANDLING AND DISPOSAL)

These regulations specify the minimum standards applicable to the handling and disposal of solid wastes. They also specify the guidelines necessary to ensure that all solid waste management facilities comply with the solid waste management plans of the administering county agency.

TITLE 22, CALIFORNIA CODE OF REGULATIONS, §66262.10 ET SEQ. (GENERATOR STANDARDS)

These sections establish specific requirements for generators of hazardous wastes with respect to handling and disposal. Under these requirements, all waste generators are required to determine whether or not their wastes are hazardous according to state-specified criteria. As with the federal program, every hazardous waste generator is required to obtain an EPA identification number, prepare all relevant manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, all hazardous wastes are required to be handled only by registered hazardous waste transporters. Requirements for record keeping, reporting, packaging, and labeling are also established for each generator.

LOCAL

There are no local LORS of particular significance with regard to the wastes from the proposed and similar projects.

SETTING

PROJECT AND SITE DESCRIPTION

According to information from the applicant (OMGP 1999, pages 1-3, 3.1-1, and 3.2-1), the proposed project is a natural gas-fired 510

MW facility to be located within a 46-acre site 15 miles from the city of San Diego and about 1.5 miles from the United States/Mexico border. Related facilities include a connecting transmission line to the San Diego Gas and Electric (SDG&E) system, a related switchyard, operations control and administrative buildings, air-cooled condensers, storage tanks, parking lots and other ancillary facilities. The land is mainly undeveloped fallow agricultural land zoned for mixed commercial and industrial uses.

To assess the likelihood of soil contamination from past industrial or other activities at the project site, Phase I Environmental Site Assessment (ESA) surveys were conducted in May 1997 and February 1999 according to procedures specified by the American Society for Testing and Materials (OMGP 1999, page 5.14-3). These surveys revealed no discernable evidence of such contamination, suggesting that areas of significant contamination would be unlikely to be encountered during site preparation and facility construction.

IMPACTS

PROJECT SPECIFIC IMPACTS

CONSTRUCTION RELATED

As noted by the applicant (OMGP 1999, pages 3.4-13, 3.4-16, and 5.14-1), site preparation and construction of the proposed plant and related facilities will generate both hazardous and non-hazardous wastes. The non-hazardous component of the construction-related wastes will include waste paper, wood, glass, scrap metal, and plastics, from packing materials, waste lumber, excess concrete, insulation materials, and non-hazardous chemical containers. The applicant estimates that up to 1, 000 tons of such non-hazardous wastes will be generated (OMGP 1999, page 5.14-4). These wastes will be segregated, where practical, for recycling. Those that cannot be recycled will be placed in covered containers and removed on a regular basis by a certified waste handling contractor for disposal at a Class III facility.

The relatively small quantities of hazardous materials to be generated during this construction phase will mainly consist of used oil, waste paint, spent solvents, welding materials, batteries, and cleaning chemicals. These wastes will be recycled or disposed of at licensed hazardous waste treatment or disposal facilities (OMGP 1999, page 5.14-7). As noted by the applicant (OMGP 1999, page 5.14-7), the construction contractor will be considered the generator of the hazardous waste produced during construction and will

be responsible for compliance with applicable federal and state regulations regarding licensing, personnel training, accumulation limits, reporting requirements, and record keeping.

OPERATIONS RELATED

Under normal operating conditions, both hazardous and non-hazardous wastes will be generated at the facility as noted by the applicant (OMGP 1999, page 3.4-14). The non-hazardous component will include routine maintenance-related trash, office wastes, empty containers, broken or used parts, and used packaging materials and air filters. Some of the wastes will be recycled to minimize the quantity to be disposed of in a landfill. The non-recyclables will be disposed of at a non-hazardous waste disposal facility. The volume of non-hazardous wastes from the proposed and similar gas-fired facilities is typically small and readily accommodated within area disposal facilities. For the proposed facility for example, such wastes are expected to be less than 0.01 % of the amount currently disposed of at the Class III Otay Landfill which will be used (OMGP 1999, page 5.14-5).

The operations-related hazardous wastes will include spent air pollution control catalysts, used oil and air filters, used cleaning solvents, and used batteries. As noted by the applicant (OMGP 1999, page 3.4-16), some of these wastes will be recycled. These will include the spent air pollution control catalysts, used oil from equipment maintenance, and oil-contaminated materials such as rags or other cleanup materials. The non-recyclables will be disposed of in a Class I disposal facility.

POTENTIAL IMPACTS ON EXISTING WASTE DISPOSAL FACILITIES

The applicant has provided a listing of the three area non-hazardous waste disposal facilities available for use with respect to the proposed project (OMGP 1999, page 5.15-2). This listing includes information on remaining capacity, location, anticipated year of closure, and distance from the project site. This information shows that the volume of the waste from project construction and operation would be insignificant relative to available disposal capacity.

As discussed by the applicant (OMGP 1999, page 5.14-3), there are three major Class I landfills in California available for the disposal of hazardous wastes from the proposed and similar projects. These are the Laidlaw Environmental Landfill in Kern

County, the Chemical Waste Management Landfill in Kings County and the Laidlaw Environmental Landfill in Imperial County. There is a total of more than twenty million cubic yards of disposal space within these landfills, reflecting a total operational life of up to 90 years. The operational lives of these facilities are expected to be lengthened by two factors: (a) the success of the state's waste reduction program in reducing the volume of wastes to be disposed of and (b) the phenomenon of out-of-state disposal of wastes deemed hazardous under California law, but not under federal law. Therefore, staff has concluded that adequate disposal space would be available with respect to all hazardous wastes generated during the operational life of the proposed project.

CUMULATIVE IMPACTS

As previously noted, the area around the project site is mainly undeveloped and zoned for mixed industrial use. Residential development is not expected, although there may be additional industrial growth in the future. The applicant (OMGP 1999, page 5.14-8) has concluded from information in the East Otay Mesa Specific Plan that the additional wastes from the construction and operation of the proposed project and its related facilities will not significantly impact the capacity of the landfills in the area.

FACILITY CLOSURE

During any type of facility closure (whether temporary or permanent), the primary waste management-related issue of concern would be the potential for significant health impacts from worker or public exposure to hazardous materials on site. In the case of unexpected temporary closure, requirements under existing LORS (such as limiting hazardous waste accumulation time to 90 days and requiring proper containment) would be adequate to minimize exposures. By contrast, specific contingency plans are required with respect to temporary closures of more than 90-days to ensure removal of hazardous wastes and draining of all chemicals from storage tanks and other equipment.

A specific on-site contingency plan is also necessary, in case of unexpected permanent closure to ensure (a) the removal of hazardous materials and hazardous wastes, (b) the draining of all chemicals from storage tanks and other equipment, and (c) the safe shutdown of all equipment. For all such closures, a specific facility closure plan is required from the applicant at least twelve months before the start of closure-related activities

COMPLIANCE WITH APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Staff has concluded from the applicant's submittal that their plan for managing the wastes from the project's construction, operation, and closure would be in accordance with existing LORS designed to minimize the potential for human health and environmental

effects. The applicant intends in this regard to dispose of all project-related hazardous and non-hazardous only at facilities they have identified as appropriate for such purposes. An EPA identification number will also be obtained because of the applicant's potential status as a hazardous waste generator. Any on-site storage, handling or disposal of hazardous materials will be as required under California Code of Regulations, Title 22, Section 67100 et seq.

MITIGATION

The adequacy of the applicant's waste management plan is facilitated by their planned implementation of specific mitigation measures (OMGP 1999, pages 5.14-9 through 5.14-11). The most significant of these measures include the following:

- Storing hazardous wastes on site for less than 90 days and ensuring that such wastes are stored only in hazardous waste storage areas surrounded by containment structures.

- Ensuring that hazardous wastes are handled and disposed of only by licensed hazardous waste handlers.

- Training facility workers with respect to waste handling, containment and minimization procedures.

Staff will recommend specific conditions of certification to ensure implementation of these and the other facilitative measures.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff has determined that the applicant's waste management plan for the proposed would be adequate for compliance with LORS designed to minimize the potential for human health and environmental effects.

RECOMMENDATIONS

Given the acceptability of the applicant's waste management plan, staff recommends that the proposed project be considered acceptable with respect to the potential for waste-related impacts. To ensure implementation of all necessary mitigation measures, staff recommends adoption of the conditions of certification listed below.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the Compliance Project Manager (CPM) through its initial monthly compliance report.

WASTE-2 Whenever aware of any impending waste management-related enforcement action, the project owner shall notify the CPM of any such action whether it is to be taken against the project owner, the waste transporter under contract, or the disposal or treatment facility to be used.
Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-3 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CPM, for review and comment, a waste management plan with respect to all wastes generated during construction and operation of the facility. The plan shall include the following at a minimum:

- A description of all expected types of wastes including the estimates of the amounts expected.
- The applicable waste management methods including the treatment methods, treatment facilities, classification procedures, transportation methods, disposal requirements, facility location, and recycling and waste minimization/reduction measures.

Verification: No less than 60 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operations-related waste management plan shall be submitted no less than 60 days prior to the start of operation. The project owner shall submit any required revisions within 30 days of notification by the CPM (or on a mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used in the course of the year.

WASTE-4 If potentially contaminated soil is encountered during excavation at either the proposed site or around the linear facilities, an environmental professional (as defined under the requirements of the American Society for Testing and Materials), shall inspect the site, to determine the need for specific sampling to confirm the nature and extent of any contamination. This individual shall then file a written report to the project owner stating the recommended course of action. If, in his or her opinion, significant remediation would be necessary, the project owner shall contact the San Diego County Environmental Health Department and the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall notify the CPM in writing within 5 days of any reports filed by the environmental professional, and indicate if any substantive issues were raised.

REFERENCES

California Environmental Protection Agency and Regional Water Quality Control Boards, 1999. Wastes Allowed for Discharge at Disposal Facilities. April 24.

Otay Mesa Generating Project, 1999a. Application for Certification (99-AFC-3). Submitted to the California Energy Commission, August 2, 1999.

LAND USE

Eric Knight

INTRODUCTION

The land use analysis of the Otay Mesa Generating Project focuses on two main issues: the project's consistency with local land use plans, ordinances and policies; and the project's compatibility with existing and planned land uses. In general, an electric generation project and its related facilities could be incompatible with existing and planned land uses if it creates unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or if it unduly restricts or precludes existing or planned future uses.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The proposed power plant site is located in the County of San Diego. The existing Miguel-Tijuana 230 kV transmission line (which may require reconductoring as a result of this project) crosses lands in the jurisdiction of San Diego County and the City of Chula Vista. There are no goals or policies in the City of Chula Vista General Plan that are applicable to the potential reconductoring of the Miguel-Tijuana transmission line (Bazzel, pers. comm., 2000). A short segment of the proposed natural gas pipeline would be located in the City of San Diego. The City of San Diego Zoning Ordinance does not apply to utility lines such as gas pipelines (Levin, pers. comm., 2000).

Staff reviewed several County of San Diego planning documents relevant to the proposed project. A discussion of the project's conformity with applicable goals, policies, standards and regulations from each of these planning documents can be found in the subsection entitled COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS.

SAN DIEGO COUNTY

GENERAL PLAN

The current Regional Land Use Element of the San Diego County General Plan was adopted January 3, 1979 and amended January 11, 1995. The General Plan industrial land use designations provide locations for manufacturing, industrial, wholesaling, and warehousing uses based on the potential nuisance characteristics or impacts of a use. The General Impact Industrial designation provides for uses exhibiting moderate to severe nuisance characteristics. Typically, large sites are required with direct access to major roads, railroads, and other transportation modes (San Diego County 1979).

OTAY SUBREGIONAL PLAN

Adopted May 18, 1983, and amended July 27, 1994, the Otay Subregional Plan is part of the General Plan Regional Land Use Element. The Land Use Goal of the Otay Subregional Plan is to provide a land use pattern sensitive to

the opportunities and constraints of the subregion. The reasons for this are as follows:

1. the planned second international border crossing, the State Correctional Facility and the increased industrial development immediately across the Mexican border have increased development pressures on the subregion in general and on Otay Mesa in particular;
2. Otay Mesa contains large, level, undeveloped and relatively inexpensive parcels of land, and is located near a large labor pool, moderately priced housing and a general aviation airport—which makes it highly suitable for large scale industrial development;
3. the anticipated development of Otay Mesa represents potentially significant economic benefits to the subregion; and
4. the subregion contains valuable agricultural land; although adversely affected by high water and labor costs, the retention of agricultural land should be encouraged during the extended build out period of Otay Mesa.

The proposed power plant site is designated General Impact Industrial on the Otay Subregional Plan Land Use Map (San Diego County 1994b).

EAST OTAY MESA SPECIFIC PLAN

Approved in 1994, the East Otay Mesa Specific Plan sets forth a comprehensive vision for the development of approximately 3,300 acres in the southwestern portion of San Diego County as a modern industrial and business center. The planning intent of the East Otay Mesa Specific Plan is to implement the policies of the General Plan and the Otay Subregional Plan. According to the East Otay Mesa Specific Plan, the area has the potential to be the County's largest industrial and business district. The Specific Plan states that the area "contains large parcels of level, relatively inexpensive land located near the international border crossing and its Maquiladora or Twin Plants[1], which make it highly suitable for large-scale industrial development" (San Diego County 1994a, p. 5).

EAST OTAY MESA SITE PLANNING AND DESIGN GUIDELINES

The East Otay Mesa Site Planning and Design Guidelines are a key implementation tool for the East Otay Mesa Specific Plan. The overall goal of the Design Guidelines "is to create an industrial and business park that has a strong identity and is a place of distinction and quality." Another goal is to "assure a compatible interface with the proposed Otay River Valley Regional Open Space Park[2] that enhances

both the industrial development as well as the Regional Park."

SWEETWATER COMMUNITY PLAN

Adopted August 25, 1977, and amended October 28, 1993, the Sweetwater Community Plan is part of the San Diego General Plan. The Sweetwater Community Planning Area is that portion of unincorporated San Diego County south of State Route 54, east of Interstate 805 and north of the City of Chula Vista. The goals of the Sweetwater Community Plan are to retain and enhance the community's open, rural, equestrian atmosphere. The existing SDG&E Miguel Substation is located within the Sweetwater Community Planning Area and the existing Miguel-Tijuana 230 kV transmission line traverses the plan area from north to south.

SETTING

POWER PLANT SITE AND VICINITY

EXISTING LAND USE

The proposed power plant site is located on the eastern portion of the Otay Mesa in southwestern San Diego County, approximately 15 miles southeast of the City of San Diego and about 1.5 miles north of the U.S./Mexico border. The power plant would occupy roughly 15 acres of a 46-acre site[3] located approximately 800 feet east of Alta Road and 1,500 feet north of Otay Mesa Road. The site is currently undeveloped.

Existing land uses within a one-mile radius of the site include the R.J. Donovan State Prison, the George F. Bailey County Correctional Facility, a metal fabricating shop (formerly Kuebler Ranch), commercial and industrial land uses, and undeveloped land. A single residence on Otay Mesa Road is located approximately 3,500 feet southwest of the center of the power plant site. A group of three residences on Otay Mesa Road are located outside the one-mile radius (approximately 6,200 feet from the site), but along the proposed natural gas supply pipeline route (Route 2A). Existing land use within one mile of the power plant site and 0.25 mile of the proposed linear facilities (electrical interconnection line, natural gas supply pipelines, potable water supply pipeline, wastewater discharge pipelines, and site access roads) is shown on **LAND USE Figure 1**.

Historically, much of the flat portions of the East Otay Mesa Specific Plan Area has been used for agriculture (San Diego County 1994b). Currently, the power plant site, short transmission line, pipelines, and access roads are located in areas that do not involve irrigated agricultural lands (PG&E 1999a, AFC page 5.4-12 and OMGC 1999e, page 5.4-1).

Historic and current crop types within the project study area are shown in **LAND USE Table 1**.

LAND USE Table 1
Historic and Current Crop Types

Project Study Area	Historic Crop Type	Current Crop Type
Power Plant Site	Tomatoes, cucumbers, celery	Fallow
Route 1	Tomatoes, cucumbers, bell peppers, lima beans	Fallow
Route 2A (north of Otay Mesa Road)	Celery and lima beans	Fallow

Source: AFC Table 5.9-4, Page 5.9-23

According to the AFC, approximately one-half of the 46-acre power plant property is comprised of Farmland of Statewide Importance based on a review of the 1995 Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance for San Diego County published by the California Department of Conservation.
Several sections of the transmission line and gas pipeline routes qualify as Prime Farmland and Farmland of Statewide Importance. In addition, portions of the potable water pipeline route, wastewater discharge pipeline routes, and site access roads qualify as Farmland of Statewide Importance (PG&E 1999a, AFC pages 5.4-12 – 5.4-13 and OMGC 1999e, page 5.4-1).

PLANNED LAND USE

According to the East Otay Mesa Specific Plan Land Use Map, the power plant site is designated Mixed Industrial. The site is also zoned Mixed Industrial. East Otay Mesa Specific Plan zoning designations are shown on **LAND USE Figure 2**. Planned land use within one mile of the power plant site and within 0.25 mile of the proposed linear facilities is shown on **LAND USE Figure 3**. Approximately 2,372 gross acres of land, or about 70 percent of the East Otay Mesa Specific Plan Area, is planned for mixed industrial uses (San Diego County 1994). According to the Specific Plan Land Use Element, the Mixed Industrial land use designation is intended primarily for accommodating wholesale storage and distribution, research services and general industrial uses. The Land Use Element defines general industrial land use as “industrial plants primarily engaged in manufacturing, compounding, processing, assembling, packaging, treatment or fabrication of materials and products” (San Diego County 1994a, pp. 26-28).

LAND USE Figure 1
Existing Land Uses within One Mile of the Project Site and 0.25 Mile of the Proposed Linear Facilities

LAND USE Figure 2
East Otay Mesa Specific Plan Zoning Designations

LAND USE Figure 3
Planned Land Uses within One Mile of the Project Site and 0.25 Mile of the Proposed Linear Facilities

The Land Use Element designates 154 gross acres of the East Otay Mesa Specific Plan Area for Regional and District commercial uses. The steep slopes of the hillside area to the east of the power plant site, and the steep slope areas of Johnson and O'Neal Canyons to the north are planned for very low density, rural residential use (1 dwelling unit per 20 acres).

The proposed Otay River Valley Regional Park is located to the northwest within the one-mile radius around the power plant site. The Otay River Valley Regional Park is one of the largest regional parks planned for San Diego County (San Deigo County 1994). According to the East Otay Mesa Specific Plan, a goal of the regional park is to provide a mix of active and passive recreation opportunities for the East Otay Mesa industrial daytime population, as well as the existing and future residents within surrounding communities and the region. The proposed regional park will include trails within Johnson and O'Neal Canyons. As shown on the East Otay Mesa Specific Plan Open Space Plan (reproduced here as **LAND USE Figure 4**), a segment of a proposed trail corridor would be adjacent to a portion of the northern boundary of the 46-acre power plant property.

Currently there are three proposed projects in the East Otay Mesa Specific Plan Area. A 245-acre industrial park is proposed northeast of the intersection of Otay Mesa Road and the proposed State Route 125, and a 40-acre travel plaza/truck stop is proposed at the northeast corner of Airway Road and Enrico Fermi Drive. The power plant project's natural gas supply pipeline (Route 2A) would be within 0.25 mile of these proposed projects (OMGC 1999a, page 13). In addition to these projects, a 40-acre truck storage facility is proposed south of the proposed travel plaza/truck stop. This project is considered an interim use because its use permit would have a 5-year permit life (Caldwell, pers. comm., 2000).

LINEAR FACILITIES

ELECTRICAL TRANSMISSION LINE (ROUTE 1)

The project will connect to SDG&E's Miguel substation via the existing Miguel-Tijuana 230 kV transmission line. Two 0.1-mile long interconnection lines will be constructed between the power plant switchyard and the Miguel-Tijuana 230 kV transmission line to the east of the power plant site. The new lines will be hung from four, single-shaft, tubular steel towers. Within SDG&E's right-of-way, four, single-shaft, tubular steel towers will be constructed to tap the new lines into the existing Miguel-Tijuana transmission line. The

proposed interconnection lines will traverse undeveloped land planned for mixed industrial uses.

To accommodate the project's generating capacity, six new conductors (i.e., wires carrying electricity) may need to be added to an approximately 9.05-mile long section of the Miguel-Tijuana transmission line between the plant site and the Miguel Substation. The new conductors would be hung on existing towers. Existing land uses along the 9.05-mile long "reconductoring" route include

LAND USE Figure 4
East Otay Mesa Open Space Plan

undeveloped land, residential, commercial and industrial uses (please see **LAND USE Figures 1**, **5** and **6**).

Planned land uses along the existing Miguel-Tijuana transmission line is shown on **LAND USE Figures 3**, **7**, and **8**. The reconductoring route traverses the eastern portion of the Otay Ranch Project (milepost [MP] 2.0 to MP 4.8). The Otay Ranch Project is a proposed development of about 50,700 residences and a mix of other uses forming an approximately 23,100-acre "new town." The Otay Ranch Project would be developed in phases over a 30-50 year period and when completed would have a total population of about 150,000 persons (PG&E 1999a, AFC page 5.9-19). According to the AFC, grading for phase one of the project (Village One and Village Five) is complete (PG&E 1999a, AFC page 5.18-7).

Another proposed project along the reconductoring route is the San Miguel Ranch Project, a 2,950-acre residential community. The San Miguel Ranch Project is made up of two parcels (North Parcel and South Parcel) of land separated by an easement of land owned by SDG&E, which operates the Miguel Substation and associated transmission lines on the intervening land (PG&E 1999a, AFC pages 5.18-12 – 5.18-13). The existing Miguel-Tijuana transmission line passes through the South Parcel of the San Miguel Ranch Project. According to the AFC, construction of the San Miguel Ranch Project is scheduled to begin in spring 2000.

NATURAL GAS PIPELINE ROUTE (ROUTE 2A AND 2B)

The proposed 2.05-mile long natural gas pipeline (Route 2A) will interconnect with SDG&E's Harvest Regulator Station to the west of the power plant site. With the exception of the 0.2-mile portion of the route from the power plant site to Alta Road, Route 2A would be constructed within existing roadways (Alta Road, Otay Mesa Road, and Harvest Road). Segment C-D between the site and Alta Road would follow along the routes of two planned local roads (including Loop Road), which are shown on the East Otay Mesa Specific Plan Circulation Plan (reproduced here as **LAND USE Figure 9**). The 20-inch diameter gas pipeline will be buried in a trench, which at a minimum will be 32 inches wide and 62 inches deep (PG&E 1999a, AFC page 3.7-2).

Existing land use along Route 2A is primarily undeveloped land. An auto auction facility is located at the southwest corner of Otay Mesa Road and Alta Road (approximately MP 0.4). Several residences are located on Otay Mesa Road

north of the pipeline route: a single residence at approximately MP 0.7 and a group of three residences at about MP 1.4. Warehouses are located from MP 1.4 to MP 1.7 along Otay Mesa Road.

Planned land use along Route 2A is primarily industrial. Exceptions are the following areas planned for commercial uses: an area south of the future Loop Road and east of Alta Road, and an area north of SDG&E's Harvest Regulator Station and west of Harvest Road.

LAND USE Figure 5
Existing Land Uses within 0.25 Mile of the Reconductoring Route

LAND USE Figure 6
Existing Land Uses within 0.25 Mile of the Reconductoring Route

LAND USE Figure 7
Planned Land Uses within 0.25 Mile of the Reconductoring Route

LAND USE Figure 8
Planned Land Uses within 0.25 Mile of the Reconductoring Route

LAND USE Figure 9
East Otay Mesa Circulation Plan

The 1.6-mile long alternate gas pipeline (Route 2B) travels east from the power plant site, parallel to the electrical interconnection route. Route 2B then heads south for about 1.5 miles, running parallel and adjacent to the easterly side of the Miguel-Tijuana transmission line right-of-way to interconnect with a SDG&E metering station near the U.S./Mexico border. According to the East Otay Mesa Specific Plan, Route 2B travels through undeveloped land planned for mixed industrial and very low density (1 dwelling unit per 20 acres) Rural Residential land use.

WATER SUPPLY PIPELINE (ROUTE 3)

The 0.2-mile water supply pipeline will connect to an existing water main in Alta Road. The water supply pipeline will be constructed in a common right-of-way with segment C-D of the proposed natural gas supply pipeline (PG&E 1999a, AFC page 3.7-2 and 3.8-12). The water supply pipeline route travels through undeveloped land planned for mixed industrial use.

WASTEWATER DISCHARGE PIPELINE (ROUTE 4)

The 2.0-mile long wastewater discharge pipeline begins at the northeast corner of the power plant site and travels in a westerly direction to its interconnection point in Johnson Canyon. The area surrounding the wastewater discharge route is largely undeveloped. The route is located almost entirely within the proposed Otay River Valley Regional Park and would cross one of the proposed trail corridors twice (PG&E 1999a, AFC page 5.9-22). Land use designations within 0.25 mile of the pipeline route are Mixed Industrial, Rural Residential, Public/Semi Public, and Impact Sensitive Area.

ALTERNATE WASTEWATER DISCHARGE PIPELINE (ROUTE 4A)

Route 4A, a 0.85-mile long alternate segment of the wastewater discharge pipeline, was added at the County's request (OMGC 1999e, page 3-6). Route 4A begins at the southwest corner of the power plant site and travels west along the route of two planned County roads: Loop Road and Lone Star Road. Route 4A would then head north following the alignment of Enrico Fermi Drive to meet up with the proposed route (Route 4) in Johnson Canyon. Route 4A traverses undeveloped land planned for mixed industrial uses.

POWER PLANT SITE ACCESS ROAD (ROUTE 5)

The AFC proposed 0.15-mile long access road would connect the northwest corner of the power plant site with Alta Road. The northern site access road would follow the route of a planned local road depicted on the East Otay Mesa Specific Plan Circulation Plan. The area surrounding

the access road is undeveloped and planned for mixed industrial uses. The proposed route for the access road parallels the south side of a short segment of a trail corridor associated with the proposed Otay River Valley Regional Park.

SOUTHERN ACCESS ROAD/LOOP ROAD (ROUTE 5A)

The primary access to the power plant site will be via the Southern Access Road, which was added at the County's request (OMGC 1999e, page 3-4). Route 5A connects the southwest corner of the plant site to Alta Road and follows the route of the future Loop Road. Route 5A follows the same route as the potable water supply line (Route 3) and segment C-D of the proposed natural gas supply line (Route 2A). The 0.2-mile long Southern Access Road would traverse undeveloped land planned for mixed industrial uses.

IMPACTS

According to Appendix G of the Guidelines to the California Environmental Quality Act (CEQA), a project may have a significant effect on land use if the project will:

- 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;
- Physically divide an established community; or
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.
- A project may also have a significant impact on land use if it will create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it precludes or unduly restricts existing or planned future uses.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Public Resources Code section 25525 states that the Energy Commission shall not certify any facility when it finds "that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity." When determining if a project is in conformance with state, local or regional ordinances or regulations, the Energy Commission typically meets and consults with the applicable agencies to determine conformity and, when necessary, "to attempt to correct or eliminate any noncompliance" (Pub. Resources Code, § 25523(d)(1)). The laws, ordinances, regulations, standards (LORS) and policies applicable to the project have been analyzed below to determine the extent to which the project is consistent or at variance with each requirement or standard.

OTAY SUBREGIONAL PLAN, SAN DIEGO COUNTY GENERAL PLAN

The following policies are applicable to the proposed project:

Land Use Policy #3 states that "all proposed industrial development should comply with the design criteria to be contained in the proposed mixed industrial use regulations." The applicant will prepare a site plan to demonstrate compliance with the East Otay Mesa Site Planning Design Guidelines, which are the adopted design standards for industrial development in East Otay Mesa. Please see the discussion on the East Otay Mesa Site Planning Design Guidelines.

Land Use Policy #4 states that "the County will discourage industries that display pollution or other nuisance characteristics from locating near the Mexican border." The Otay Subregional Plan states that consideration should be given to residential areas immediately across the border (San Diego County, 1983). The project will use dry cooling and therefore will not create a water vapor plume. It would also be highly unlikely that a visible plume would be emitted from the Heat Recovery Steam Generator Stacks. With mitigation, staff does not expect the project to have significant adverse noise, visual, or public health impacts on land uses near the U.S./Mexico border. Please refer to the **NOISE**, **VISUAL RESOURCES**, and **PUBLIC HEALTH** sections of the PSA. Therefore, staff concludes that the project is consistent with this policy.

Land Use Policy #5 states that "the County recognizes the opportunities for interim agricultural uses on the Otay Mesa and will, in cooperation with affected property owners, encourage such uses to the greatest extent possible." The Otay Subregional Plan states that agricultural use is compatible with industrial uses, as demonstrated in many other areas in California and throughout the United States (San Diego County, 1983). Development of the power plant would preclude use of the 46-acre site for agricultural purposes. However, the site is not currently used for agriculture, and has not been actively farmed for the last five years or more (Caldwell, pers. comm., 2000). Construction of the site access roads would also preclude agricultural use in the areas they would be located. However, these areas are not currently used for agriculture. The short transmission line and underground pipelines would not preclude interim agricultural use in the areas they would traverse. The project is consistent with the uses allowed by

the East Otay Mesa Specific Plan and would therefore be consistent with this policy.

EAST OTAY MESA SPECIFIC PLAN

The East Otay Mesa Specfic Plan establishes the following types of development regulations to guide development in East Otay Mesa.

SUBDIVISION REGULATIONS

The project would be developed within a 46-acre site, which is a portion of an approximately 79-acre parcel (APN 648-040-22-00). The applicant intends to subdivide the 79-acre parcel into three separate parcels: an approximately 21-acre parcel which would front Alta Road, the 46-acre power plant site, and an approximately 13-acre parcel to the south of the site. The proposed subdivision is shown on Figure 3.5-1 in the March 2000 Supplement. In order to subdivide the parcel, the County will require the applicant to go through a Tentative Parcel Map process (Stocks, pers. comm., 2000). The proposed subdivision is considered a minor subdivision, which does not require a public hearing, only a decision from the planning director (i.e., not the Board of Supervisors). However, a Tentative Parcel Map is subject to CEQA. For its environmental review of the subdivision, the County has indicated that it would rely on the Environmental Impact Report (EIR) completed for the East Otay Mesa Specific Plan, and prepare an addendum to that EIR (Russell, pers. comm., 2000). County staff expects that any additional studies (e.g., traffic study) needed to prepare the addendum already have been completed for the power plant project (i.e., AFC proceedings). In approving the Tentative Parcel Map, conditions will be required of the applicant. Once these conditions are fulfilled, the parcel map would be recorded.

If the applicant submits any needed studies along with its Tentative Parcel Map application, County staff indicated that it could take between 4 and 6 months (it can take up to 10 months in some cases) to complete their review. At this time the applicant has not submitted an application to subdivide the parcel.

LAND USE REGULATIONS

Land Use Policy LU-1 of the East Otay Mesa Specific Plan Land Use Element states the County's intent to "accommodate the forecasted mixed industrial uses in East Otay Mesa." For each land use district, the Specific Plan specifies permitted uses, permitted uses subject to limitation, uses subject to a minor use

permit, and uses subject to a major use permit. In the Mixed Industrial District, the East Otay Mesa Specific Plan allows "Major Impact Services and Utilities" on condition of a Major Use Permit. The Zoning Ordinance defines the Major Impact Services and Utilities use type as "public services and utilities which have substantial impact." The County has indicated that this use type includes this project (CSD 1999a and Caldwell, pers. comm., 2000).

Because the issuance of a certificate by the Energy Commission is in lieu of any local permit (Pub. Resources Code, § 25500), the project will not require a Major Use Permit. However, Energy Commission staff requested San Diego County to review the Application for Certification and provide Energy Commission staff with the County's comments on the proposed project's conformity with the County's laws, ordinances, regulations, and standards (LORS). San Diego County staff has reviewed the project as though it was an application for a Major Use Permit, and on April 3, 2000, provided Energy Commission staff with a copy of the County staff report to the Board of Supervisors. The report recommends conditions of approval that would be included in a Major Use Permit to ensure the project's consistency with the East Otay Mesa Specific Plan and other County LORS (CSD 1999f). On April 12, 2000, the County Board of Supervisors voted to adopt the County staff report and to recommend that the Energy Commission approve the Otay Mesa Generating Project. Energy Commission staff will address the County's comments in the Final Staff Assessment.

Section 7358 of the Zoning Ordinance provides that before a Major Use Permit can be granted, the County must make the following findings:

1. That the location, size, design, and operating characteristics of the proposed use will be compatible with adjacent uses, residents, buildings, or structures, with consideration given to:
a. Harmony in scale, bulk, coverage and density;
b. The availability of public facilities, services and utilities;
c. The harmful effect, if any, upon desirable neighborhood character;
d. The generation of traffic and the capacity and physical character of surrounding streets;

e. The suitability of the site for the type and intensity of use or development which is proposed; and to

f. Any other relevant impact of the proposed use.

2. That the impacts, as described above and the location of the proposed use will be consistent with the San Diego County General Plan.

3. That the requirements of the California Environmental Quality Act have been complied with.

Electric transmission lines and gas and water pipelines are classified as “Essential Services” by the San Diego County Zoning Ordinance (Caldwell, pers. comm., 2000). The Essential Service use type refers to services that are necessary to support principal development and involve only minor structures, such as utility lines and/or poles (San Diego County, 1978). Essential services are permitted uses within all zoning districts in the East Otay Mesa Specific Plan Area. In addition, the County Zoning Ordinance permits essential services in all zoning districts, with the exception of the Ecological Resource Area, which is subject to limitations. The project’s linear facilities do not traverse areas designated Ecological Resource Area.

The Public Facilities Element of the East Otay Mesa Specific Plan provides that utility lines will be underground in roadways “with the exception of the 69 kV electrical line on Otay Mesa Road and the 230 kV line on the eastern portion of the Specific Plan Area.” The County has indicated that the project’s 230 kV interconnection line would also be exempted from the undergrounding requirement (Caldwell, pers. comm., 2000).

In a conference call with County staff on February 3, 2000, the County indicated that the proposed wastewater discharge pipeline (Route 4) would be inconsistent with the Wastewater Facilities Plan and would require an amendment to the East Otay Mesa Specific Plan. To avoid this nonconformity, the County suggested the applicant use its “Lone Star Road” alignment, which is depicted on the Wastewater Facilities Plan. The County prefers this alignment because it would better serve the sewer needs of potential future development in the area (OMGC 1999e). In response, the applicant has added Route 4A, which follows along the route of the

future Lone Star Road and would replace the corresponding section of Route 4 in Johnson Canyon.

Sensitive Resource Area Regulations, "G" Designator

The Specific Plan assigns a "G" Designator to environmentally sensitive areas to ensure that these areas are appropriately protected. Areas with a "G" Designator are subject to the Sensitive Resources Area Regulations of the Zoning Ordinance. The Specific Plan requires that prior to approval of a tentative map, or if no subdivision is needed, prior to any development including clearing or grading, a Resource Conservation Plan must be approved for parcels with a "G" Designator.

Portions of the power plant site, the proposed 230 kV connection to the existing Miguel-Tijuana transmission line, and the alternate gas supply pipeline (Route 2B) are within areas with a "G" Designator. Please refer to the **BIOLOGICAL RESOURCES** section for a discussion of the project's conformance with the Sensitive Resources Area Regulations.

Community Design Review Area Regulations, "B" Designator

All areas planned for industrial use in the East Otay Mesa Specific Plan Area are assigned a "B" Designator and subject to the provisions of the Community Design Review Area Regulations of the Zoning Ordinance. The East Otay Mesa Site Planning Design Guidelines (Design Guidelines) serve as the design criteria for site plan review of industrial uses. The Design Guidelines cover the following site planning issues: grading, circulation, parking and loading, structures, landscaping, fencing and screening, signage, lighting, and public utility structures. The project's compliance with the East Otay Mesa Site Planning and Design Guidelines is discussed later.

Policy COS-4 of the Specific Plan Conservation and Open Space Element provides that any industrial development permit application within the Focused Planning Area of the proposed Otay River Valley Regional Park shall be reviewed for compatibility with the Regional Park's goals as part of the Design Review process. The proposed power plant site is not within the Regional Park Focus Planning Area. The wastewater discharge pipeline would be within the Focus Planning Area but would be underground. Except for occasional clean-out traps and manhole

covers, the pipeline would not be noticeable. The existing Miguel-Tijuana transmission line is within the Regional Park Focus Planning Area. If the transmission line requires reconductoring, the new wires will be hung on existing towers. Staff has found the visual effect of reconductoring the Miguel-Tijuana transmission line to be less than significant (please see the **VISUAL RESOURCES** section of the PSA).

Development Standards

The East Otay Mesa Specific Plan establishes industrial development standards for lot size, floor area ratio, structure height, lot coverage, setbacks, usable open space, and off-street parking. The Specific Plan allows a maximum structure height of 60 feet. Project features that exceed this limit are: the 65-foot tall heat recovery steam generators and their 131-foot tall stacks; the two 70-foot tall generation buildings; and the two 76-foot tall air cooled condensers (PG&E 1999a, AFC page 5.13-2 and OMGC 1999e, page 3-1).

At staff's data request workshop on November 16, 1999, the County indicated that normally an exception to the height limit would be considered during the Major Use Permit process. Section 4620 of the Zoning Ordinance provides that additional height may be granted for any structure for which a major use permit is issued when the major use permit authorizes an exception to the height regulations (San Diego County, 1978).In their report, the County states that the visual impact on adjacent properties from structures exceeding the 60-foot limit would be partially mitigated by the large proposed setbacks from the northern and southern site boundaries. Because the structures are likely to be the dominant feature within the East Otay Mesa Specific Plan area, the County recommends painting the structures with olive-colored earth tones to help blend the structures with the natural habitat in the background and to help reduce the sense of excessive height (CSD 1999f). Based on these comments, staff would assume that were this an application for a Major Use Permit, the County would allow the height exception with the mitigation measures described above.

In addition, staff requested the applicant provide a written tabulation of how the project will comply with all applicable development standards as specified in Section 3.3 of the East Otay Mesa Specific Plan (CEC

1999c, data request #9a). The applicant stated its intent to respond to staff's data request by mid-February, 2000 (OMGC 1999d, data response #9a). To date, staff has not received a response to this data request.

EAST OTAY MESA SITE PLANNING AND DESIGN GUIDELINES

The East Otay Mesa Site Planning and Design Guidelines are intended to "allow design flexibility under the premise that there are many design solutions which can achieve a stated goal." The guidelines state further that projects "must comply with all the Design Guidelines, either following them precisely, or offering a design solution that is equal or better in achieving the stated objective."

The applicant stated that the project will be designed "as practical" to conform to the Design Guidelines (PG&E 1999a, AFC page 5.9-24a). In their September 28, 1999 letter, the County stated that they would appreciate an opportunity to informally review a detailed site plan since the project "will have a visual and physical presence" (CSD 1999a). To determine how the project would be designed to fit in with the land uses called for in the East Otay Mesa Specific Plan staff requested the applicant provide a detailed site plan in conformance with the Design Guidelines (CEC 1999c, data request #8).

On February 22, 2000, the applicant submitted a site plan to the County, although a copy was not provided to staff. The County has reviewed the site plan and found it to be inadequate for making a conformity finding with the East Otay Mesa Site Planning and Design Guidelines (CSD 1999e). In their report, the County requests that prior to approval of the project by the Energy Commission, the applicant should obtain approval from the Director of Planning and Land Use of a revised plot plan to make the project consistent with the East Otay Mesa Site Planning and Design Guidelines. These revisions include a revised grading plan and various changes to the landscape plan (CSD 1999f). Staff will review the revised plot plan to determine if the project provides a compatible interface with the trails associated with the proposed Otay River Valley Regional Open Space Park.

SWEETWATER COMMUNITY PLAN

The Sweetwater Community Plan recognizes the existing SDG&E Miguel-Tijuana transmission corridor. No goals or policies are applicable to the existing transmission line or the potential reconductoring (Caldwell, pers. comm. 2000).

COMPATIBILITY WITH EXISTING AND PLANNED LAND USES

POWER PLANT

Construction laydown areas for the power plant will be located within the 46-acre site. Temporary offsite storage for large components may be procured near the closest rail station or transportation hub (PG&E 1999a, AFC page 3.8-3). Because the use of laydown areas would be temporary and would not displace any existing use, the impact would not be significant.

Temporary construction impacts, such as increased dust, noise and traffic may affect nearby land uses. With mitigation, staff does not expect significant adverse noise or traffic impacts (please see the **NOISE** and **TRAFFIC AND TRANSPORTATION** sections of the PSA). To control fugitive dust during construction, staff will require all feasible mitigation (e.g., Best Management Practices). At this time, staff does not know if mitigation will reduce these temporary impacts to a less than significant level due to the potentially high existing background levels of PM_{10} emissions (particulate matter, less than 10 microns in diameter). Please see the **AIR QUALITY** section of the PSA.

The 46-acre power plant site is currently undeveloped. The area within a one-mile radius of the site is largely undeveloped. Thus, the power plant would not disrupt or divide the physical arrangement of an established community. According to the AFC, approximately one-half of the 46-acre power plant site qualifies as Farmland of Statewide Importance. Development of the power plant would preclude use of the site for agriculture. However, the site has not been actively farmed for the last five years or more. In addition, the Final EIR for the East Otay Mesa Specific Plan concluded that development of industrial and commercial uses in the East Otay Mesa area would have a less than significant impact on the County's agricultural resources. Therefore, development of the power plant would have a less than significant impact on agriculture.

The power plant site, which is zoned Mixed Industrial by the East Otay Mesa Specific Plan, is within an approximately 3,300-acre area predominately planned for industrial uses. A power plant is consistent with the Mixed Industrial zoning of the site. The proposed power plant facilities would occupy approximately 15 acres of the site. The remainder of the 46-acre parcel would provide a buffer between the power plant and adjoining properties. No residences adjoin the power

plant site. The site is buffered from the nearest residence by distance (approximately 3,500 feet). The power plant would not preclude or unduly restrict the proposed trail associated with the Otay River Valley Regional Open Space Park.

With mitigation, staff does not expect operation of the power plant to cause significant adverse noise, public health, traffic, or visual effects on nearby land uses. Please see the **NOISE**, **PUBLIC HEALTH**, **TRAFFIC AND TRANSPORTATION and VISUAL RESOURCES** sections of the PSA.

ELECTRICAL TRANSMISSION LINE (ROUTE 1)

The proposed interconnection route between the power plant switchyard and the existing Miguel-Tijuana 230 kV transmission line traverses undeveloped land. The route is encircled by at least 0.5 mile of undeveloped land. Thus, the interconnection route will not disrupt or divide the physical arrangement of an established community. The area traversed by the interconnection route is planned for mixed industrial uses. A new electrical transmission line segment would be compatible with these uses. According to the AFC, right-of-way easements have been negotiated with affected property owners for the new transmission line segment (PG&E 1999a, AFC page 3.8-7). Thus, the interconnection route would not preclude or unduly restrict existing or future land uses.

Reconductoring of the existing Miguel-Tijuana transmission line is anticipated to take 3 to 4 months (PG&E 1999a, AFC page 3.8-7). One or two staging areas for materials and equipment will be needed during reconductoring (PG&E 1999a, AFC page 3.8-9). The applicant expects that the northern staging area will be located on a previously disturbed site used during the original construction of the Miguel-Tijuana transmission line. The southern staging area will be at the power plant site. Because the use of the staging areas would be temporary and would not displace any existing use, the impact would not be significant.

Reconductoring of the Miguel-Tijuana transmission line would not cause a change in land use. According to the AFC, the existing 120-foot wide SDG&E right-of-way is adequate for the reconductored line and will not require widening (PG&E 1999a, AFC page 3.6-3). Since it would be entirely within an existing and established right-of-way, the reconductored transmission line would not disrupt or divide the physical arrangement of an established community. Also for these reasons, the reconductored transmission line would

not preclude or unduly restrict existing or future land uses along the route.

NATURAL GAS PIPELINE ROUTE (ROUTE 2A AND 2B)

The proposed 2.05-mile long natural gas pipeline (Route 2A) would be constructed within existing roadways (Alta Road, Otay Mesa Road, and Harvest Road) or along the routes of planned roadways (e.g., Loop Road). Since it would be underground and placed within existing or planned roadways, the proposed gas supply pipeline would not preclude or unduly restrict existing or future uses. Please refer to the **TRAFFIC AND TRANSPORTATION** section for a discussion of temporary impacts to local roadways during construction.

For nearly its entire length, the alternate gas pipeline route (Route 2B) would run parallel and adjacent to the easterly side of the Miguel-Tijuana transmission line right-of-way. Route 2B would traverse land that is currently undeveloped. Since it would be underground, the alternate gas supply pipeline would not preclude or unduly restrict future uses.

WATER SUPPLY PIPELINE (ROUTE 3)

Construction of the water supply pipeline is anticipated to take 7 to 10 days. Construction of the water supply pipeline will be coordinated with construction of the proposed gas supply pipeline (Route 2A) since both would be located within a common right-of-way between the power plant site and Alta Road (PG&E 1999a, AFC page 3.8-11). Since it would be underground and follow the routes of planned roadways, the water supply pipeline would not preclude or unduly restrict future uses.

WASTEWATER DISCHARGE PIPELINE (ROUTE 4)

Construction of the wastewater discharge pipeline is anticipated to take about 20 or 50 days depending on the construction method used (PG&E 1999a, AFC page 3.8-12). Since the wastewater discharge pipeline would be underground it would not conflict with any trails associated with the Otay River Valley Regional Park.

ALTERNATE WASTEWATER DISCHARGE PIPELINE (ROUTE 4A)

Since the 0.85-mile long alternate segment of the wastewater discharge pipeline would be underground and follow the routes of planned roadways it would not preclude or unduly restrict existing or future uses.

POWER PLANT SITE ACCESS ROAD (ROUTE 5)

The AFC proposed site access road would follow the route of a planned local road shown on the East Otay Mesa Specific Plan Circulation Plan. The area it would traverse is currently undeveloped. Thus, the site access road would not

disrupt or divide the physical arrangement of an established community, or preclude or unduly restrict future uses.

SOUTHERN ACCESS ROAD/LOOP ROAD (ROUTE 5A)

The Southern Access Road would follow the route of the future Loop Road. The area is currently undeveloped. Thus, the Southern Access Road would not disrupt or divide the physical arrangement of an established community, or preclude or unduly restrict future uses.

CUMULATIVE IMPACTS

The proposed project would contribute to the gradual intensification of land use in the East Otay Mesa area. This trend is anticipated in the East Otay Mesa Specific Plan, which has designated approximately 3,300 acres of land for industrial, commercial, and rural residential development.

The project would contribute to the cumulative loss of agricultural land in San Diego County. The project would be a small component of the overall development of the East Otay Mesa area, and would not contribute substantially to the cumulative loss of agricultural land.

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 closure occurs in such a way that public health and safety and the environment are protected from adverse impacts.

The information provided in the AFC did not specifically address the effects of project closure on land use issues and concerns. The planned lifetime of the project is 30 years. At least twelve months prior to the initiation of decommissioning, the applicant will prepare a Facility Closure Plan for Energy Commission review and approval. At the time of closure, all applicable LORS will be identified and the closure plan will discuss conformance of decommissioning activities with these LORS.

There are at least two other circumstances under which a facility closure can occur, unexpected temporary closure and unexpected permanent closure. Staff has not identified any LORS from a land use perspective that the applicant would have to comply with in the event of an unexpected temporary closure or an unexpected permanent closure of the project.

MITIGATION

Staff has requested the applicant provide a detailed site plan to determine conformance with the East Otay Mesa Site Planning and Design Guidelines. In addition, staff has requested the applicant provide a written tabulation of how the project will comply with all applicable development standards contained in the East Otay Mesa Specific Plan.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

At this time staff cannot conclude that the project would comply with all applicable land use laws, ordinances, regulations and standards. The applicant has submitted a site plan to the County for their

recommendation to the Energy Commission, which is inconsistent with some of the provisions of the East Otay Mesa Site Planning and Design Guidelines. The County staff has asked the applicant for a revised grading plan and for some changes in its landscaping plan. Furthermore, a copy of the site plan was not provided to staff. The project would exceed the allowable height limit in the Mixed Industrial Zoning District. However, the County has implied that a height exception would be granted with the inclusion of visual mitigation measures. The applicant has not provided staff a written tabulation of how the project would comply with other applicable development standards contained in the East Otay Mesa Specific Plan. The County provided its comments on the project's conformity with County LORS; however, at the time this analysis was written, staff has not been able to fully review the County's findings and recommendations.

The proposed project is consistent with the Mixed Industrial zoning of the site. The project would not physically divide an established community, or preclude or unduly restrict existing or future uses. The project would have a less than significant effect on agricultural resources. The project would not contribute substantially to the cumulative loss of agricultural land.

With mitigation, the project would not cause significant adverse noise, public health, traffic, or visual impacts on nearby land uses. At this time, staff does not know if mitigation can reduce dust impacts during project construction to a less than significant level.

RECOMMENDATION

Staff does not have sufficient information to recommend approval of the project at this time.

CONDITIONS OF CERTIFICATION

No conditions of certification are proposed at this time. Staff may propose conditions of certification in the Final Staff Assessment following review of the County staff report and Board of Supervisors' resolution.

REFERENCES

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TRAFFIC AND TRANSPORTATION

James Adams

INTRODUCTION

The Traffic and Transportation section of the Preliminary Staff Assessment addresses the extent to which the Otay Mesa Generation Project (OMGP) may impact the transportation system in the local area. This analysis includes the identification of: 1) the roads and routings which are proposed to be used for construction and operation; 2) potential traffic related problems associated with the use of those routes for construction and operation of the project; 3) the anticipated number of trips to deliver oversize/overweight equipment; 4) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated facilities; and 5) the frequency of trips and probable routes associated with the delivery of hazardous materials.

Staff has used information from the OMGP Application for Certification (AFC 1999), as well as other resources to determine whether the project has the potential to have significant traffic and transportation impacts, as well as to assess the availability of mitigation measures which could substantially reduce or eliminate the significance of those impacts. Conditions of certification are included to implement the appropriate mitigation measures and to ensure that the project complies with the applicable Laws, Ordinances, Regulations and Standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

- Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the type of materials defined as hazardous, and the marking of the transportation vehicles.
- Title 49, Code of Federal Regulations, Sections 350-399, and Appendices A-G, Federal Motor Carrier Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

- California Vehicle Code, section 353 defines hazardous materials.
- California Vehicle Code, sections 31303-31309 regulate the highway transportation of hazardous materials, the routes used, and restrictions thereon.
- California Vehicle Code, sections 31600-31620 regulate the transportation of explosive materials.
- California Vehicle Code, Sections 32000-32053, regulates the licensing of carriers of hazardous materials and includes noticing requirements.
- California Vehicle Code, Sections 32100-32109, establishes special requirements for the transportation of inhalation hazards and poisonous gases.

- California Vehicle Code, Sections 34000-34121, establishes special requirements for the transportation of flammable and combustible liquids over public roads and highways.
- California Vehicle Code, Sections 34500 et seq., regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.
- California Vehicle Code, Sections 2500-2505, authorizes the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- California Vehicle Code, Sections 13369, 15275, and 15278, address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, these sections require the possession of certificates permitting the operation of vehicles transporting hazardous materials.
- California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code 35780 et seq., require permits for the transportation of oversized loads on county roads.
- California Streets and Highways Code, Sections 660, 670, 1450, 1460 et seq., and 1480 et seq., regulate right-of-way encroachment and the granting of permits for encroachment on state and county roads.
- California Health and Safety Code, Section 25160 et seq., addresses the safe transport of hazardous materials.

LOCAL

SAN DIEGO COUNTY

GENERAL PLAN

The General Plan establishes local goals and policies regarding transportation improvements. The circulation element of the plan has several objectives such as providing a guide for the provisions of a coordinated system of highway routes throughout San Diego County, helping to achieve efficiency and economy in this important field of public works, and facilitating the planning to meet street and highway needs in subdivision and other land development programs.

East Otay Mesa Specific Plan

This portion of the General Plan provides guidance for future development of the East Otay Mesa area. Within the plan is a discussion of traffic circulation. Applicable goals and policies are:

1. Promote the development of local road circulation facilities to adequately serve the

planned land uses in the East Otay Mesa Specific Plan Area.

2. Public road design and private development shall follow all road standards of the Specific Plan.

3. Assure that necessary road improvements are provided to mitigate project impacts.

4. Promote the development of regional road facilities as necessary to accommodate future development in the East Otay Mesa Specific Plan Area.

5. Promote circulation coordination between the County of San Diego and the City of San Diego to develop a safe and efficient roadway system for Otay Mesa.

Centerline Ordinance, Subdivision Ordinance, and Public Road Standards

These set forth guidelines relating to dedications and improvements. The administering agency is the San Diego County Department of Planning and Land Use (the San Diego County Board of Supervisors). These ordinances apply to the OMGP because the Loop Road and north access road will be public roads.

SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG)

SANDAG released a Draft 2020 Regional Transportation Plan in November 1999, pursuant to Section 65080 of the State Government Code, which mandates a periodic update of the Regional Transportation Plan. The Final Plan will be released in late April (Walker 2000). These documents contain updated traffic counts, status of other development projects in the area, and suggestions for relieving congestion.

SETTING

REGIONAL DESCRIPTION

ROADWAYS AND HIGHWAYS

The project site is located approximately 15 miles southeast of the City of San Diego and 1.5 miles north of the U.S./Mexico border, (See Project Description-Figure 3.2-1). The site is 15 acres in size and is near the intersection of Otay Mesa and Alta Roads as depicted in **Traffic and Transportation Figure 1**. The project site is reached from the west on State Route (SR) 905 which is a west/east highway that originates at Interstate I-5 about 7 miles south of San Diego. SR-905 proceeds east past the intersection with La Media Road before turning south to the Otay Mesa

Port of Entry into Mexico. Otay Mesa Road proceeds east from its intersection with SR-905 until reaching Alta Road. The site can be reached by proceeding north on Alta road. An asphalt-paved access road would be constructed from Alta Road to the proposed site. The administration building parking lot and the road encircling the power plants outer perimeter will also be asphalt paved.

Two primary highways, I-805 and I-5 provide regional access to the plant site. I-5 is an eight-lane, north-south running freeway that stretches from the Mexican to the Canadian border. It is one of the major highways in California and connects San Diego to the Los Angeles area and regions to the north. I-805 is an eight-lane, north-south freeway that begins just north of the Mexican border and runs roughly parallel to I-5 until it merges with I-5 north of San Diego near the City of Del Mar. It reduces traffic flows on I-5 and provides access to areas east of San Diego.
Each highway and road has the following weight and load limitations; when these are exceeded, an oversize/overweight permit is required from Caltrans or San Diego County:

- 80,000 lb. gross vehicle weight;
- 8 feet in height;
- 6 feet in width; and
- 65 feet in length.

TRAFFIC AND TRANSPORTATION Table 1 identifies the annual average daily traffic (AADT), annual average peak-hour traffic, annual average daily truck traffic, annual average percent of truck traffic, highway capacity in vehicles per day, and level of service (LOS) for highways in the vicinity of the project. These traffic estimates are presented for various road segments between mileposts or junctions on each road. LOS levels refer to the average vehicle capacity and the flow of traffic. LOS A denotes free flow of traffic while LOS E and F means that there is a congested flow. The County has determined that LOS C, stable flow, is an acceptable operating condition. The criteria for LOS on highways are established by Caltrans. These criteria take into account numerous variables such as annual average daily traffic (AADT), capacity, grade, environment, and other relevant information. As indicated in the AFC, according to Caltrans policy, LOS D is acceptable for planning purposes, whereas LOS E and F are considered unacceptable. As shown in **Table 1**, most of the state routes potentially affected by the proposed OMGP are operating at or above

LOS D. However, as discussed later in this analysis, there are two significant roadways with LOS of E and F.

In general, traffic in the San Diego region, particularly on the state highways, has increased substantially in the last twenty years. For example, over half of the region's daily travel is on state highways, which is more than any other metropolitan area in the country. The proposed SR-125 toll road and SR-905 are considered critical for accommodating current and anticipated development of the Otay Mesa Area. In January 2000, Caltrans released a Final Environmental Impact Report/Statement for the State Route 125 South Expansion Between Otay Mesa and Spring Valley. Otay Mesa Road, Lone Star Road, and Siempre Viva Road are

TRAFFIC AND TRANSPORTATION TABLE 1
Current Traffic Characteristics of Highways in the Project Area

Highway	Location	Annual Average Daily Traffic	Peak Hour Traffic	Annual Average Daily Truck Traffic	Percent of Truck Traffic	Highway Capacity	LOS
Interstate 5	Coronado Avenue Interchange –SR-905	99,000	8,100	4,620	4.6	326,400	A
	SR-905 – I-805	68,000	5,600	10,880*	16.0	326,400	A
Interstate 805	Otay Valley Road-SR-90	105,000	5,775	1,886	5.5	326,400	B
	Sr-905 – I-5	51,000	2,040	5,390	5.5	326,400	B
SR- 905	I-5 – SR-805	38,500	3,550	3,118	8.1	163,200	A
	I-805 – Otay Mesa Road (e. of I-805)	38,000	3,750	3,040	8.0	80,000**	B
	Break in Route	--	--	--	--	--	--
	Otay Mesa Road – Harvest Road	23,300	2,250	3,728*	16.0	29,600	C
	Harvest Road – Siempre Viva	24,400	2,150	3,904*	16.0	29,600	C
	Siempre Viva Road – U.S./Mex. Border	24,500	2,582	3,920*	16.0	29,600	C
SR-125	I-8 – SR-94	110,000	10,600	4,884	4.4	244,800	A
SR- 54	I-5 – I-805I-805 – Reo Drive	98,000	8,800	6,644	6.8	244,800	A
		77,000	6,800	2,002	2.6	70,000	D
Otay Mesa Road	SR-905 (e. of I-805)	60,000**	2,300	7,616*	6.8	60,000**	C**
	Heritage Road	60,000**	1,400	6,512*	16.0	60,000**	C**
	La Media – Interim SR-905 (w. of Harvest Road)	40,000**	2,430	5,520*	16.0	40,000**	D**
	SR-905 (w. of Harvest Road) – Sanyo Avenue	3,600	230	576*	16.0	7,100	B

TRAFFIC AND TRANSPORTATION TABLE 1 – CONTINUED
Current Traffic Characteristics of Highways in the Project Area

Highway	Location	Annual Average Daily Traffic	Average Annual Peak Hour Traffic	Annual Average Daily Truck Traffic	Percent Of Annual Average Truck Traffic	Highway Capacity	LOS
Otay Mesa Road	Sanyo Avenue – Alta Road	4,100	404	656	16.0	7,100	B
	Interim SR-905 – Old Otay Mesa Road	4,100	404	656	16.0	7,100	F**
Otay Valley Road	Heritage Road – I-805	5,200	280	832*	16.0	7,100	C
Heritage Road	Otay Valley Road - Otay Mesa Road	6,300	570	1,008*	16.0	7,100	C
La Media Road	Lone Star Road – Otay Mesa Road	3,400	290	544*	16.0	7,100	A
	Otay Mesa Road – Airway Road	4,600	396	736*	16.0	7,100	B
	Airway Road – Siempre Viva Road	4,400	380	704	16.0	7,100	B
Alta Road	Richard J. Donovan Corr. Facility – Otay Mesa Road	4,045	483	647	16.0	7,100	B

Source: Adapted From Otay Mesa AFC, Table 5.11-1, PP. 5.11-7&8

*** Annual average daily truck traffic unavailable for this segment. Estimate based upon an assumption that truck traffic in this area constitutes 16 percent of total vehicular traffic**

(Source: SANDAG 1996, as noted in Table 5.11-1, Pg. 5.11-8)

** Personal communication with John Kempf, Caltrans, District 11, San Diego. The LOS F for the intersection of Interim SR-905 and Old Otay Mesa Road is do to a skewed intersection.

considered Prime Arterials to carry Otay Mesa traffic east-west to the local freeways. Alta Road is also considered the prime arterial north of Lone Star Road to serve traffic to Otay Ranch (SANDAG 1999).

The Public Works Department for the County of San Diego noted in a January 10, 2000 letter to staff that the section of Otay Mesa Road east of La Media operates at

a poor level of service [LOS D/E] (Stanton 2000). Moreover, the Final Environmental Impact Report for the Brown Field Airport Master Plan contains
traffic tables that indicate the LOS for certain sections of Otay Mesa Road are currently at level F (City of San Diego 2000). The low level of service appears
to be due to the FEIR's worst case scenario before Interim SR-905 segment of Otay Mesa Road was widened. Traffic flow has improved since December 1999 when Otay Mesa Road, from SR-905 east to the intersection with La Media Road, was
widened from four to six lanes. East of La Media Road, Otay Mesa Road continues with four-lanes. As noted in Table 1, this section of road is now at LOS level C. In comments on the AFC (Figge 2000), Caltrans offers the following amended language for the Highways and Roadways Section (AFC-Section 5.11.1.1.1):

- SR-905 is an east-west four-lane freeway connecting the Otay Mesa community with I-5 and I-805 to the west. A four-lane temporary road connects with Otay Mesa Road (future 905) then east of La Media Road a four-lane "Interim 905" connects to the Otay Mesa Port of Entry (POE).
- Caltrans is planning to construct a six-lane facility between I-805 and the Otay Mesa POE. At ultimate configuration in the latter half of the decade, SR-905 and SR-125 will have a full freeway-to-freeway interchange, plus local access at Otay Mesa Road. Before the two freeways are fully constructed, an interim interchange with SR-125 will be built at Otay Mesa Road; west of Harvest Road will be operational in mid-2003.
- SR-11 is a proposed 4.3 kilometer (2.7 mile) east-west, four-lane freeway that will connect the future SR-125/905 interchange to the Tijuana-Tecate toll road in Mexico via a future border crossing in East Otay Mesa. The ultimate transportation corridor for SR-11 calls for a four-lane freeway, which may be necessary to accommodate both binational traffic and the traffic generated by buildout of East Otay Mesa.
- SR-54 is an east-west corridor built as a six-lane freeway between I-5 to just west of Briarwood Road, and is a four-lane expressway between just west of Briarwood Road and Paradise Road where it turns into Sweetwater Road. Caltrans is planning to expand SR-54 to a six-lane freeway between just west of Briarwood Road and future SR-125.

Staff agrees that this amended language is appropriate and also agrees that the transportation maps, Figures 1.5-1, 3.2-

1, 5.11-1, and 5.18-1, should include SR-11 and the proposed POE.

Energy Commission, Caltrans and County Public Works staff have identified a skewed angle intersection where Otay Mesa Road and Interim SR-905 connect that is operationally difficult for trucks (Stanton 2000). The LOS for this intersection is F with congestion occurring all day (Kempf 2000). The SR-11 upgrade will begin sometime during Summer or Fall of 2000. The reroute of SR-905 will begin in the later part of this decade, and the construction of SR-11 will not occur for at least ten years (Kempf 2000).

RAILWAYS, LIGHT RAIL, BUS ROUTES & BIKE TRAILS

There are currently no rail lines in the vicinity of the project. The nearest railway is the US-Mexico line that connects San Diego with the Imperial Valley via Mexico but there is no freight service at this time. Therefore, rail delivery of heavy equipment and project components such as the gas turbines is not possible. There is no light rail service in the Otay Mesa area, though the East Otay Mesa Specific Plan discusses a long term plan to extend rail service from existing lines in Chula Vista into the East Otay Mesa area. The proposed north-south line would parallel the SR-125 alignment while the east-west line would operate adjacent to Otay Mesa Road (County of San Diego, 1994). These same routes would also include proposed bike trails. Because there is no timeline for the construction of the light rail and bike trails, they will probably not be utilized by the OMGP construction workforce. When the light rail and bike trails are in place, the OMGP operation workers could use them depending on the routes available. There is an existing bus route along SR-805 that provides service from Chula Vista to the U.S./Mexico Border.

AIRPORT

In November 1999, the City of San Diego released a Final Environmental Impact Report (Hellix, et.al. 1999) for the San Diego Commerce Center at the Brown Field Airport. The airport is approximately two miles west of the proposed OMGP site. Among other things, the FEIR discusses the expansion of the east-west aligned runway from 8,000 feet to 11,500 feet. This would allow B-747 cargo aircraft to utilize the Brown Field airport. The expansion would stretch in an easterly direction toward the plant site and would reduce the separation between the two projects to 2.3 miles. Construction would occur in phases and could start within the next two years and last until approximately 2010. The airport enhancement project would have significant and unmitigated impacts on roadways and freeways, especially

along Otay Mesa and Otay Valley Roads. LOS levels of E or F at some sections can be anticipated until SR-905 is developed into a major freeway. Once the airport development is completed, continued adverse impacts would affect the local freeway LOS and would require regional transportation planning efforts by the City of San Diego, Caltrans, SANDAG, and other local agencies to reduce cumulative freeway impacts (FEIR 1999). Caltrans believes that the OMGP will not be affected by any airport-related noise and safety impacts (Hesnard 1999).

IMPACTS

POWER PLANT

CONSTRUCTION PHASE

COMMUTE TRAFFIC

Construction of the generating plant facility would occur over an estimated 20-month period and would require a total construction workforce of 230 workers on average, assuming a single shift and a 40-hour, five day work week. Of the 230 workers, approximately 26 will be contractor-staff. During the peak construction period, an estimated 361 workers would be required for the power plant. Of the 361 workers, 329 are estimated to be local workers and the remaining 32 would make up the non-local workforce (AFC, PP. 5.11-13 to 11-15). Local workers are defined as those from the City of San Diego and other developed areas of the County west and north of the project site. Non-local workers would be contractor staff (AFC, p.5.11-13 and Table 5.11-3a, p. 5.11-14). Workforce vehicle trips were calculated based on this data.

OMGC assumes that all workers would drive individually to the project site, which on average means that 230 workers driving to and from the site will generate 460 vehicle trips. This is one possible scenario; however there are alternatives to single occupant vehicle trips. The County East Otay Mesa Specific Plan contains a Transportation Demand Management Program developed for the County that lists techniques for reducing vehicle trips. In addition to carpooling, other measures could be considered such as flexible work schedules to reduce demand during peak commuting times, compressed work week to reduce the number of commuting days, and a provision of transit or shuttle service from the work site to transfer nodes on the western edge of the Specific Plan Area (East Otay Mesa Specific Plan,

July 1994). If these measures were implemented, daily vehicle trips could be substantially reduced.

Staff agrees with the OMGC that the preferred route for commuting workers would be south along I-5 or I-805, east along SR-905 and Otay Mesa Road, and north along Alta Road. Parking for construction personnel and visitors would be provided in an area on or adjacent to the project site. Construction workforce traffic would generally occur between 6:00 a.m. and 7:00 a.m. in the morning, and again between 4:00 p.m. and 5:00 p.m. in the evening, unless flexible work schedules are implemented.

Using the traffic pattern assumptions described above, construction related vehicle traffic would be heaviest on SR-905, Otay Mesa Road and Alta Road. The impact on SR-905 during peak hours, assuming the worst case scenario of 361 trips by workers (maximum workers at peak construction of the project) would result in traffic increases of approximately 9 percent along portions of the route. This traffic impact is significant because along this state route, in particular the junction of SR-905 and Old Otay Mesa Road, the LOS is F. Depending on the intersection, traffic would increase from 6 to 57 percent on Otay Mesa Road near its junction with SR-905 and at the intersections with Heritage and Sanyo roads. This is based on the traffic pattern assumptions described above. Alta Road could experience a 48 percent increase in traffic at peak hours, but given the current LOS rating of B, the impact is not considered significant since the LOS level would probably only decease to C.

During the peak construction time, and assuming the worst case scenario of 361 trips at peak or rush hour, the traffic would increase approximately 74 percent over current use on Alta Road, and 9 percent at the junction of Otay Mesa Road and SR-905. The impact on Alta Road appears insignificant, in view of the fact that the highway capacity is 7,100 vehicles (Table 1 above, and AFC Table 5.11-1 on PP 5.11-7 & 8) and the LOS rating of B would stay the same or drop down to C. Since this is a relatively minor change, and the peak construction period would last for only one to two months, staff does not consider the impact significant.

The OMGP would require an asphalt paved access road from the northwest corner of the plant site to Alta Road. The administration building parking lot and the road encircling the power blocks would also be asphalt paved; all other plant roads will be gravel surfaced (AFC p. 5.11-12). The Planning and Land Use Department of the County of San Diego noted that the access road would be a two-lane Industrial/Commercial Local Road (Data Response to County Letter of September 28, 1999, December 8, 1999). However, the circulation plan within the East Otay Mesa Specific Plan describes the current access road as a two-lane Industrial/Commercial Collector Road. These two types of roads have different requirements in terms of the number of lanes and other criteria. Based on discussions with the County Public Works Department, the access road would be a two-lane Industrial/Commercial local road that may be public or privately owned depending on the outcome of negotiations with OMGC (Goralka 2000). This issue will be updated in the FSA. A condition of certification has been formulated that would require the project owner to fulfill conditions that the County deems necessary when the access road is paved.

In the Supplement to the AFC submitted to the Energy Commission, OMGC propose a new southern access road and an alternate route 4A that would parallel a proposed wastewater discharge pipeline. This is part of a planned subdivision of the property at and adjacent to the OMGP site. The southern access road would be a two-lane paved road approximately 0.2 miles in length that would follow the planned Loop Road between the southwest corner of the plant site and Alta Road. After crossing Alta Road, the road would become alternate road 4A which proceeds west and then north along the County's planned Lone Star Road approximately 0.85 miles, until terminating at the proposed intersection with Route 4 in Johnson Canyon (AFC Supplement, March 2000). Design of these roads would require consultation with the County as described in a proposed condition of certification below.

OMGC envisions closing one lane of Alta Road to allow for the construction of the water supply line. Staff believes that the closure should be coordinated with County Public Works and the local Sheriff and

Highway Patrol, and should occur during off-peak times or at night.

Truck Traffic

Construction of the generating plant would require the use and installation of heavy equipment and associated systems and structures. Heavy equipment would be used throughout the construction period, including trenching and earthmoving equipment, forklifts, cranes, cement mixers and drilling equipment.

In addition to deliveries of heavy equipment, construction materials such as concrete, wire, pipe, cable, fuels and reinforcing steel would be delivered to the site by truck. An estimated 4,220 truck deliveries would be made to the plant site over the course of the 20-month construction period (on average approximately 211 truck deliveries per month). Assuming 22 average workdays per month and two trips for each truck delivery (one to and one from the site), the project will generate approximately 18 truck trips per day, on average. Deliveries will also include small quantities of hazardous materials to be used during project construction. The applicant has stated that the deliveries of hazardous materials to and from the site will be conducted in accordance with California Vehicle Code Section 31300 et seq. (AFC, p. 5.11-19). However, OMGC has not selected a truck route for supplying and removing hazardous materials (Ledesma 2000). Staff has proposed a condition of certification to identify a truck route for hazardous materials to be included in the FSA. San Diego County does not have local ordinances regulating the transportation of hazardous materials. It is anticipated that during the construction phase, no more than three truck trips per month would be required to remove these wastes for disposal (AFC, Pg. 5.11-19).

Transportation of equipment that would exceed the load size and limits of certain roadways would require special permits from Caltrans. Staff has proposed a condition of certification to ensure compliance with County and Caltrans requirements.

Operational Phase

Commute Traffic

Potential long-term traffic impacts are associated with the facility's operational workforce. Operation of the generating plant would require a labor force of

approximately 24 full-time employees. A worst case scenario assumes that each employee would drive a separate vehicle to work and that they would make one round trip from home to work per day, generating approximately 48 vehicle trips per day. As noted above, there is a possibility of car pools and other measures that could be taken to reduce the daily traffic. Adequate parking would be made available for employees on a paved lot adjacent to the administration building. The OMGC has assumed, and staff agrees, that the majority of the permanent workforce would reside in the greater San Diego area and their preferred route to work would be east along SR 905 to Otay Mesa Road, then east to Alta Road and north to the project site. Operations-related traffic impacts are considered minimal, representing less than 1 percent of existing AADT on SR 905, 1 percent of existing AADT on Otay Mesa Road, and less than 1 percent of existing AADT on Alta Road. However, given a current LOS level of F on Otay Mesa Road at the junction with SR-905, staff believes that any increased traffic would further aggravate the traffic congestion.

The County is working with Caltrans and the City of San Diego to mitigate this problematic intersection. To date, the local developers in the area have been unwilling to assist in resolving this situation, and Caltrans and the County have expressed their hope that the OMGP will be the catalyst to start the mitigation process. Staff will address this issue more fully in the FSA and has proposed a condition of certification that would mitigate the congestion at this intersection for both the construction and operation phase of the OMGP.

Truck Traffic

If Selective Catalytic Reduction is used as an alternative to SCONOX for NOX control, approximately eight or nine truck deliveries of aqueous ammonia, a hazardous substance, will occur each month. For an in-depth description of the amount and type of hazardous materials that will be used during operation of the facility, see the Waste Management and Hazardous Materials Sections of the PSA. Hazardous waste materials would be picked up at the project site once every 90 days and hauled offsite by licensed hazardous waste transporters. They would not be transported across the border to Mexico (AFC, Pg. 5.11-20). The

materials will be transported to three Class 1 landfills in California or recycled at one of several oil haulers/recyclers located in San Diego County (AFC, Pg. 5.14-3).

As discussed in the Laws, Ordinances, Regulations and Standards (LORS) section of this assessment, federal and state regulations are in place to ensure that the handling and transportation of hazardous materials on all roadways is done in a manner that protects public safety. Federal laws specific to this issue are Title 49, Code of Federal Regulations, Sections 350-399 and Appendices A-G, of the Federal Motor Carrier Safety Regulations. These sections address safety considerations for the transport of goods, materials, and substances over public highways.

The California Vehicle Code and the Streets and Highways Code (Sections 31600 through 34510) are equally important to ensure that the transportation and handling of hazardous materials are done in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the California Highway Patrol). The State Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to carry a manifest, available for inspection by the California Highway Patrol inspection stations along major highways and interstates; which also check for weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are also required to take instruction in first aid and procedures on handling hazardous waste spills.

Potential impacts of the transportation of hazardous materials would be mitigated to a level of insignificance by compliance with federal and state standards established to regulate the transportation of hazardous substances. Additionally, Energy Commission staff will further evaluate the need to mitigate possible transportation hazards associated with the skewed intersection of Old Otay Mesa Road and SR-905. No state or local agency keeps track of the amount of hazardous materials that are transported across highways and rail lines in California though all agree that the volume is enormous (Abuckle 2000). Due to the limited

amount of truck traffic associated with the operational phase of the project, hazards with other local truck traffic in the area is considered minimal. Mitigation measures and conditions of certification that ensure compliance with state, federal and local permit and safety requirements are discussed later in this section.

LINEAR FACILITIES

Potential impacts associated with the transmission line route include both construction and operation related impacts. Construction related impacts would result from the movement of heavy equipment, trucks, and worker vehicles along access routes during construction of new 230 kV structures and installation of conductors during the reconductoring of approximately a nine mile section of San Diego Gas & Electric Company's (SDG&E) Miguel-Tijuana 230 kV transmission line (AFC, Pg. 3.1-1). It is staff's understanding that OMGC has not yet decided if reconductoring is necessary. For the purpose of this analysis, it is assumed that reconductoring would take place.

While this work would not directly impact traffic operations, several aspects of the conductor installation could potentially result in impacts. These include: 1) workforce related traffic; 2) access to proposed tower structure locations; 3) transmission line roadway crossings; and 4) construction equipment and materials deliveries. OMGC anticipates that the reconductoring would require light vehicle access to each transmission structure and heavy equipment access to conductor pull sites at major angle and double dead-end structures. Access to these sites would be along the existing transmission line trail. The trail is entered via various locations along county roads. Some portions of the trail may require minor repair before use. The new transmission poles between the plant switchyard and the SDG&E transmission line would be along the plant access road (AFC, p. 3.6-2 & 3).

Construction of the transmission line tie-in, approximately one tenth of a mile long, and reconductoring would be done by SDG&E crews and will take place during the 20-month plant construction period. During installation of the conductors, the workforce would range from ten to twenty workers and would take three to four months.

One or two staging areas would be established at the OMGP site to store equipment and material and to provide a field office. Employees would report to these staging areas at the beginning of each workday, then distribute themselves (carpool) as needed to various work sites along the transmission line route. The northern staging area would be at a previously disturbed site that was used during the original transmission line construction; the southern

staging area would be at the plant site (AFC, Pg. 3.8-9). Most local county roads operate at LOS A and B and workforce related traffic would generate minimal increases to the existing traffic volumes on these roads. With the use of existing access roads, local roads (e.g., Otay Valley and Lone Star Road) and highways would not be significantly impacted by workforce-related traffic associated with construction of the new transmission structures and/or the reconductoring.

Construction of the new structures and reconductoring would require the use of heavy equipment, including various trucks (pickups, booms, cement and digger/auger), mobile cranes, a cable puller, and a tensioner. In addition to deliveries of heavy equipment, construction materials such as tubular steel pole foundation sections, tubular steel poles, and consumables would be delivered by truck to the transmission line staging areas. In some cases, vehicles used to transport heavy machinery and construction materials and equipment would require a transportation permit from Caltrans.

Given the small number of truck deliveries, and their distribution among multiple staging sites and work areas, traffic impacts associated with construction equipment and materials deliveries for the new structures and reconductoring are considered to be insignificant. Workforce related traffic and transmission line roadway crossings would take place throughout this process but would not have significant impacts on county roads.

CUMULATIVE IMPACTS

The analysis of the available capacity of the regional highways and local roads described in this section shows that the regional transportation system serving the Otay Mesa area (along the potentially affected highways) is experiencing increased traffic and congestion. Several freeway, highway, and road expansion projects are in the planning stages. This includes modifications to SR-905, SR-125, and SR-11, as well as upgrades to Alta Road, Heritage Road/Paseo Ranchero Road, Otay Valley Road and La Media Road. Most of the road upgrades involve expanding to six-lane Major and Primary Arterial status (East Otay Mesa Specific Plan, 1994).

Other proposed public projects in the area are: 1) the East Otay Mesa Juvenile Detention Center at the George F. Bailey Correctional Facility (expected completion in 2003; 2) a new state prison to be constructed on land adjacent to the R.J. Donovan Correctional Facility); 3) the Brown Field Airport expansion (FEIR released in November 1999); and 4) an International Wastewater Treatment plant (under construction). All of these will have a cumulative impact on traffic and transportation in the Otay Mesa

area. Relief from current and expected traffic loads will depend greatly on the completion of freeway and highway upgrades. Construction of the OMGP would overlap with some of these other proposed projects. Information about construction times and duration are not currently available but an update will be provided in the FSA.

In addition, there are almost two dozen private projects that have been approved; though in many cases the sites remain undeveloped. These include residential, commercial, and industrial projects ranging from the Otay Ranch Residential Development (Approximately two miles northwest of OMGP), a 23,000 acre development 3.5 miles east of Chula Vista that will eventually include over 50,000 new residences, to the Otay Corporate Center South which will occupy twenty acres, to a 19 acre biological preserve with a one acre industrial lot (HELIX, et.al. 1999, Table 7.1).

The County of San Diego is currently processing three applications for development in the East Otay Mesa Specific Plan Area (Caldwell 2000). The Sunroad Centrum is a mixed industrial development, 250-acre project to be built in two phases to partially mitigate short-term cumulative traffic impacts. The East Otay Mesa Travel Plaza is an 80-acre project to serve trucks and drivers involved in trans-border commerce. The developers for both of these projects have prepared traffic impact analyses that are under review by the County and are not available for review in this PSA. However, the developers anticipate that they will be able to send the analyses to staff by April 2000 (Hale 2000). Construction on both projects is expected to start later this year, which could overlap with the construction of OMGP. This issue will be updated in the FSA. The third application involves a minor use permit to allow the interim use of seven office trailers to serve truck/vehicle container parking and storage facility. Staff does not believe this will have a significant impact in the East Otay Mesa area.

Staff believes that many of these project impacts will far exceed the traffic and transportation impacts related to the OMGP. Nonetheless, the increased car and truck traffic due to the OMGP, particularly during the plant's construction phase, would contribute to the overall congestion in the Otay Mesa area. Staff cannot yet determine the cumulative impacts of the various projects on traffic and transportation in the Otay Mesa area. A more definitive cumulative analysis will be presented in the FSA.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

OMGC has stated its intention to comply with all federal LORS. A condition to ensure compliance is included below. Staff believes such compliance will not present any unusual difficulties. Therefore, the project is considered consistent with identified federal LORS.

STATE

OMGC has stated its intention to comply with all state LORS. A condition to ensure compliance is included below. Staff believes such compliance will not present any unusual difficulties. Therefore, the project is considered consistent with identified state LORS.

LOCAL

As noted earlier, the OMGP would involve the construction of two public roads (Loop and North Access) and would need to comply with the County Centerline and Subdivision Ordinances, as well as the Public Road Standards. The OMGC has not submitted an application for a subdivision of the 80-acre property on and around the project site. Therefore, staff has not been able to review how the additional roads will comply with the applicable ordinances and standards. This will be discussed more fully in the FSA.

FACILITY CLOSURE

PLANNED CLOSURE

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. The applicant will prepare a Facility Closure Plan for submittal to the Energy Commission for review and approval at least twelve months prior to the proposed closure. At the time of closure all then-applicable LORS will be identified and the closure plan will address how these LORS will be complied.

UNEXPECTED TEMPORARY CLOSURE

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. In the event of temporary closure, the effects on traffic and transportation would be similar to those for normal operation of the power plant facility, and the applicant would have to comply with all applicable LORS with respect to transportation permits for hazardous materials and equipment deliveries and removal.

UNEXPECTED PERMANENT CLOSURE

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. Staff assumes that the facility will either remain idle until such time that new ownership is established, or dismantling of the facility will occur. In any event, the owner will have to secure

applicable transportation permits to satisfy the LORS requirements as stated in this report.

In the event of permanent closure, the effects would be similar to those associated with project construction. Permanent closure will involve a peak work period with commute traffic. In either instance, the roadway systems within the vicinity of the project should be able to handle closure, though roads identified above with LOS ratings of E and F will be adversely impacted.

MITIGATION

OMGC has indicated its intention to comply with all LORS relating to: 1) the transport of oversized loads, 2) the transport of hazardous materials, and 3) the acquisition of permits for pipelines that will cross-state and county highways.

Staff has proposed mitigation measures to address Caltrans and the County's concern about the increase in traffic on roads that are experiencing poor levels of service. The skewed intersection of SR-905 and Otay Mesa Road will require further analysis and mitigation. Staff will require OMGC to participate in this process and comply with any possible mitigation measures required to remedy the problem. Until this intersection is improved staff proposes requiring OMGC to identify another route for trucks carrying hazardous materials to and from the project site.

Energy Commission staff agrees with County Public Works staff that safe and appropriate sight distance should be provided at the intersection of the proposed access road and Alta Road. Turn lanes and turn pockets may be needed. Staff has proposed a condition of certification that requires consultation with the County to mitigate this potential impact, and an assessment of construction truck characteristics with the anticipated traffic volumes for Alta Road.

For construction employees, trip reduction measures should be employed and a condition to insure this is listed below. For operational employees trip reduction measures could be employed, but since the maximum number of employees assigned to any one shift is approximately 25, trip reduction measures are not necessary for this project.

With these measures in place, the traffic and transportation issues will be reduced to less than significant.

As noted above, a more definitive analysis of cumulative impacts on traffic and transportation and potential mitigation measures will be presented in the FSA.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

POWER PLANT

There would be transportation of hazardous materials during the construction and operation phase and increased

roadway demand resulting from the daily movement of workers and materials. With implementation of the proposed conditions of certification, the risk will not increase beyond significance thresholds established by the Highway Patrol.

During the construction phase, worker trips would contribute to traffic flows and increased congestion on portions of Otay Mesa Road that are already experiencing unacceptable levels of service. The use of alternatives to single occupancy vehicles will minimize this increase.

During the operational phase, increased roadway demand resulting from the daily movement of workers and materials would be minimal but would still contribute to congestion on Old Otay Mesa Road.

All potential impacts due to transportation and handling of hazardous substances can be mitigated to insignificance by compliance with federal and state standards established to regulate hazardous substances. Staff will further evaluate an alternate truck route until the skewed intersection at Old Otay Mesa Road and SR-905 is mitigated. This analysis will be reviewed in the FSA.

LINEAR FACILITIES

Construction of the transmission poles and reconductoring will have minimal impacts on the function of area roadways. Routine construction safety measures and required encroachment permits should be sufficient to ensure that roadway impacts are not significant.

Since construction of water and gas lines would require trenching within public road rights-of-way, the installation of underground facilities would impact both roadway function and levels of service. However, these impacts are expected to be short-term and not significant. A condition of certification addresses the issue of road closure. In addition, all development will take place in compliance with Caltrans and San Diego County limitations for encroachment into public rights-of-way.

Staff concludes that if the Energy Commission approves the OMGP and adopts the conditions of certifications listed below, there will be no significant adverse impacts in the area of traffic and transportation as a result of the OMGP.

RECOMMENDATION

If the Energy Commission certifies the OMGP, staff recommends that the Commission adopt staff's proposed conditions of certification.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with Caltrans and San Diego County limits on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.
Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner or its contractor shall comply with Caltrans and San Diego County limits for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.
Verification: In Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during the reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that permits and/or licenses are secured from the U.S. Department of Transportation, California Highway Patrol, and Caltrans for the transport of hazardous materials.
Verification: The project owner shall include in its Monthly and Annual Compliance Reports, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous materials.

TRANS-4 The project owner shall implement a construction traffic control plan as outlined in the East Otay Mesa Specific Plan which will reduce the amount of car trips to the plant site during the construction phase of the project.

Protocol: Prior to the start of earth moving activities, the project owner shall consult with San Diego County, and prepare and submit to the Compliance Project Manager (CPM) for review and approval, and to San Diego County for review and comment, a construction traffic control plan and implementation program which addresses the following issues:

- timing of heavy equipment and building materials deliveries;
- signing, lighting, and traffic control device placement;
- establishing construction work hours outside of peak traffic periods;
- emergency access;
- temporary travel lane closures;
- maintaining access to adjacent residential and commercial property; and

- off-street employee parking in construction areas during peak construction.
- This plan shall contain the following elements:
- Stagger shifts for administrative and management personnel to reduce the number of vehicles on local roads during shift changes.
- Stagger shifts for construction workers to minimize congestion during peak hours of 7-8 Am. and 4-5 p.m.
- Schedule deliveries, including heavy truck traffic, during the non-peak traffic hours before or after shift changes.
- Monitor the effectiveness of the above traffic reduction measures.

Verification: At least sixty (60) days prior to the start of earth moving activities, the project owner shall provide to the CPM for review approval and San Diego County for review and comment a copy of its construction traffic control plan and implementation program. The approved plan must be submitted to the CPM within thirty days of its approval.

TRANS-5 Following construction of the power plant and all related facilities, the project owner shall meet with the CPM and San Diego County to determine the actions necessary and to prepare a schedule to complete the repair of Otay Mesa Road from the junction with SR-905 proceeding east to Alta Road and on Alta Road north to the project site, which will be used for construction traffic, to original or as near original condition as possible.

Protocol: At least sixty days prior to the start of earth moving activities, the project owner shall photograph the primary routes to be used by construction traffic (from the junction of SR-905 easterly along Otay Mesa Road to Alta Road, north along Alta Road to the project site). To document the condition of the roads, the project owner shall provide the CPM and San Diego County with a copy of these photographs.
Verification: Within thirty (30) days of the completion of project construction, the project owner shall meet with the CPM and San Diego County to determine the condition of the roads. Within sixty (60) days of this meeting, the project owner shall provide a copy of a letter from San Diego County acknowledging satisfactory completion of the roadway repairs in the first Annual Compliance Report following start of operation of the OMGP project. To document the condition of the roads, the project owner shall provide the CPM and San Diego County with a copy of these photographs.

TRANS-6 An access road at the northwest and Loop Road on the southwest corners of the project will be paved in accordance with road standards described in the East Otay Mesa Specific Plan, and used during construction and operation of the OMGP. Alternate Route 4A would proceed west along the planned Loop Road and then along the proposed Lone Star Road. The project owner shall meet with the San Diego County Public Works and Fire Departments to determine the applicable road standards.

Verification: At least sixty (60) days prior to the start of earth moving activities, the project owner shall provide to the CPM a copy of the construction plan for the access roads and Alternate Route 4A or another alternative route.

TRANS-7 Prior to the start of earth moving activities, the project owner, with consultation from San Diego County and Caltrans, shall identify a route for all truck deliveries during construction and operation of the OMGP that does not use the intersection of SR-905 and Old Otay Mesa Road.

Verification: At least sixty (60) days prior to earth moving activities, the project owner shall notify the CPM in writing of the identified route and provide documentation that San Diego County and Caltrans have been consulted.

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NOISE

Kisabuli and Steve Baker

INTRODUCTION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, 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 proposed project will meet applicable noise control laws and ordinances, and whether it will exhibit significant adverse environmental impacts.

The purpose of this analysis is to identify the likely noise impacts from the Otay Mesa Generating Project (OMGP) and to recommend conditions to ensure that the resulting noise impacts will comply with all applicable laws, ordinances, regulations and standards.

Before certifying the OMGP, the Energy Commission must find that the project:

6. will likely be built and operated in compliance with all applicable noise laws, ordinances, regulations and standards; and
7. will present no significant adverse noise impacts, or none that have not been mitigated to the extent feasible.

For a description of the terms used to describe noise and methods to measure and evaluate noise, please see **"NOISE: Appendix A"**.

This analysis is based, in part, on information provided in the Application for Certification (AFC) (PG&E 1999a), Supplemental Filings (including PG&E 2000a), site visits, workshops, staff data requests and applicant responses, and discussions with other agency representatives.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

U. S. Occupational Safety and Health Administration (OSHA). Under the Occupational Safety and Health Act of 1970 (29 USC § 651 et seq.), OSHA has adopted regulations (29 CFR § 1910.95) that establish maximum noise levels to which workers at a facility may be exposed. These OSHA noise regulations are designed to protect workers against the effects of noise exposure, and lists permissible noise level exposure as a function of the amount of time during which the worker is exposed. (Please see **Noise: Appendix A, Table A4** immediately following this section.) OSHA regulations also dictate hearing conservation program requirements and workplace noise monitoring requirements. The administering agency for the above authority is OSHA.

Noise Control Act of 1972 (42 USC 6 4901 et seq.; 40 CFR Parts 201-211). This act sets performance standards for noise emissions

from "major sources." The U.S. Environmental Protection Agency (USEPA) has identified a day/night level (Ldn) of 55 dBA[1] as providing reasonable protection against community annoyance and activity interference due to noise. EPA administers the Noise Control Act.

STATE

There are no state regulations governing off-site (community) noise. Rather, state planning law (Gov. Code, § 65302) requires that all counties and cities prepare and adopt a General Plan. Government Code section 65302(f) requires that a noise element be prepared as part of the General Plan. This element is to "address existing and foreseeable noise problems…." Other state laws, ordinances, regulations and standards (LORS) include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Act (Cal-OSHA).

California Vehicle Code, sections 23130 and 23130.5, sets noise limits for highway vehicles. The California Highway Patrol and the San Diego County Sheriff's Office administer the vehicle code.

CAL-OSHA

California Department of Industrial Relations, Occupational Safety and Health Administration (Cal-OSHA). Cal-OSHA has established maximum permissible worker noise exposure levels to protect workers against hearing damage.

Cal-OSHA regulations (Cal. Code Regs., tit. 8, and § 5095 et seq.) are the same as the federal OSHA criteria described above. The criteria are based on a worker's noise level exposure over a specific time period. The administering agency is Cal-OSHA.

CEQA

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. The applicable CEQA Guidelines (Cal. Code Regs., tit. 14, §15000 et seq., Appendix G § XI) explain that a significant effect from noise may exist if a project would result in:

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.
Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels.
A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

LOCAL

San Diego County General Plan—Noise Element. The San Diego County Noise Element states that whenever possible, development in San Diego County should be planned and constructed so that noise sensitive areas not subjected to noise in excess of CNEL equal to 55 dBA. Therefore, the County has established a noise goal of 55 dBA CNEL at residential locations.

San Diego County Code, Section 36.401-36.443, Noise Abatement Control. The county noise code requires sources to meet varying noise limits within different zoning areas. The noise criteria are summarized below in **Noise: Table 1.** If the measured ambient level exceeds the applicable limits noted in **Noise: Table 1**, the allowable one-hour average sound level shall be the ambient noise level. The applicable noise limit is 70 dBA at all times. The noise limit for residential areas is 45 dBA during nighttime periods.

NOISE: Table 1
San Diego County Code—Sound Level Limits*

Zone	Time	Applicable Limit One-Hour Average Sound Level (dBA)
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U. Use regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
R-RO, R-C, R-M, C-30, S-86, R-V and R-U. Use regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
S-94 and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
M-50, M-52, M-54	Anytime	70
S-82, M-58, and all other industrial zones.	Anytime	75

*** Source: Section 36.404 of the San Diego County Code**

Fixed-location public utility distribution or transmission facilities located on, or adjacent to a property line shall be subjected to noise limits in Section 36.404, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

SETTING

The proposed Otay Mesa Generating Project will be located at the western foot of the San Ysidro Mountains in San Diego County. The U.S/Mexico international border is roughly 1.5 miles south of the site.

There are sensitive receptors within a 2-mile radius of the powerplant site. Staff has identified this as an area inside which construction and operation of a powerplant project may cause noise impacts. Since sensitive receptors are within a 2-mile radius, mitigation measures are likely to be required to minimize noise impacts to these sensitive receptors.

The following is within a one-mile radius of the proposed plant site:

- A single residence on Otay Mesa Road located approximately 3,500 feet southwest of the plant.
- Beyond this one-mile radius, there are the following structures:
- A group of three residences on Otay Mesa Road located approximately 6,200 feet southwest of the plant.
- The R. J. Donovan correctional facility (California State Prison) located approximately 5,900 feet northwest of the plant.
- The G. F. Bailey County Correctional Facility (San Diego City and County Jail) located approximately 5,500 feet north of the plant.

For additional information regarding the site, setting and other project features, please see the **Project Description** section.

AMBIENT NOISE SURVEY

The Energy Commission's power plant certification regulations require that noise measurements be made at noise-sensitive locations where there is a potential for an increase of 5 dBA or more over existing background noise levels during construction or operation of a proposed power plant.

The applicant performed noise measurements on Friday, May 2, and Saturday, May 3, 1997. Six measurement locations (PG&E 1999a, AFC page 5.12-3) were selected to acoustically characterize the general area and to determine the existing sound levels at all potentially sensitive receptors. These locations are described in **NOISE: Table 2.**

In general, existing noise near the site is due entirely to traffic on Otay Mesa and Alta Roads. An additional source of noise is from light aircraft over-flights and sporadic jet takeoffs at the Tijuana International Airport.

NOISE: Table 2
Ambient Noise Measurement Locations

Position Number	Location (Dimensions are approximate)
1	180 feet east of Alta Road, 300 feet south of prison access road intersection.
2	Utility pole 60 feet off Alta Road, 100 feet south of the entrance to R & F Metal, Inc.
3	50 feet east of Alta Road, 1,600 feet south of prison access road intersection.
4	150 feet north of Otay Mesa Road, 200 feet west of the nearest residence to site. Same distance from road as house.
5	30 feet north of Otay Mesa Road, 200 feet east of residence. Same distance from road as house.
6	50 feet north of Mexican border at southern terminus of Alta Road. Represents a group of apartments across the US/Mexican border.

Long-term (25-hour) noise monitoring was also set-up at locations 2 and 3. The hourly average long-term noise levels are shown in the AFC (PG&E 1999a) as figures 5.12-2 and 5-12.3. The manned, short duration L_{90} levels are also shown in the plots and agree with the monitoring results.

NOISE: Table 3
Noise Survey Measurement at the
Manned Noise Monitoring Locations

Location	Time	L_{eq} (dBA)	L_{90} (dBA)
Position 1	3:34 p.m.	50.0	39.6
	7:05 a.m.	50.1	42.5
	1:37 p.m.	44.7	37.0
	5:58 p.m.	47.9	36.6
Position 2	4:00 p.m.	53.7	36.4
	7:25 a.m.	50.9	41.5
	1:58 p.m.	62.7	39.1
	6:17 p.m.	48.5	35.3
Position 3	5:00 p.m.	60.7	39.9
	7:45 a.m.	56.8	41.7
	2:17 p.m.	59.8	40.1
	6:36 p.m.	56.9	34.7
Position 4	4:30p.m.	50.0	41.0
	8:08 a.m.	51.7	42.3
	2:37 p.m.	47.3	38.0
	6:55 p.m.	47.6	40.1
Position 5	4:45 p.m.	52.9	43.8
	8:28 a.m.	48.5	38.2
	3:00 p.m.	47.9	43.3
	7:07 p.m.	53.4	44.1
Position 6	5:56 a.m.	52.8	-
	8:08 p.m.	40.9	-
	7:55 p.m.	41.5	-

NOISE: Table 3 above summarizes the manned L_{eq} and L_{90} levels measured at the six locations. Generally, the daytime L_{90} level is

nearly uniform at 46 dBA over the entire area. The quietest area is around Position 2 (average $L_{90} \approx 38$ dBA). Minimum nighttime ambient noise levels in the area average at 34 dBA, when no traffic is present. Much higher nighttime L_{eq} noise levels (roughly 45 to 50 dBA) indicate that significant numbers of cars are present at 1 to 2 a.m. It has been observed that traffic is particularly heavy between 5 a.m. and 6 a.m.

SIGNIFICANCE CRITERIA

The most stringent noise limitation required by any of the applicable LORS will be the controlling criterion in the design of the noise control features of the project. In this case, the most stringent criterion is the nighttime noise level of 45 dBA (CNEL) at night as specified in the San Diego County Code, Section 36.401-36.443, Noise Abatement Control.

The significance of a noise impact is also a function of the change or increase in noise levels over existing ambient noise levels at any noise-sensitive receptor. A project related increase of 5 dBA or greater is considered significant by Energy Commission staff.

ENVIRONMENTAL NOISE IMPACTS

Noise will be produced at the powerplant site during the operation of the project and at the power plant site and along the corridors for linear project features during the construction phase. This assessment includes impacts from both construction and operation activities and their potential effects at the nearest sensitive receptors, and to power plant operations personnel. An essential part of this assessment is a comparison of expected noise levels with acceptable noise levels presented in applicable LORS, and with existing background levels at noise-sensitive receptors.

CONSTRUCTION

Power Plant: Typical construction noise levels generated by equipment at the project site are given in **NOISE:** Table 4 below. The equipment type, equipment source level range (from quiet to poorly maintained), the maximum expected equipment to be used, and the worst-case cumulative effects (i.e., all equipment on at once and in one stationary location) are provided.

NOISE: Table 4
Construction Equipment Noise Emission Levels

Construction Phase	Equipment	Lp @50 ft (dBA)	Quantity	Acoustic Max Factor (dB)	Equivalent Sound Level @ 50 feet (dBA)
Clearing	Backhoe	83	2	-6	80
	Grader	85	2	-6	82
	Trencher	85	1	-6	79
	Dozer	87	2	-5	85
	Front End Loader	84	2	-5	82
	Compactor	80	2	-3	80
	Mobile Crane	83	1	-8	75
	Truck, Large	85	4	-5	86
	Diesel Generator	79	1	-8	71
Total					91
Foundation	Backhoe	83	2	-6	80
	Front End Loader	84	1	-5	79
	Dozer	87	1	-5	82
	Trencher	85	1	-6	79
	Mobile Crane	83	2	-8	78
	Stationary Crane	85	1	-13	72
	Truck, Large	85	2	-5	83
	Concrete Mix Trucks	85	2	-5	83
	Concrete Pump	80	1	-8	72
	Concrete Vibrator	76	4	-8	74
	Diesel Generator	79	1	-8	71
Total					88
Erection	Backhoe	83	2	-6	80
	Trencher	85	1	-6	79
	Mobile Crane	83	2	-8	68
	Stationary Crane	85	4	-3	78
	Truck, Large	85	4	-5	86
	Diesel Generator	79	1	-8	71
	Pneumatic Tools	85	7	-8	85
	Air Compressor	85	2	-7	81
Total					91
Start-up	Dozer	87	1	-5	82
	Trencher	85	1	-6	79
	Mobile Crane	83	1	-8	75
	Truck, Large	85	2	-5	83
	Diesel Generator	79	1	-8	71
	Pneumatic Tools	85	2	-8	80
	Air Compressor	85	1	-7	78
Totals					88

(Source: PG&E 1999a, AFC § 5.12.2.1.2 and Table 5-12-3c)

Major construction phases will consist of site clearing and preparation, foundation construction, building and equipment erection, site cleanup, and facility startup. Noise emissions will vary with each phase of construction.

Steam Blows: After erection and assembly of the feedwater and steam systems, the piping and tubing that comprises the steam path will have accumulated dirt, rust, scale, and construction debris such as weld spatter, dropped welding rods, and the like. If the plant were started up without thoroughly cleaning out these systems, all this debris would find its way into the steam turbine, quickly destroying the machine.

In order to prevent this, before connecting the steam system to the turbine, the steam line is temporarily routed to the atmosphere. Steam is then raised in the 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 quite effective at cleaning out the steam system piping. 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. The applicant anticipates performing the steam blow activities during the daytime hours for a period not to exceed 10 working days. At the end of this procedure, the steam line is connected to the steam turbine, which is then ready for operation.

Linear Facilities: The transmission line interconnection to the existing Miguel-Tijuana Line and the natural gas pipeline will be installed concurrent with the construction of the power plant foundations.

COMMUNITY NOISE IMPACTS

Power Plant: The anticipated construction noise emission levels and equipment usage for each phase of construction are summarized in **NOISE: Table 4** above. The resulting noise levels at the nearest sensitive receptor range from 46 to 49 dBA. These noise levels are anticipated to be faintly audible at the nearest residences and are not expected to cause undue disturbances to local residents.

Steam Blows: Typically, the steam blows create the loudest noise, inherent in the construction of all projects incorporating a steam turbine. Uncontrolled steam blow can produce noise levels as loud as 130 dBA at a distance of 50 feet.

Linear Facilities: The construction of the linear facilities will travel along the route of these linear facilities; as such, the construction activities and associated noise will not impact any one location for an extended period.

MITIGATION MEASURES

Power Plant: The applicant proposes to modify the steam blow process by equipping the steam piping with a temporary silencer to reduce the noise impacts to the

community. This method should reduce the noise level to approximately 90 dBA at a distance of 50 feet. An additional reduction of 31 dBA is anticipated due to topographic attenuation: Δ Loss = $20Log_{10}(1{,}800ft/50ft_{REF})$ = 31.1dBA. In other words, approximately 31 dBA of noise reduction is expected between the source and receiver due to topographic (spherical) attenuation. This attenuation results in construction noise levels that will be at or below the current ambient noise levels at the nearest sensitive receptor. Consequently, except for steam blow activity, no mitigation measures are required for construction noise impacts.

With the above mitigation, the nearest sensitive receptor will be subjected to approximately 59 dBA. Staff recommends that such mitigation measures proposed above be used during the steam blow activity. Staff proposes a condition of certification (see proposed Condition of Certification **NOISE-4** below) to assure compliance.

Alternatively, the project owner may elect to employ a new, quieter steam blow process, variously referred to as QuietBlow® or Silentsteam™. This method uses lower pressure steam over a continuous period of approximately 36 hours. Resulting noise levels reach only about 80 dBA at 100 feet, equivalent to 40 to 45 dBA at the nearest residence. This noise level complies with the San Diego County noise element of the general plan. Staff proposes a condition of certification (see proposed Condition of Certification **NOISE-5** below) to assure compliance. Staff also proposes a notification process (see proposed Condition of Certification **NOISE-1** below) to make neighbors aware of impending steam blow activity.

Linear Facilities: Noise associated with construction of the electrical transmission tie-in line will be lower than noise associated with construction of the facility, as less equipment will be used. Because of the absence of sensitive noise receptors, no noise impacts are expected and hence no mitigation measures are required.

WORKER NOISE IMPACTS

A reference distance of 50 feet was used in the AFC to evaluate on-site construction noise levels and their potential impacts on workers. The noise levels will vary significantly depending on whether a worker is closer to or conducting a noisy activity, but the L_{eq} levels are projected to average between 75 and 85 dBA during the first four phases of construction. Undoubtedly, some workers will occasionally

be exposed to noise levels above 85 dBA[2] during construction. The applicant predicts that construction noise levels will not reach levels that require worker protection, but will put in place the use of engineering controls, administrative controls, and hearing protection devices (PG&E 1999a, AFC § 5.12.3.1 and AFC page 5.12-11).

To ensure that workers are adequately protected, staff has proposed a condition of certification (see proposed Condition of Certification **NOISE-3**, below).

OPERATION

The equipment noise emission levels assumed for the project are summarized in **NOISE: Table 5.** The frequency data is also based on similar equipment.

NOISE: Table 5
Major Equipment Sound Power Levels (dB)

	Octave Band Center Frequency (Hz)									Overall Sound Power Levels (dBA)	
Equipment	31.5	63	125	250	500	1,000	2,000	4,000	8,000		Comments
Combustion Turbine Inlet	102	101	96	99	99	97	94	92	84	102	No tonal noise emissions
HRSG Equipment	133	121	116	95	88	77	76	66	59	103	No tonal noise emissions
HRSG Exhaust Stack	126	121	106	100	95	80	75	73	72	99	No tonal noise emissions
Generation Building	114	112	111	101	95	95	90	86	88	101	No tonal noise emissions
Transformer	97	103	105	100	100	94	89	84	77	100	Transformers tend to radiate a 120 Hz tone. Tonal emissions will be low enough to not b audible off-site
Air Cooled Condenser	106	112	112	109	108	100	95	91	85	108	No tonal noise emissions

(Source: PG&E 1999a, AFC § 5.12.2.1.1 and Table 5.12.3a). Based upon assumed operational equipment.

During its operating life, the project will represent essentially a steady, continuous and broadband noise source day and night. Occasional short-term increases in noise level will occur as steam relief valves open to vent pressure, or during startup or shutdown as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for lack of dispatch or for maintenance, noise levels will decrease.

One possible source of noise annoyance would be strong tonal noises, individual sounds that, while not louder than the permissible levels, stand out in sound quality. To ensure the avoidance of such tonal sound, the noise control design of the OMGP can be balanced to bring as many noise sources as possible to the same relative sound level, causing them all to blend without any one source standing out.

The frequency characteristics associated with the proposed operational equipment are shown in **NOISE:** Table 5 above. The data shown is representative of individual equipment types and is based upon past field studies.

Past studies have shown that the dominant noise generator at a power plant site is the turbine/synchronous generator assembly. The dominant spectral content lies within the 500 to 2000 Hz frequency band. These levels, although audible, would not impair hearing if properly mitigated.
Another potentially annoying source of noise from a power plant is the intermittent or occasional actuation of steam relief valves. The hissing noise from these valves can be largely mitigated by the installation of adequate mufflers. To ensure that adequate measures are taken to mitigate tonal and intermittent noise sources, staff has proposed measures (see proposed Condition of Certification **NOISE-4**, below) to ensure that tonal and intermittent steam relief noises are not allowed to cause a problem.

It is expected that startup and shutdown of the power plant will generally not produce any transient noise loud enough to be perceptible at any of the sensitive receptors. The applicant proposes that compressor air bleed lines will be lagged and/or routed into the exhaust system for noise attenuation by the exhaust silencer.

COMMUNITY NOISE IMPACTS

The San Diego County Code requires the facility to not exceed 45 dBA nighttime at the nearest residences. The existing ambient sound levels are approximately 34 dBA (see **NOISE: Table 3** above) recorded at the nearest sensitive receptors. Energy Commission staff's limit of 5 dBA above background would require the facility to not exceed 39 dBA at these sensitive receptors. Additional noise mitigation will be required to comply with the 39-dBA criterion.

The applicant proposes that the project will be designed to not exceed 39 dBA at all sensitive receptors. The anticipated mitigation to achieve these criteria are outlined below with the addition of low noise air-cooled condenser fans and a shroud over the HRSG transition duct. The anticipated sound levels with the additional mitigation features are summarized in **NOISE: Table 6** below.

Due to the small operational staff (maximum of 20-25 persons at any given time), the change in traffic volume and hence the noise increase on Otay Mesa Road is expected to be negligible.

NOISE: Table 6
Predicted Facility Operations
Noise Levels at the Nearest Receptors

Locations	Operation Sound Level	Compliance with San Diego Code and the 5-dBA above ambient Criterion
Single residence on Otay Mesa Road (3,500 feet)	37 dBA	Yes
Group of three residences on Otay Mesa Road (6,200 feet)	29 dBA	Yes
R. J. Donavan Correctional Facility (5,900 feet)	32 dBA	Yes
G. F. Bailey County Correctional Facility (5,500 feet)	33 dBA	Yes

(Source: PG&E 1999a, AFC § 5.12.2.1.1 and Table 5.12.3b).

WORKER NOISE IMPACTS (OPERATION)

Typically, individual power plant equipment can be provided that does not exceed a mitigated sound pressure level of 85 dBA at 3 feet from the equipment face and 5 feet above the ground. However, noise levels in some areas within a power plant typically exceed 85 dBA due to the additive effect of all nearby equipment as well as the effect of sound reflection and reverberation. Special noise control measures, such as silencers, acoustical enclosures, or insulation and acoustical lagging, may be considered to reduce in-plant noise levels.

These noise controls, however, are not always practical for reasons such as maintenance access, heat buildup, space limitations, and safety. Therefore, noise levels in some areas may exceed a sound pressure level of 85 dBA. OSHA and Cal-OSHA noise exposure limits would be satisfied using hearing protection within areas exceeding this level. Staff has proposed measures (see proposed Condition of Certification **NOISE-5**, below) to ensure compliance.

CUMULATIVE IMPACTS

The cumulative impacts discussion for the OMGP is based on CEQA and the CEQA Guidelines which require that the discussion of cumulative impacts be "guided by the standards of practicality and reasonableness" (Public Resources Code (PRC) §21083(b)); and that "the discussion include a list of past, present, and reasonably anticipated future projects producing related or cumulative impacts" (California Code of Regulations (CCR) §15130(b)(1)(A)). The CEQA Guidelines require that cumulative impacts are discussed when they are significant, and that the discussions of cumulative impacts reflect the severity of the impacts and their likelihood of occurrence. However, the Guidelines state that the cumulative impacts discussion need not be provided in as great detail as is provided for the proposed project.

Therefore, the purpose of this analysis is to:

1. Identify past, present, and reasonably foreseeable actions in the project area that could affect noise at the OMGP.

2. Determine if the impacts of the OMGP and the other actions would overlap in time or geographic extent.
3. Determine if the impacts of the proposed project would interact with, or intensify, the impacts of the other actions.
4. Identify any potentially significant cumulative impacts.

Projects identified for consideration in this discussion of cumulative impacts include those where an application (1) has been submitted to local jurisdictions for required approvals and permits; and/or (2) that has been previously approved and may be implemented in the near future.

For this discussion of cumulative impacts, the general geographic area of influence is defined as an approximate 2-mile radius around the power plant, or within 1 mile of the linear facilities. There are no projects within the OMGP Area of Influence.

MITIGATION MEASURES

Construction Noise: Construction activities will be scheduled during the daytime hours only. No other construction noise mitigations are anticipated to be necessary.

Worker Noise Exposure: The equipment noise mitigation features (PG&E 1999a, AFC § 5.12.3.1 and AFC page 5.12-11) are expected to reduce the onsite noise levels to levels ranging from 75 to 90 dBA throughout the site. The applicant proposes that any locations onsite that exceed 85 dBA will be posted as high noise areas and hearing protection will be required at all times within these areas of the facility.

Operational Noise: Anticipated operation noise mitigation measures would include the following:

1. Combustion turbines, steams, boiler feed pumps, and a majority of the auxiliary equipment to be located within a noise insulated building.

2. Acoustic enclosures for the combustion turbine generator packages.

3. Standard air inlet silencers for the combustion turbines.

4. Acoustic enclosures for the steam turbine generator packages.

5. Exhaust stack silencers for the heat recovery steam generators.

FACILITY CLOSURE

Upon closure of the facility, all operational noise will cease; no further adverse impacts from operation will be possible. The remaining potential noise source would be caused by the dismantling of the structures and equipment, and any site restoration work that may be performed. Since this noise would be similar to that caused by the original construction of the project, it can be treated similarly. That is, noisy work can be performed during daytime hours, with machinery and equipment properly equipped with mufflers. Any noise laws, ordinances, regulations and standards then in existence would apply; applicable Conditions of Certification included in the Energy Commission Decision would also apply unless properly modified.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff concludes that the OMGP will likely be built and operated to comply with all applicable noise laws, ordinances, regulations and standards. Staff further concludes that the OMGP will likely present no significant adverse noise impacts. The OMGP will likely represent an unobtrusive, nearly undetectable addition to existing noise levels.

RECOMMENDATIONS

Staff recommends the conditions of certification proposed below be included in the Commission Decision.

PROPOSED CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of construction (defined as start of rough grading) of the OMGP, and again at least 15 days prior to the commencement of steam blow activity, the project owner shall notify all residents within a 2-mile radius of the project site, by mail or other effective means. 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 OMGP. 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 also be posted at the OMGP site during construction in a manner visible to passersby. This telephone number shall be maintained until the OMGP has been operational for at least one year.

Verification: The project owner shall transmit to the Compliance Project Manager (CPM) in the first monthly construction report following the start of rough grading, a statement signed by the project manager attesting that the above notification has been performed, describing the method of that notification, and including a sample letter, poster or other notice, as appropriate. This statement shall also attest that the telephone number has been established and posted at the power plant site.

NOISE-2 Throughout the construction and operation of the OMGP, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

Protocol: The project owner shall:

1. use the Noise Complaint Resolution Form (see below for an example), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
2. attempt to contact the person(s) making the noise complaint within 24 hours;
3. conduct an investigation to determine the source of noise related to the complaint;
4. take all feasible measures to reduce the noise at its source if the noise is project related, and
5. submit a report documenting the complaint and the actions taken. The report shall include a complaint summary and the results of noise reduction efforts; and if obtainable, a signed statement by the complainant, stating that the noise problem was resolved to complainant's satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with San Diego County 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 construction of OMGP, 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 standards.

Verification: At least 30 days prior to the start of rough grading the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 Upon the OMGP first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a dominant source of noise that draws complaints. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. The noise contributed by the OMGP operation at the nearest residence shall not exceed 45 dBA L_{eq} (night) under normal operating conditions including startups and shutdowns. If the results from the survey indicate that power plant noise levels are in excess of 45 dBA L_{eq} (night) at the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Protocol: The measurement of power plant noise for purposes of demonstrating compliance with this Condition may alternatively be made at an acceptable location closer to the plant (e.g. 400 to 1,000 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest sensitive receptor. However, notwithstanding the use of this alternative method for determining the noise level, the character of plant noise shall be evaluated at the nearest sensitive receptor to determine the presence of pure tones or other dominant sources of plant noise.
Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to San Diego County and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted within thirty (30) days after the facility is operating at an output of 80% of rated capacity or greater, and shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095-5100 (Article 105) and Title 29, Code of Federal Regulations, Part 1910. 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 state 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 upon request.

NOISE-6 Construction and construction related activity (that which causes off-site annoyance, as evidenced by the filing of a legitimate noise complaint) shall be restricted to the hours of: 7 a.m. to 7 p.m. on weekdays and from 8 a.m. to 6 p.m. on weekends and holidays.
Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement certifying that the above restrictions will be observed throughout the construction of the project.

NOISE COMPLAINT RESOLUTION FORM

Otay Mesa Generating Project
(99-AFC-5)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

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NOISE: APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

Noise levels can be measured in a number of ways. One common measurement, the equivalent sound level (L_{eq}), is the long-term A-weighted sound level that is equal to the level of a steady-state condition having the same energy as the time-varying noise, for a given situation and time period. (See NOISE: Table A1, below.) A day-night (L_{dn}) sound level measurement is similar to L_{eq}, but has a 10 dB weighting added to the night portion of the noise because noise during night time hours is considered more annoying than the same noise during the day.

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, dB	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 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}	The Average A-Weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: California Department of Health Services 1976.

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 dBA levels.

NOISE Table A2
Typical Environmental and Industry Sound Levels

Source and Given Distance from that Source	A-Weighted Sound Level in Decibels (dBA)	Environmental Noise	Subjectivity/ Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		
Very Loud Music	110	Rock Music Concert	Very Loud
Pile Driver (50')	100		Very Loud
Ambulance Siren (100')	90	Boiler Room	Very Loud
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	Quiet
Large Transformer (200')	40		
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
Source: Peterson and Gross 1974			

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 3-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 10-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: Thumann, Table 2.3

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: OSHA Regulation

RELATIONSHIPS

$L_{dn} = 10 \log (1/24)[15x10^{(Ld/10)} + 9x10^{(Ln+10)/10}]$

Note: the 10-dB weighting added to the nighttime noise level. Daytime and nighttime are 15 hours (0700~2200 hrs) and 9 hours (2200~0700 hrs) respectively. L_d and L_n are the L_{eq} values over the 15 and 9 hours respectively. L_{dn} does not contain any consideration for tonal sounds, since it is derived from L_{eq} measurements.

CNEL is essentially the same as L_{dn}, except that different time segments are used in computation. The 24-hour period is divided into three segments instead of two. The day period (0700~1900 hours), evening (1900~2200 hours) and night (2200~0700 hours). The evening period is assigned 5-dB weighting and the nighttime is assigned 10-dB weighting. The extra 5 dB weighting during the evening results in higher values for CNEL that L_{dn}, but the difference is not statistically significant.

NOISE ATTENUATION

$[L_p]$ (at x = r) = $[L_p]$(at r = y) – 20log(x/y).

Where: x = distance to point where noise level is to be determined.
y = reference point.

$\Delta_{Loss} = 20\log (x/y)$.

Special case where x = 2y
$\Delta_{Loss} = 20\log (2y/y) = 20\log (2) = 6$

∴ As we double the distance, from a point source in free space, the noise level decreases by 6 dB.

VISUAL RESOURCES

David Flores

INTRODUCTION

Visual resources are the natural and cultural features of the environment that can be viewed. This analysis focuses on whether the OMGP would cause significant adverse visual impacts and whether the project would be in conformance with applicable laws, ordinances, regulations, and standards. The determination of the potential for significant impacts to visual resources resulting from the proposed project is required by the California Environmental Quality Act (CEQA) Public Resources Code section 21000 et seq. and Title 20, California Code of Regulations, section 1701 et seq.[1]. The determination of the conformance of the proposed project with applicable laws, ordinances, regulations, and standards is required by Public Resources Code, section 25525.

This analysis is organized as follows:

- staff's analysis methodology;
- applicable laws, ordinances, regulations and standards;
- assessment of the visual setting of the proposed power plant site, including linear facility routes;
- evaluation of the visual impacts of the proposed project on the existing setting;
- evaluation of compliance of the project with applicable laws, ordinances, regulations, and standards; and
- measures needed to mitigate any potential significant adverse visual impacts of the proposed project and to achieve compliance with applicable laws, ordinances, regulations, and standards.

SUMMARY

On March 1, 2000, the applicants for the Otay Mesa Generating Project (OMGP)
submitted an Application for Certification Supplement reflecting design changes for the project facilities. The plant modifications relevant to this supplement include:

- Shifting the power block slightly to the south.
- Increasing the HRSG stacks' height from 100 feet to 131 feet and co-locating the stacks.
- Decreasing to 76 feet the height of the air-cooled condensers (from 110 feet) and decreasing their length from 180 feet to 165 feet.
- Increasing the length of the water treatment building from 40 feet to 100 feet, and its width from 20 feet to 75 feet.
- Increasing the diameters of the fire/service water storage tank and the demineralized water storage tanks and increasing their height from 32 feet and 20 feet, respectively, to 48 feet.
- Increasing the height of the administration, electrical/control, and warehouse/mechanical shop buildings to 26 feet.

Staff has reviewed the changes as reflected in the Supplement and is addressed further in this report. Energy Commission staff analyzed both the potential visual impacts of the proposed OMGP and the compliance of the project with applicable laws, ordinances, regulations, and standards. Staff concludes that the project has the potential to cause significant visual impacts. Implementation of mitigation measures (light shielding, landscaping, and color treatment of the power plant) would cause some impacts to be less than significant. However, other impacts would remain significant. Staff is investigating the feasibility and effectiveness of additional mitigation measures to address those impacts. Also, the project, with recommended mitigation, would not conflict with local policies regarding visual resources that are part of the applicable laws, ordinances, regulations, and standards.

METHODOLOGY

The methodology used in this visual assessment is described below and includes a description of the approach and process used, identification of the criteria used for visual assessment, and identification of the basis for identifying relevant significance criteria used in evaluating the impacts of the proposed project.

Energy Commission staff considered the following criteria in determining whether a visual impact would be significant.

The CEQA Guidelines define a “significant effect” on the environment to mean a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including . . . objects of historic or aesthetic significance.“(Cal. Code Regs., tit.14, § 15382.)

Appendix G of the Guidelines, under Aesthetics, includes four questions to be addressed regarding whether the potential impacts of a project are significant. These questions ask whether the project would:

a) have a substantial adverse effect on a scenic vista;

b) substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

c) substantially degrade the existing visual character or quality of the site and its surroundings; or

d) create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Energy Commission staff considers any local goals, policies or designations regarding visual resources. Conflicts with such laws, ordinances, regulations, and standards can constitute significant visual

impacts. See the section on Applicable Laws, Ordinances, Regulations, and Standards.

Professionals in visual impact analysis have developed a number of questions as a means of evaluating the potential significance of visual impacts (see, e.g., Smardon 1986). The questions listed below address issues commonly raised in visual analyses for energy facilities:

- Will the project substantially alter the existing viewshed, including any changes in natural terrain?
- Will the project deviate substantially from the form, line, color, and texture of existing elements of the viewshed that contribute to visual quality?
- Will the project eliminate or block views of valuable visual resources?
- Will the project result in significant amounts of backscatter light into the nighttime sky?
- Will the project be in conflict with directly identified public preferences regarding visual resources?
- Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?
- Will the project result in a substantial visible exhaust plume?

Energy Commission Staff considers these questions in determining whether a project would cause a significant visual impact.

EVALUATION PROCESS

Energy Commission staff and the applicant's consultant selected seven Key Observation Points[2] (KOPs) to provide the basis for evaluation of project impacts by comparing the appearance before and after project construction. KOPs include locations that are chosen to be representative of the most critical locations from which the project would be seen.

ELEMENTS OF THE VISUAL SETTING

To assess the existing visual setting, staff considered the following four elements:

Visual Quality – This is the value of visual resources. This analysis used an approach that considers visual quality as ranging from outstanding to low. Outstanding visual quality is a rating reserved for landscapes that would be what a viewer might think of as "picture postcard" landscapes. "Low visual quality describes landscapes that are often dominated by visually discordant human alterations, and do not provide views that people would find inviting or interesting" (Buhyoff et al., 1994). For projects in an rural setting such as the proposed project, visual quality typically ranges from high, such as for a park or major water view, to low, such as for an area of heavy industry.

Visual Sensitivity – This is a measurement of the level of interest or concern of viewers regarding the visual resources in an area. Official statements of public values and goals reflect viewers' expectations regarding a visual setting. This analysis also employed land use as an indicator of viewer sensitivity. Uses associated with 1) designated parks, monuments, and wilderness areas, 2) scenic highways and corridors, 3) recreational areas, and 4) residential areas are highly sensitive. Commercial uses, including business parks, are generally moderately sensitive, with landscaping, building height limitations, and prohibition of above-ground utility lines demonstrating concern for visual quality. Large scale industrial uses are typically the least sensitive because workers are focused on their work, and generally are working in surroundings with relatively low visual value.

Visibility - Visibility can differ substantially between view locations, depending on screening and the angle of view. The smaller the degree of screening, the higher a feature's visibility. The closer the feature is to the center of the view area, the greater its visibility.

Viewer Exposure - The degree to which viewers are exposed to a view is affected by distance, the number of viewers, and the duration of view. Viewer exposure can range from having high values for all three factors, such as a foreground view from a large number of residences, to having low values for all three factors, such as a brief background view for a few travelers.

TYPES OF VISUAL CHANGE

To assess the visual changes the project would cause, staff considered the following factors:

Dominance - One measure of change is *scale dominance* - the apparent size of an object relative to the visible expanse of the landscape and to the total field of view. Another measure of change is *spatial dominance* - the measure of the dominance of an object due to its location in the landscape. The degree of dominance can range from dominant to negligible.

Contrast – Visual contrast was evaluated in regard to the elements of color, form, line, and scale[3], and in regard to the landscape components of existing structures, vegetation, and landforms. The degree of contrast can range from high to low.

View Blockage – View blockage is the blockage from view or elimination by the project of any previously visible components. Blockage of higher quality visual elements by lower quality elements causes adverse impacts. The degree of view blockage can range from strong to none.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL AND STATE

The proposed project, including the visible linear facility (i.e., a 0.1-mile transmission line interconnect) is located on private lands and is thus not subject to federal land management requirements. Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway. Therefore, no federal or state regulations pertaining to scenic resources are applicable to the project.

LOCAL

The project would be located in the unincorporated area of San Diego County.

SAN DIEGO COUNTY

DARK SKY ORDINANCE

San Diego County has specific policies for lighting that would apply to the Otay Mesa Project. These issues are addressed in the San Diego Dark Sky Ordinance (Division 9, sections 59.101-59.15 of the County Zoning Ordinance, and implemented by the San Diego County Planning Department. The purpose of the "Dark Sky" Ordinance is to control light pollution in the unincorporated areas of the county. In order for two observatories (Mt. Palomar and Mt. Laguna) to continue as high-quality astronomical research sites, light pollution in the surrounding area (generally 40-50 miles) must be controlled. The project is within Zone B of the Dark Sky Ordinance since it is outside the 15-mile radii around each of the observatories that are defined in the Ordinance as Zone A . For parking lots and security lighting, the Ordinance requires all low-pressure sodium lighting to be fully shielded. Other lighting above 4050 lumens [more than 200 watt standard incandescent, 150 watt tungsten-halogen (quartz), 75 watt mercury vapor, 50 watt high pressure sodium or 40 watt fluorescent] is prohibited for parking lots and security. However, lighting below 4050 lumens is allowed, but should be shielded where feasible and focused to minimize the spill of light into the night sky or adjacent properties.

THE EAST OTAY MESA SPECIFIC PLAN

The Specific Plan includes one regulatory provision and several policies within the Urban Design Element that apply to the proposed project. As indicated in the land

use section of the AFC, the project is within the Mixed Industrial General Plan and Zoning designation that is subject to the “B” designator; a regulatory provision which requires that a project within this designation must comply with the East Otay Mesa Site Planning and Design Guidelines.

The following guidelines are specific to visual resources and the proposed project:

- Policy UD-1: Encourage the preservation and enhancement of visually prominent land forms and areas of special scenic beauty, particularly the San Ysidro Mountain foothills and the valley walls of Johnson and O’Neal Canyons. Compliance will be implemented during the site plan review process pursuant to the Sensitive Resource Area Regulations for parcels with a “G” Designator and the Community Design Review Area Regulations for parcels with a “B” Designator.
- Policy UD-2: Implement a Streetscape Plan that enhances the identity and image of the East Otay Mesa Specific Plan Area. This policy will be implemented as part of roadway design and construction.
- Policy UD-5: Promote high quality design of buildings and landscaping on private property throughout East Otay Mesa to create a strong identity and image of high quality urban design for the area. To implement this policy, the entire East Otay Mesa Specific Plan Area that has been zoned Mixed Industrial and Commercial is given a “B” Designator and is subject to the Community Design Review Area Regulations.
- Policy UD-6: Onsite landscaping along public streets should be compatible and complementary with the streetscape design of the public right of way. The compatibility of onsite landscaping will be reviewed as part of the “B” Designator Site Plan review process.
- Policy UD-8: Encourage placement of public art in new development within the industrial and commercial areas of East Otay Mesa. This policy is not mandatory, but the County and the Community Design Review Board will encourage developers to include public art for projects in the industrial and commercial areas.

CITY OF CHULA VISTA

The applicant has indicated in the AFC that the project may require reconductoring the existing Miguel-Tijuana 230 kV

transmission line, which crosses Otay Lakes Road, East H Street and Eastlake Parkway in the City of Chula Vista. The Land Use Element of the City of Chula Vista General Plan describes the city's scenic highway plan and designates certain roads and road segments as scenic highways (Chula Vista, 1989, Section 8.1 Designated Scenic Roadways). Some of the scenic highways designated in the Chula Vista General Plan have not yet been built or extended as planned. According to this Element, scenic highways are made up of the road, its right of way, and the scenic corridor, the latter being the visible area outside the highway's right of way. Those scenic highways that were in existence at the time of this assessment and which are relevant to the OMGP include Otay Lakes Road, East H Street, and Eastlake Parkway. All developments adjacent to the mentioned roadways are subject to review of architectural design, siting, height of structures, landscaping, signs, and utilities. The design of the existing transmission towers, their siting and height will not be altered. The only changes will be that the conductors will be bundled and a yoke will be used to connect them to the insulators and ensure separation. There will be no landscaping, signs, or utilities. Therefore, design review will not be required.

SETTING

REGIONAL SETTING

The project site is located near the western base of the San Ysidro Mountains approximately 1.5 miles north of the U.S./Mexico border, and approximately 15 miles southeast of the City of San Diego. On the Mexico side of the international border, the City of Tijuana is developing extensive urban residential development projects along the border. The closest community to the power plant site and the transmission line on the United States side of the international border is the Eastlake Greens subdivision. The subdivision is located within the city limits of Chula Vista and is approximately 4.4 miles northwest of the power plant site. The plant facilities would not be within a line of sight from this subdivision because of intervening hills. From the power plant south to the international border, there are no residential areas.

PROJECT AREA SETTING

The project site will encompass approximately 15 acres within a 46-acre property on the eastern portion of the Otay Mesa in southwestern San Diego County. The 46-acre property is approximately 800 feet east of Alta Road and 1500 feet north of Otay Mesa Road.

The site consists of gently rolling terrain with an average elevation of approximately 665 feet above sea level (ASL). The ground surface at the 46-acre property gently slopes from approximately

708 feet ASL at the northeast corner to a low of approximately 625 feet ASL at the south-central property line. The site is undeveloped and consists primarily of fallow agricultural land. Current land uses in the site vicinity include fallow agricultural land, three correctional facilities approximately one mile northwest, and several businesses located at the former Kuebler Ranch approximately one-half mile northwest of the plant site.

KEY OBSERVATION POINTS

As described in the AFC (AFC p.6.13-20, Section 6.13.2.7), the applicant structured the analysis of the project effects by identifying the view areas most sensitive to the project's potential visual impacts. In consultation with Energy Commission staff, seven Key Observation Points (KOPs) were selected for the development of photo simulations that could be used as a basis for visualizing the plant's potential effects. This analysis focuses on viewers who are highly sensitive to changes in the visual setting and on existing visual features that affect the visual quality, visibility, and visual exposure to the proposed project for those viewers. **VISUAL RESOURCES Figures 1 and 2** show the location of the KOPs used in this analysis and the direction of each view.

IMPACTS

CONSTRUCTION IMPACTS

POWER PLANT

Construction for the project site is expected to take about 20 months and would entail the use of heavy construction equipment, the development of a material storage/laydown area, and truck traffic. The power plant site is sufficiently far (1 to 2 miles) from residences that visual impacts due to construction would not be significant.

CONNECTION TO EXISTING TRANSMISSION LINE

The plant's 230 kV transmission connection to San Diego Gas & Electric's (SDG&E) 230 kV Miguel-Tijuana transmission line would require incorporation of four single-circuit, double-deadend tubular steel poles in the existing SDG&E line, and three 230 kV double-circuit single shaft tubular steel poles for the 230 kV spans to the power plant switch yard. The double-deadend poles would be approximately 90 feet high, depending on the terrain. The double-circuit poles would vary from 103 feet to 125 feet in height.

RECONDUCTORING OF MIGUEL-TIJUANA 230 KV TRANSMISSION LINE

The proposed project may require reconductoring of approximately 9.05 miles of the existing Miguel-Tijuana 230 kV transmission line. No modifications to the tower

structures are planned. The only visible modification, besides the addition of conductors, is the replacement of the six existing conductor-insulator connections with yoke plates that will carry the bundled lines and keep them separated by 18 inches. These yoke plates are triangular, 6 inches high, with a base 22-23 inches wide. The conductors will be approximately 1.1 inches in diameter and will have a non-specular finish to reduce reflectivity.

The construction period for the entire transmission line modification would be three to four months and activity at any one site will be several days. Therefore, visual

VISUAL RESOURCES Figure 1
Key Observation Points (KOPs) 1 through 5

VISUAL RESOURCES Figure 2
Key Observation Points (KOPs) 6 and 7

impacts of construction activities, as well as residual impacts at the pull sites and towers, would be temporary, lasting less than one year, and would be insignificant. They are not considered further in this analysis.

NATURAL GAS SUPPLY LINE

The proposed natural gas supply line (Route 2A) proceeds 0.2 miles across undeveloped land west to Alta Road, then proceeds 1.85 miles along Alta Road, Otay Mesa Road, and Harvest Road to the interconnection point near the Harvest Regulator Station. The natural gas line would be buried and within paved portions of the aforementioned roadways. Views from existing residences and roads would be affected for the 30-day period of construction by the presence and activity of the workforce (approximately 30 workers) and heavy equipment. Because the visual impacts of construction would be temporary and not significant, this route for the natural gas supply line is not considered further in this analysis.

Alternate natural gas supply line (Route 2B) is approximately 1.6-mile long and traverses undeveloped and fallow agricultural land. As with Route 2A, construction would be complete in 30 days and would require the use of heavy equipment and a workforce of 30 people. A 100-foot wide right of way would be cleared and graded to install the pipeline, to be restored upon completion of construction. It is assumed that restoration includes returning the topography to its original contours with stockpiled topsoil. Because the visual impacts of construction would be temporary and not significant, this route for the natural gas supply line is not considered further in this analysis.

POTABLE WATER SUPPLY LINE

The potable water supply line (Route 3) proceeds 0.2 mile across undeveloped land west to Alta Road parallel to the initial segment of natural gas supply line Route 2A discussed earlier. The visual impact for the construction phase of this pipeline would be temporary and not significant. No above ground structures related to the pipeline would be visible during the operations phase, so no visual impacts would occur. Therefore, the potable water pipeline is not considered significant and is not discussed further in this analysis.

WASTEWATER PIPELINE

The wastewater pipeline route (Route 4) is within a two-mile stretch of Johnson Canyon, primarily on the north side of the drainage and along flatter areas of the canyon bottom. The pipeline would be buried and the construction period would be 20-50 days, so visual impacts due to construction

activities would be short term. Therefore, the visual impacts of construction are not considered further in this assessment. During the operational stage of the pipeline, the clean-out traps and manholes and access road would be the only aboveground features. The clean-out traps and manholes, given their small size and distribution along the route, would not attract much attention, therefore visual impacts would not be significant.

The alternative wastewater pipeline route (Route 4A) is 0.85 mile long, running from the southwest corner of the plant west along the County's planned Loop Road to Alta Road, from Alta Road west along the County's planned Lone Star Road alignment for 2,700 feet, then approximately 700 feet north into the Johnson Canyon to tie in with proposed wastewater pipeline Route 4. The County of San Diego requested that this new route be considered since it would better serve the sewer needs of potential future development along the Lone Star Road planned corridor.

Similar to Route 4, the pipeline would be buried and the visual impacts due to construction activities would be short term. Therefore, the visual impacts of construction are not considered further in this assessment. During the operational stage of the pipeline, the clean-out traps and manholes and access road would be the only aboveground features. The clean-out traps and manholes, given their small size and distribution along the route, would not attract much attention, therefore visual impacts would not be significant.

OPERATIONS IMPACTS

KEY OBSERVATION POINT 1 - VIEW FROM INTERNATIONAL BORDER

KOP 1 represents the north view from the international border with Mexico toward the OMGP (see **VISUAL RESOURCES Figure 1** for the location of KOP 1 and **VISUAL RESOURCES Figure 3** for the view from KOP 1). The KOP is located approximately 8,000 feet (1.5 miles) from the proposed plant site.

VISUAL SENSITIVITY

The project site is visible from residences on the Mexican side of the international border, so viewer sensitivity is high.

VISIBILITY

The view is not screened from KOP 1. Because of the distance between KOP 1 and the power plant (approximately 1.5 miles), the power plant including

the stacks, will be visible in the background, therefore visibility from KOP 1 will be moderate to high.

Visual Quality

The view from KOP 1 has the character of an open landscape, rolling plain with the San Ysidro Mountains in the background. The view takes in the vehicle storage yard, the former Kuebler Ranch that now consists of R& F Metal, Inc. and a trucking business in the horizon, but these facilities are barely visible. Considering these factors, visual quality is moderate to high.

Viewer Exposure

The distance to the project site is 1.5 miles, so the power plant would be in the background. The view represents hundreds of residences in Mexico, so the number of viewers is high and the view duration is long. Considering these factors, viewer exposure is moderate.

Contrast with Structures

Because of the substantial distance from the plant site to KOP 1, contrast with existing structures would be noticeable but not substantial, and therefore would be moderate in regard to form and line (see **VISUAL RESOURCES Figure 4**). The power plant would appear noticeably larger than the existing structures, but because of the substantial distance, even the plant would appear small, so scale contrast would be moderate. The proposed earth tones of the power plant and stacks would contrast moderately with the gray tones of the existing scattered commercial landscape in the distance.

Contrast with Vegetation

Vegetation visible in the view from KOP 1 toward the site consists of natural grasslands with a small number of trees in the background. The portions of the project visible from this view are predominantly vertical, while the trees are rounded and appear as a horizontal band, so the project would cause moderate to high contrast with vegetation in regard to form and line. The proposed earth tones of the power plant stacks would contrast moderately with the green and tan tones of the grasslands and trees. The project would appear somewhat larger in size than any vegetation, so contrast would be moderate in regard to scale. Due to the substantial distance of the plant from KOP 1, and the presence of existing structures in the view, the increment of contrast with vegetation added by the proposed structures would be moderate, so contrast with vegetation would be moderate.

Contrast with Land/Sky

From KOP 1, the landforms consist of rolling hills with the San Ysidro Mountains in the background. Because the project elements would be predominantly vertical and angular, the project would cause high contrast with land in regard to form and line. Natural grasslands are visible, so color contrast would be moderate. The project size would appear small compared to the San Ysidro Mountains in the background, so scale contrast would be low.

Because of the substantial distance of the project from KOP 1, and the presence of existing structures in the view, the increment of contrast with land added by the proposed structures would be moderate, reducing form and line contrast with land to moderate.

Scale Dominance

The project would appear small in comparison to the wide field of view, with the San Ysidro Mountains as the major scale contributor in the view, therefore the proposed power plant would occupy a minor part of the setting. Scale dominance from KOP 1 would be subordinate.

Spatial Dominance

Because the spatial composition of the view from KOP 1 is panoramic, the project would be subordinate in regard to composition. Because the visible portions of the project would be backdropped by the hills, spatial dominance in regard to backdrop would be prominent. The overall spatial dominance rating would be subordinate.

View Blockage

From KOP 1, the project would block the view of only a small part of the background hills that now can be seen. Therefore, view blockage would be low.

Visual Impact

It can be concluded that the proposed power plant and stacks would not have a significant impact based on the following summary of visual factors for KOP 1:

- viewer sensitivity is high;
- visual quality is moderate to high;
- visibility is moderate to high;
- viewer exposure is moderate;
- the highest level of contrast would be moderate;
- scale dominance would be subordinate;
- spatial dominance would be subordinate; and
- view blockage would be low.

KEY OBSERVATION POINT 2 – VIEW FROM CLOSEST RESIDENCE

KOP 2 (see **VISUAL RESOURCES Figure 1** for location) represents the view from the residence closest to the plant site (0.66 miles).

VISUAL SENSITIVITY

Because the view for KOP 2 represents a residence, visual sensitivity is high.

VISIBILITY

KOP 2 is from a point near the residence closest to the plant site. Because the applicant's visual consultant was unable to gain access to the property, the KOP simulation was taken approximately 250 to 300 feet east of the residence. From the residence, the proposed power plant stacks would barely be discernable from the residence due to the topography of the land. In addition, shrubs in the foreground would conceal any parts of the HRSG stacks and air-cooled condensers, so visibility from the residence is considered low.

Because the applicant found it difficult to evaluate the KOP view from this residence, they chose a view as indicated 250 to 300 feet northeast of the home where shrubs and topography would not obscure the view of plant site. KOP 2 was assumed to represent a "worst case scenario" based on the supposition that the resident may treat the land north of the home as a backyard. This area consists of numerous tall and woody shrubs with no visible sign of access paths. With no evidence that the residents enjoy views from this area, staff has concluded that there are no sensitive receptors from this area, therefore no further analysis is warranted.

KEY OBSERVATION POINT 3 – VIEW FROM OTAY MESA ROAD AND ALTA ROAD

KOP 3 is located at the intersection of Otay Mesa Road and Alta Road. It represents the views of the traveling public from Otay Mesa Road and Alta Road. The viewpoint is approximately one-half mile from the OMGP site (see **VISUAL RESOURCES Figure 1** for the location of KOP 3 and **VISUAL RESOURCES Figure 7** for the existing view from KOP 3).

VISUAL SENSITIVITY

The viewers consist of commuters to and from the three correctional facilities along Alta Road and the former Kuebler Ranch, which now serves as R & F Metal, Inc.; rural residential homes in the area of the project site; and travelers to the recreational areas

located approximately 2.5 miles northwest of the plant site. Access to the recreational areas (Upper and Lower Lakes) would normally come from the south for the communities of Chula Vista. Because the viewers consist primarily of workers in the local area, visual sensitivity is considered low to moderate. However, travelers on Alta Road also use the road to reach recreational areas, therefore, visual sensitivity for recreational travelers is considered moderate to high.

Visibility

Because views toward the plant site and transmission lines are largely unobstructed, visibility from KOP 3 is considered high.

Visual Quality

The view from KOP 3 is panoramic and encompasses open rolling hills with natural grasses, steel transmission towers in the background and sporadic trees in the distance. Therefore visual quality is rated moderate.

Viewer Exposure

Based on the moderate number of travelers along Alta Road (approximately 4,000 annual average daily traffic), long duration of view from Otay Mesa Road and Alta Road (approximately 2 miles) and foreground to middleground distance, viewer exposure is moderate to high.

Contrast with Structures

The proposed power plant would cause a moderate to high level of contrast with transmission towers to the east and the existing commercial structures to the north of the project in regard to form, and line (see **VISUAL RESOURCES Figure 6**). Scale contrast with existing commercial structures and transmission towers in the distance would be high because the power plant would appear substantially larger than the existing structures. The proposed earth tone color proposed for the power plant would contrast moderately with the colors of the existing transmission towers and commercial structures.

Contrast with Vegetation

Vegetation visible in the view from KOP 3 toward the project site consists of natural grasses backdropped by the San Ysidro Mountains. A small number of trees are also viewed in the horizon. The rectangular forms and straight lines of the proposed power plant would contrast strongly with the irregular shapes of the vegetation, so the project would cause high contrast with vegetation in regard to form and line. The proposed earth tones of the power plant stacks would cause a moderate level of contrast with the

seasonal green to tan tones of the shrubs and grasses. Because the power plant would appear larger than the vegetation from KOP 3, the increment of contrast with vegetation added by the proposed structures would be substantial, and scale contrast with vegetation would be high.

Contrast with Land/Sky

From KOP 3, the landform is rolling hills with the San Ysidro Mountains in the background. There is no water visible in this view. Because the project elements would be predominantly vertical and angular, the project would cause high contrast with land in regard to form and line.

The proposed earth tone of the project would contrast moderately with the color of the rolling hills and existing vegetation. The project size would appear smaller in size to the existing San Ysidro Mountains in the background, so scale contrast would be low to moderate.

Scale Dominance

The project would appear small in comparison to the wide field of view, and would occupy a minor part of the setting. Therefore, scale dominance from KOP 3 would be subordinate.

Spatial Dominance

Because the spatial composition of the view from KOP 3 is panoramic, the project would be subordinate in regard to composition. Because the project site is the central portion of the view, spatial dominance would be dominant in regard to position. Because the project would be backdropped by mountains, spatial dominance in regard to backdrop would be prominent. The overall spatial dominance rating would be co-dominant.

View Blockage

From KOP 3, the project would block the view of a small part of the background hills that now can be seen. Therefore, view blockage would be low.

Visual Impact

It can be concluded that the proposed power plant and stacks could have a significant visual impact based on the following summary of visual factors for KOP 3:

- viewer sensitivity is low to moderate for local workers and moderate to high for recreational travelers;
- visual quality in this area is moderate;

- visibility is high;
- viewer exposure is moderate to high;
- contrast with existing structures would be high in regard to form, line, and scale; contrast with vegetation would be high in regard to form, line, and scale; contrast with land would be high in regard to form and line;
- scale dominance would be subordinate;
- spatial dominance would be co-dominant; and
- view blockage would be low.
-

Staff will be investigating additional mitigation to lessen the potential visual impacts, which may include tree screening along Otay Mesa Road and Alta Road (see below under Mitigation). At the time this analysis was prepared, staff had not reviewed the applicant's landscape plan and suggested revisions which was docketed on April 15, 2000.

KEY OBSERVATION POINT 4 - BACKYARD VIEW FROM TWO HOMES ON OTAY MESA ROAD

KOP 4 (see **VISUAL RESOURCES Figure 1** for location) represents the rural residential views from the backyard of two westernmost homes in the group of three along Otay Mesa Road and is about 8,000 feet southwest of the center of the plant site. The crest of the low hill intervenes between KOP 4 and the plant site about 1,550 feet to the northwest. The crest is about 40 feet higher than eye level at Key Observation Point 4 and is sufficient to totally block the plant facilities from view, including the tallest of the facilities (the HRSG stacks and air-cooled condensers). Therefore, no photo or visual simulation is provided in this analysis and the project would have no effect on the view from KOP 4, so no further analysis is warranted.

KEY OBSERVATION POINT 5 - VIEW FROM PROPOSED JOHNSON CANYON TRAIL

KOP 5 represents the southerly view toward the plant site and transmission line route from the proposed Johnson Canyon trail corridor (see **VISUAL RESOURCES Figure 1** for the location of KOP 5 and **VISUAL RESOURCES Figure 9** for the existing view from KOP 5). The proposed trail comes within 250 feet of the northwest corner of the plant site before turning north to join the O' Neal Canyon trail corridor. Staff contacted representatives of the County and City of San Diego regarding the construction schedule for the development of trail along Johnson Canyon. Funding for the proposed trail in this area has not been established, easement rights have not been obtained and eventual

development of the trail in the vicinity of the power plant is scheduled far into the future (5-10 years). Therefore, construction and eventual operation of the power plant would occur prior to development of the trail. Given consideration that the trail placement is speculative until such time that easement rights are secured, no further analysis is warranted for KOP 5.

KEY OBSERVATION POINTS 6 & 7- VIEWS OF REBUNDLING OF EXISTING 230 kV MIGUEL-TIJUANA TRANSMISSION LINE

KOPs 6 &7 represents the views of the existing 230 kV Miguel-Tijuana transmission line where it crosses Otay Lakes Road and Eastlake Drive, respectively (see **VISUAL RESOURCES Figure 2** for the locations of KOPs 6 & 7 and **VISUAL RESOURCES Figures 12 and 14** for the existing views from KOPs 6 & 7). Both KOPs represent the most critical views from the several major road crossings (roads which have been designated as scenic highways) as well as the most critical views from existing residential areas potentially affected by the bundled line.

Visual Impact

The visual impact of the bundled transmission lines would be minimal (**See VISUAL RESOURCES Figures 11 & 12**). Views from the backyard of homes are constrained by adjacent homes and lines of sight are directed transverse to the transmission line. The existing transmission lines are noticeable and distracting, particularly where the homes are elevated above the base of the tower and close to the lines. Where the towers dominate the foreground views, such as in the case on KOPs 6 & 7, bundling the conductors would make the lines only slightly more noticeable and would not noticeably lessen visual quality. Staff has concluded that with the already degraded visual quality, the incremental effect of bundling of the transmission lines in the areas of KOP 6 & 7 would be small and insignificant, therefore no further analysis is warranted.

LIGHTING

Although the proposed power plant is in an industrial zoned area, existing lighting levels are generally low in the immediate vicinity due to the limited development of the area. Exterior lighting for the proposed power plant therefore has the potential to considerably increase lighting levels, creating glare, and backscatter to the nighttime sky. The applicant has proposed measures to reduce such

impacts, and Energy Commission staff has expanded these measures in the proposed condition of certification to reduce the lighting impacts to less than significant.

VISIBLE PLUMES

The applicant has indicated their use of dry cooling, which would eliminate the potential for cooling tower plumes. Therefore a cooling tower plume analysis is not required.

The generating facility would release emissions to the atmosphere from the HRSG stacks. The hot combustion emissions from the stacks would rarely be visible. According to Energy Commission Air Quality staff, considering the warm and hot start-ups throughout the year, no visible vapor plume should occur. With the infrequent cold start-ups (2-3 times per year), a brief slight brown tint to the stack emissions may occur. The emissions should be inconspicuous and not cause a significant adverse visual impact.

CUMULATIVE IMPACTS

- The proposed power plant would add a noticeable but not considerable increment to the existing industrial character of this area. As addressed in the AFC, the portion of San Diego County where the proposed OMGP is located is expected to grow significantly over the next 50 years. This includes the buildout of the East Otay Mesa Specific Plan area, the Otay Ranch development (approximately 50,000 residences) and San Miguel Ranch (3,000-acre residential subdivision). Visual impacts from these projects individually were considered significant in their respective EIRs. Therefore, even without the proposed project, significant visual impacts are anticipated to occur. The proposed project is a small contributor to these impacts when compared to the other projects in the area. As provided in the AFC, the applicant has committed to provide mitigation measures, which will limit the project's contribution to cumulative impact in the area of visual resources. Staff has expanded those conditions to insure that the project will limit its cumulative impact to acceptable levels.
- In conclusion, with mitigation, the proposed power plant would not contribute substantially to a significant cumulative visual impact.

FACILITY CLOSURE

INTRODUCTION

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

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. The closure plan that the project owner is required to prepare should address removal of the power plant structures and the transmission lines to reduce visual impacts.

UNEXPECTED TEMPORARY CLOSURE

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. No special conditions regarding visual resources are expected to be required to address temporary closure.

UNEXPECTED PERMANENT CLOSURE

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. The contingency plan that the project owner is required to prepare should address removal of the power plant structures and the transmission lines to reduce visual impacts.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

LOCAL

COUNTY OF SAN DIEGO

Staff has proposed conditions of certification (see below) to ensure that lighting, site, landscape, and painting plans and their implementation comply with San Diego County's applicable laws, ordinances, regulations, and standards. The applicant has proposed to prepare a lighting plan that will be designed to comply with the County's Dark Sky Ordinance. The applicant has proposed to prepare a landscape plan designed to conform to the East Otay Mesa Site Planning and Design Guidelines, specifically Policies UD-1 through UD-8.

Staff's proposed conditions require that the applicant send the plans to San Diego County for review and comment and to the Energy Commission for review and approval.

MITIGATION

APPLICANT'S PROPOSED MITIGATION

SPECIFIC MITIGATION MEASURES

The Applicant has proposed three mitigation measures "to make the project more aesthetically acceptable" (OMGP 1999, pp.5.13-37):

- The project facilities will be painted with neutral earth tone tan and gray colors that blend with the background of grass and shrub covered hills.

- In order to minimize nighttime light and glare, except as required for security and worker safety, night lighting will be designed to direct illumination downward and inward toward the plant facility, and illumination will otherwise meet the standards of the County of San Diego Dark Sky Ordinance.
- A landscape plan will be prepared which will be acceptable to the County of San Diego.

EFFECTIVENESS OF THE APPLICANT'S PROPOSED MITIGATION MEASURES

The Applicant's proposed mitigation measures, if properly implemented, would reduce the potential impacts of the project due to color contrast and lighting.

STAFF'S PROPOSED MITIGATION

STAFF MITIGATION 1 (CONDITION 1)

A specific painting plan is needed to assure that proposed colors will not unduly contrast with the surrounding landscape colors. Such a plan should be submitted at an early time so that any precolored components of buildings, structures and linear facilities can have colors approved and included in bid specifications for such buildings or structures.

STAFF MITIGATION 2 (CONDITION 2)

Although the East Otay Mesa Specific Plan does not specifically address fencing requirements, staff has provided a condition of certification which requires non-reflective and screened fencing to insure compliance with the requirements of the San Diego County zoning ordinance.

STAFF MITIGATION 3 (CONDITION 3)

A specific lighting plan is needed to ensure that project lighting will be adequately designed, shielded, and placed so as to minimize off-site light and glare. This plan should also minimize backscatter to the nighttime sky, and should include provisions to minimize lighting of plant areas, consistent with operational and safety needs. In addition, the Lighting Plan shall be consistent with the Dark Sky Ordinance adopted by San Diego County. A procedure is also needed to resolve any lighting complaints.

STAFF MITIGATION 4 (CONDITION 4)

A specific landscaping plan should be prepared showing the location of landscaping, the varieties and sizes of plants proposed to be used, and the proposed time to maturity for proposed plants. The plan should also address maintenance and replacement of unsuccessful plantings.

EFFECTIVENESS OF STAFF'S PROPOSED MITIGATION

Extensions of the applicant's proposed mitigation measures as proposed above, and staff's proposed mitigation for

fencing, would reduce potential impacts due to lighting, fencing, and color contrast to less than significant levels.

ADDITIONAL MITIGATION

Staff is evaluating the feasibility and effectiveness of additional mitigation to mitigate the remaining potential significant visual impacts to the areas represented by Key Observation Point (KOP) 3 . Staff is considering landscaping along Otay Mesa Road and Alta Road to mitigate impacts for the area represented by KOP 3.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

With effective implementation of applicant's proposed mitigation measures, as modified and expanded by Staff's recommendations, the project is expected to achieve compliance with applicable laws, ordinances, regulations, and standards, and to reduce some potential visual impacts to less than significant levels. Staff is investigating the feasibility and effectiveness of additional measures to reduce the remaining potential significant visual impacts.

RECOMMENDATION

The Energy Commission should adopt the following conditions of certification if it approves the project.

PROPOSED CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall treat the power plant structures (including the heat recovery steam generators, buildings, tanks, and switchyard) visible to the public in a non-reflective color that blends with the natural surroundings. The project owner shall treat the HRSG stacks with a heat-resistant non-reflective color that blends with the natural surroundings.

Protocol: The project owner shall submit a treatment plan for the project to San Diego County for review and comment and to the California Energy Commission Compliance Project Manager (CPM) for final review and approval. The treatment plan shall include:

- specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
- a detailed schedule for completion of the treatment; and,
- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

The project owner should not specify the treatment of structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

The project owner shall notify the CPM within one week after all precolored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.
Verification: Not later than sixty days prior to ordering the first structures that are to be color treated during manufacture, the project owner shall submit its proposed plan to San Diego County for evaluation of compliance with the East Otay Mesa Specific Plan and the CPM for review and approval. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 Any fencing for the project shall be non-reflective and provide sufficient screening. Prior to ordering the fencing the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting that such fencing will be non-reflective and provide sufficient screening.

The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.
Verification: At least thirty days prior to ordering the non-reflective and screened fencing, the project owner shall submit the specifications to the CPM for review and approval.

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 seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall design and install lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to San Diego County for review and to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated 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; and
- A lighting complaint resolution form (following the general format of that in attachment 1) will be used by plant operations to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

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 days before ordering the exterior lighting, the project owner shall provide the lighting plan to San Diego County to ensure compliance with the Dark Sky Ordinance and to the CPM for review and approval. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within thirty 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 days of completing exterior lighting installation that the lighting is ready for inspection.

VIS-4 Prior to the start of commercial operation, the project owner shall implement a landscape plan that meets the requirements of the San Diego County Zoning Code.

Protocol: The project owner shall submit to San Diego County for review and comment and to the CPM for review and approval a specific plan describing its landscaping proposal, stating that it conforms to San Diego County's Zoning Code. The plan shall include, but not be limited to:

- a detailed landscape plan, at a reasonable scale, which includes a list of proposed tree and shrub species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives.

- maintenance procedures, including any needed irrigation; and
- a procedure for replacing unsuccessful plantings.

Landscaping shall not be installed before the plan is approved. The project owner shall notify the CPM when the landscaping has been installed and is ready for inspection.
Verification: At least ninety days prior to the start of commercial operation, the project owner shall submit the proposed landscape plan to San Diego County for review and comment and to the CPM for review and approval.

The project owner shall notify the CPM within seven days after completing installation of the landscaping that it is ready for inspection.
VIS-5 The project owner shall submit a detailed site plan that meets the requirements of San Diego County's East Otay Mesa Specific Plan and East Otay Mesa Planning and Design Guidelines.

Protocol: The project owner shall submit to San Diego County for review and to the CPM for review and approval a specific site plan which conforms to San Diego County's East Otay Mesa Specific Plan. The plan shall include, but not be limited to:

- A detailed plan, at a reasonable scale, which describes the location of all walls and fencing, and a detailed elevation of each fencing type.
- Details and elevations of other structures including entry way and modular offices;
- Existing and proposed grades;
- Distance that structures are proposed to be setback from property lines; and
- Width of proposed roads and driveways.

The detailed site plan shall incorporate Conditions VIS-1 through VIS-4 into its design criteria.
VERIFICATION: At least ninety days prior to the start of commercial operation, the project owner shall submit the proposed site plan to San Diego County for review and comment and to the CPM for review and approval.

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ATTACHMENT 1

LIGHTING COMPLAINT RESOLUTION FORM

OTAY MESA GENERATING PROJECT **San Diego County**
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Description of corrective measures taken: Complainant's signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct: Plant Manager's Signature:

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

VISUAL RESOURCES APPENDIX A

VISUAL RESOURCES **Figures 3 through 12**

VISUAL RESOURCES Figure 3
Existing View from KOP 1

VISUAL RESOURCES Figure 4
Proposed Project from KOP 1

VISUAL RESOURCES Figure 5
Existing View from KOP 2

VISUAL RESOURCES Figure 6
Proposed Project from KOP 2

VISUAL RESOURCES Figure 7
Existing View from KOP 3

VISUAL RESOURCES Figure 8
Proposed Project from KOP 3

VISUAL RESOURCES Figure 9
Existing View from KOP 5

VISUAL RESOURCES Figure 10
Proposed Project from KOP 5

VISUAL RESOURCES Figure 11
Existing View of Transmission Line from KOP 6

VISUAL RESOURCES Figure 12
Proposed Bundled Transmission Line from KOP 6

VISUAL RESOURCES Figure 13
Existing View of Transmission Line from KOP 7

VISUAL RESOURCES Figure 14
Proposed Bundled Transmission Line from KOP 7

VISUAL RESOURCES APPENDIX B
Commission Staff's Visual Assessment Methodology Visual Resources Appendix B - Commission Staff's Visual Assessment Methodology

METHODOLOGY FOR ASSESSING VISUAL SETTING

Visual Factors

Commission staff evaluated a number of factors in assessing the visual setting of the proposed project. These factors include visual quality, viewer sensitivity, visibility, and viewer exposure.

Visual Quality

The visual quality of a setting is the value of visual resources in that setting, determined by the visible environment's intrinsic physical properties and by associated cultural or public values (Andrews 1979; Smardon et al. 1986). Where publicly adopted goals, policies, designations or guidelines exist, they are given great weight in assessing visual quality. Where they do not exist, the analyst relies on experience and judgment to assess visual quality. The relevant physical properties of the environment include landform, vegetation, water, color, scarcity, and cultural modifications.

A basic premise in the evaluation of visual quality is that a project should be compatible with the character of the landscape. In the case of predominantly natural settings, projects should be compatible with this character. It is possible for new structures to be compatible with predominantly natural settings if such settings already contain some structures that are considered compatible and the new structures are similar to the existing structures and do not appreciably change the balance of natural and cultural elements. However, in areas that appear to be totally natural, any modification that appears to be human-made will change the character of the area.

Viewer Sensitivity

One of the principal factors evaluated in assessing the potential for visual impacts is the sensitivity level of potential viewers. Viewer sensitivity is a measurement of the level of interest or concern of viewers regarding the visual resources of an area. It is generally expressed as high, moderate, or low. Local values and goals affect a viewer's expectations regarding a visual setting (Blair 1980). Concern regarding a change to a visual setting is often due at least in part to the symbolic effect of the change. A basic document for visual impact assessment states that

"more often it is symbolic meaning, not preference, which motivates our value judgments and reactions" (Schauman 1986, p.105).

A visual change can be perceived as a symbol of a threat to the cultural stability and identity of a group or community (Costonis 1982). Viewer sensitivity can be determined in two ways, directly through evaluation of viewer attitudes or indirectly using viewer activities.

Viewer Attitudes (direct)

The direct determination of viewer attitudes is normally done by surveying potential viewers. As mentioned above in the discussion on Visual Quality, the accurate determination of such information is very complex, involves well-designed, implemented and interpreted surveys, is usually labor intensive, and is usually expensive. Given these constraints and the mandated time schedule for power plant siting cases, it is generally not possible for Commission staff to conduct such a direct determination of viewer attitudes and be assured of accurate and valid results.

Viewer Activities (indirect)

In situations where direct information on viewer sensitivity cannot be obtained, indirect methods are typically used in the visual profession to gain an insight as to viewers' sensitivity regarding visual resources. Land use is considered a "useful indirect indicator of likely viewer response" (Blair 1986), and activities associated with some uses can result in an increased awareness of visual or scenic resources (Headley 1992). Use activities associated with 1) designated parks, monuments, and wilderness areas, 2) scenic highways and corridors, 3) recreational areas, and 4) residential areas are usually highly sensitive. Commercial uses are generally less sensitive as activities, and views are often focused on those commercial activities. Large scale industrial or agricultural processing facility uses are usually the least sensitive because workers are focused on their work, and often are working in surroundings with relatively low visual value.

Visibility

Another important factor in assessing the existing visual setting, and thus potential impact ,is the visibility of the project. Visibility can differ substantially between view locations, depending on screening and the effect of the location of the visual change in the view. The smaller the degree of screening, the higher the visibility usually is and the greater the potential impact is likely to be. One factor potentially affecting screening is the season. Deciduous trees that provide substantial screening in summer may provide little screening in winter. Angle of view is also important. The closer the feature is to the center of the view area, the greater the impact is likely to be. Meteorological conditions can also affect visibility. For example, fog can make a cooling tower plume or stack plume unnoticeable, given particular fog density and distance from the viewer to the plume. Another factor affecting visibility is time of day. Although projects are generally more noticeable during daylight hours,

lighting can make project structures and plumes more noticeable at night than during the day.

Viewer Exposure

The degree to which viewers are exposed to a view by (a) their distance from the feature or view in question, (b) the number of viewers, and (c) the duration of view is called viewer exposure (Grinde and Kopf 1986). Viewer exposure is important in determining the potential for a change in the visual setting to be significant.

Distance

As the distance between the viewer and the feature viewed increases, the perceived size of the feature and the ability to see details decreases. Distance zones may be usefully categorized as follows: foreground, or close-range; middleground, or mid-range; and background, or long-range. Within close-range distances, details such as surface textures and the fullest range of surface colors are clearly perceptible. Mid-range distances are characterized by visualization of complete surface features such as tree stands, building clusters, and small landforms. Long-range distances are dominated by the horizon and major landforms (Felleman 1986).

Numbers of Viewers

Two measures of the number of viewers are important to consider in assessing the potential visual impact of a project. One is the absolute number of viewers. The other is the proportion of viewers in a viewshed who can see the project.

Duration of View

The length of time that a view is visible to a viewer is another important factor to be considered in determining the importance of a view and the potential impact of a project. For a given activity, the longer the view duration, the greater the potential importance or impact. View durations range from a few seconds, as in the case of some travelers in motor vehicles, to a number of hours per day, in regard to some residential situations.

Key Observation Points

The evaluation factors discussed above are considered in relation to Key Observation Point. Key Observation Points are chosen to provide the basis for evaluation of project impacts by comparing the appearance before and after project construction. Key Observation Points include locations which are chosen to be representative of the most critical locations from which the project will be seen. Additional Key Observation

Points should be selected that represent typical views encountered in different classes of views within the viewshed, if they are not covered by critical viewpoints. Variables that should be considered in selecting Key Observation Points include relative project size, season, and light conditions.

METHODOLOGY FOR ASSESSING VISUAL IMPACTS

Use of Objective vs. Subjective Methods

The determination of visual resource impacts has traditionally been done using a completely subjective method relying exclusively on the knowledge and experience of the visual resources professional. The drawback to this approach is that it is difficult to relate the steps and process used in the analysis which lead to the conclusions which are drawn regarding visual impacts.

In the 1970s and 1980s, there was an attempt in the profession to develop more objective methods for determining potential impacts. While this led to a more understandable set of steps and processes, analyses often did not account for unusual situations not addressed by the standard procedure or gave the false impression that they were totally objective.

In recent years visual resource analysts have been developing a synthesis, in which an objective methodology has been used to develop the categories and the analysis process to be used in analyzing visual impacts, at the same time explicitly recognizing that subjective values are involved in selecting factors and assigning weights to factors. It is important that subjective judgements be identified and defined to the extent possible.

Key Observation Points

As previously discussed, Key Observation Points include locations which are chosen to be representative of the most critical locations from which the project will be seen. For linear projects such as power lines, additional Key Observation Points are selected that represent any special project or landscape features such as skyline crossings, river crossings, or substations.

Because each Key Observation Point represents a critical location, a typical view encountered in a class of view, and/or a special project or landscape feature, it also represents an important specific aspect of the viewshed that is susceptible to visual impacts. Therefore, the visual impact of a project is determined for each Key Observation Point, not from an "overall" perspective that masks the specific impacts.

Major Impact Evaluation Factors

For each Key Observation Point Commission staff considers the susceptibility to visual impact and the severity of impact are considered together to determine the significance of impact. The following sections explain how these two major factors are assessed and considered. Other potential causes of significant visual impacts, such as night lighting, visible emission plumes, and noncompliance with laws, ordinances, regulations, and standards, are addressed separately in this analysis.

Susceptibility to Impact

The first step in evaluating the visual impact of a project from a particular Key Observation Point is to consider the elements of the existing visual setting (discussed previously), including visual quality, viewer sensitivity, visibility, and viewer exposure. Each of these factors is assessed as either high, moderate to high, moderate, low to moderate, or low. Staff combines these factors into a measure of the susceptibility of the view from a particular Key Observation Point to visual impact. A low value for any of the four factors generally results in low susceptibility to impact.

Impact Severity

As previously discussed, the degree of visual impact that a project will cause depends on the degree of change resulting from the project upon visual character or visual quality, here called the impact severity. Commission staff considers both the relationship of the project to the other components visible in the landscape, and blockage from view or elimination by the project of any previously visible components.

Relationship of the Project to Other Visible Components

Landscape Components

The three basic landscape components are land and water, vegetation, and structures.

Visual Elements

The basic elements of each physical component of a view include color, form, line, texture, scale, and spatial character. The impact of a project is assessed in terms of contrast in color, form, line, texture, and scale, as well as scale dominance and spatial dominance. Scale is the proportionate size relationship between an object and its surroundings. Absolute scale is the size of an object obtained by relating its size to a definitely defined standard (i.e., measurement). Relative scale is the

relative size of objects; the apparent size relationship between landscape components. Sub-elements of scale include *scale dominance* (the scale of an object relative to the visible expanse of the landscape and to the total field of view of the human eye or camera) and *scale contrast* (the scale of an object relative to other distinct objects or areas in the landscape). *Spatial dominance* is the measure of the dominance of an object due to its location in the landscape. Regarding these three factors, a change has the greatest potential to cause impacts in regard to scale dominance, and the least potential in regard to scale contrast.

Assessment of Contrast

Staff assesses contrast with existing structures, vegetation, and land/water in regard to color, form, line, texture, and scale. Regarding these factors, contrast in color, form, or line has greater potential to cause impacts than contrast in texture or scale.

The magnitude of the visual impact of a project is measured by the degree of change that it causes. In regard to contrast, the degree of change depends partly on the existing levels and types of contrast. For instance, if existing structures already contrast strongly with natural features, the addition of a similar structure tends to cause a smaller change than if no structures already existed. In addition, the degree of contrast depends on the proximity of the project to the landscape component to which it is compared. If a project is superimposed on a component (such as body of water), the potential for contrast is greater than if the project is near such a landscape component, and even greater than if the project is far from the landscape component.

Factors Affecting Contrast

Among the basic characteristics of the visual setting previously discussed, distance is a factor in determining the visual contrast that a project will create. Increasing distance can decrease perceived contrast both by reducing the apparent size of project structures and by reducing clarity of view due to atmospheric conditions.

Several additional factors can also influence the degree of contrast that a project may cause. These include atmospheric conditions, light conditions, motion, seasonal changes, and recovery time (BLM 1986).

Blockage or Elimination of Existing Elements

In regard to obstruction or elimination of previously visible components, the analysis evaluates any change between the visual quality of those components compared to the visual quality of the project. Blockage of higher quality visual elements by lower quality elements can cause impacts, potentially as great as those regarding scale dominance.

Assessment of Visual Impact Severity

VISUAL RESOURCES Table B-1 shows how staff calculates impact severity from each Key Observation Point.

<u>Determination of Significance</u>

Commission staff considers the following factors in determining whether a visual impact will be significant. These factors are not a complete listing of

all the considerations that staff uses in its analyses, because many such considerations are site-specific.

State

The California Environmental Quality Act Guidelines make it clear that aesthetic impacts can be significant adverse impacts by defining Asignificant effect≅ on the environment to mean a Asubstantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including . . . objects of historic or aesthetic significance. (Cal. Code Regs., tit.14, э 15382.)
Appendix G, subdivision (b), of the Guidelines state that a project Awill normally have a significant effect on the environment if will have a substantial, demonstrable negative aesthetic effect.

VISUAL RESOURCES Table B-1
Staff's Visual Impact Severity Assessment Process

	SEVERITY SCORE				
	Very Strong	**Strong**	**Moderate**	**Weak**	**Negligible**
SEVERITY FACTOR					
CONTRAST					
Color Contrast		High	Medium		Low
		Or	Or		or
Form Contrast		High	Medium		Low
		Or	Or		or
Line Contrast		High	Medium		Low
		Or	Or		or
Texture Contrast			High	Medium	Low
			Or	or	or
Scale Contrast			High	Medium	Low
			or	or	or
DOMINANCE					
Scale	Dominant	Co-Dominant	Subordinate		Insignificant
		Or	Or		or
Spatial		Dominant	Co-Dominant	Subordinate	Insignificant
VIEW BLOCKAGE	Substantial blockage of high quality view	Moderate blockage of high quality view or substantial blockage of moderate to high quality view	Minor blockage of high quality view, moderate blockage of moderate to high quality view, or substantial blockage of moderate quality view	Minor blockage of moderate to high quality view, moderate blockage of moderate quality view, or substantial blockage of low to moderate quality view	Minor blockage of moderate, low to moderate, or low quality view; moderate blockage of low or low to moderate quality view; or substantial blockage of low quality view
COMBINED FACTORS	Two or more of the above factors with a severity score of strong				

Local

As discussed above, Commission staff considers any local goals, policies or designations regarding visual resources. Conflicts with such laws, ordinances, regulations, and standards can constitute significant visual impacts.

Professional Standards

Professionals in visual impact analysis have developed a number of questions as a means of evaluating the potential significance of visual impacts (see, e.g., Smardon 1986). The questions listed below address issues commonly raised in visual analyses for energy facilities:

Will the project substantially alter the existing viewshed, including any changes in natural terrain?

Will the project deviate substantially from the form, line, color, and texture of existing elements of the viewshed that contribute to visual quality?

Will the project substantially degrade the existing visual quality of the viewshed or eliminate or block views of valuable visual resources?

Will the project significantly increase light and glare in the project vicinity, particularly night-time glare?

Will the project result in significant amounts of backscatter light into the night-time sky?

Will the project be in conflict with directly-identified public preferences regarding visual resources?

Will the project comply with local goals, policies, designations or guidelines related to visual quality?

Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?

Will the project result in a substantial visible exhaust plume?

Commission staff considers these questions, where applicable, in its impact assessment.

Consideration of Impact Susceptibility and Impact Severity

For most operations impacts staff considers the assessment of the impact susceptibility in relation to the impact severity from each Key Observation Point to determine visual impact. Staff considers construction impacts, lighting impacts, and visible plume impacts separately.

Cumulative Visual Impacts

Staff reviews the proposed project and its related facilities as well as other past, present, and future projects in the vicinity to determine whether potential cumulative visual impacts will occur and whether those impacts will be significant. In addition, in the case of cogeneration facilities where the proposed power plant is to be part of an already existing industrial facility, this review examines whether the addition of the proposed project and its related facilities will result in cumulative visual impacts and whether they will be significant. If past activities have resulted in significant impacts, and the project will appreciably increase the total impact, the project will contribute substantially to a significant cumulative impact. When cumulative visual impacts are found to be significant, whether in relation to other proposed projects or to the host industry, feasible mitigation measures will be recommended to reduce those impacts.

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CULTURAL RESOURCES

Gary Walker and Dorothy Torres

INTRODUCTION

This analysis discusses cultural resources that are defined as the evidence of the history of human development and life on earth. Evidence of California's early occupation is becoming increasingly vulnerable to the ongoing development and urbanization of the state.

Cultural resource materials may be found nearly anywhere in California: along the ocean coastline and on coastal islands; along rivers and streams; in coastal and inland valleys and lowlands; throughout the coastal and inland mountain ranges; and throughout the interior deserts. Cultural resources may be found on the ground or may be found at varying depths beneath the surface. In some areas of the state, a sequence of settlements on the same site may cover multiple layers of cultural resources. In other areas, the distribution of cultural materials may be much more dispersed

Cultural resources are significant to our understanding of our culture, our history and heritage. Critical to the analysis of cultural resources are the spatial relationships between an undisturbed cultural resource site and the surface environmental resources and features, and the analysis of the locational context of the resource materials within the site and beneath the surface. These relationships provide information that can be used to piece together the sequence of human occupation and use of an area, and they begin to create a picture of the former inhabitants and their environment.

Staff's primary concerns in its cultural resource analysis are to ensure that all potential impacts are identified and that significant adverse impacts are avoided or reduced to a level of insignificance. The determination of potential impacts to cultural resources from the proposed Otay Mesa Generating Project (OMGP) is required by the Siting Regulations of the California Energy Commission (Energy Commission) and by the California Environmental Quality Act (CEQA). Three aspects of cultural resources are addressed in Staff's analysis: prehistoric archaeological resources, historic archaeological resources, and ethnographic resources.

PREHISTORIC RESOURCES

Prehistoric archaeological resources are those resources that resulted from prehistoric human occupation and use of an area. Such resources include sites and deposits, structures, artifacts, rock art, and trails. In California the prehistoric period began over 11,500 years ago and extended into the 18th century when the Euro-Americans first explored and settled the region.

HISTORIC RESOURCES

Historic archaeological resources are those resources that resulted from human activity after the beginning of a written historical record. In California the historic period began in the 18th Century

when Euro-Americans first explored and settled the region. Historic archaeological resources include archaeological deposits, sites, structures, traveled ways, artifacts, and documents. Under state requirements cultural resources must be greater than 100 years old, while under federal requirements such resources must be greater than 50 years old.

ETHNOGRAPHIC RESOURCES

Ethnographic resources are those resources important to the heritage of a particular ethnic or cultural group, such as Native Americans, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, § 431-433) and subsequent related legislation, policies, and enacting responsibilities. The following laws, ordinances, regulations, standards, and policies apply to the protection of cultural and ethnographic resources in California. Projects licensed by the Energy Commission are reviewed for compliance with these laws.

FEDERAL

Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.

Section 106 of the federal guidelines sets forth procedures to be followed for determining eligibility for nomination, the nomination, and the listing of cultural resources in the National Register of Historic Places (NRHP). The eligibility criteria and the process are used by federal, state and local agencies in evaluating the significance of cultural resources. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the State Register of Historic Resources.

Executive Order 11593, "Protection of the Cultural Environment," May 13, 1971, (36 Federal Register, 8921) orders the protection and enhancement of the cultural environment through providing

leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.

The American Indian Religious Freedom Act, Title 42 United States Code, Section 1996 protects Native American religious practices, ethnic heritage sites, and land uses.

The Native American Graves Protection and Repatriation Act (1990), Title 25, United States Code Section 3001, *et seq.* defines "cultural items", "sacred objects", and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.

STATE

Public Resources Code, Section 5020.1 defines several terms, including the following:

(j) "Historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

(k) "Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.

Public Resources Code, Section 5024.1 establishes a California Register of Historic Resources (CRHR); sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.

Public Resources Code, Section 5097.5 states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state; or any city, county, district, authority, or public corporation; or any agency thereof.

Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials. This section also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.

The California Environmental Quality Act (CEQA) 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.

Public Resources Code Section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a “historic resource” and describes what constitutes a “significant” historic resource.

CEQA Guidelines, Title 14, California Code of Regulations, Section 15126.4(b) prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project’s impact on a historical resource; discusses documentation as a mitigation measure; and discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

CEQA Guidelines, Section 15064.5 defines the term “historical resources,” explains when a project may have a significant effect on historic resources, describes CEQA’s applicability to archaeological sites, and specifies the relationship between “historical resources” and “unique archaeological resources.”

Penal Code, Section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

CEQA Guidelines, Appendix G, Section V lists questions that are relevant to evaluating a project’s impacts on archaeological, historic, and paleontological resources.

California Health and Safety Code, Section 7050.5 states that If human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies.

SAN DIEGO COUNTY

GENERAL PLAN

Part I, Open Space Element

Sections 65560 through 65570 of the California Government Code require all cities and counties to prepare, adopt, and submit a local open space plan to the Secretary of the Resources Agency. This plan addresses comprehensive and long-range preservation of open space land including areas of outstanding, historic and cultural value (SDC 1995, p. 1-2).

Part X, Conservation Element

Chapter 8 of Part X, of the General Plan addresses the County's concern with protecting significant resources. The County has adopted a series of policies and action programs designed to conserve and protect cultural heritage. The County requires that conservation of cultural resources be given high priority in County park acquisition and development programs. The County also seeks to coordinate with other levels of government to preserve resources and heighten public awareness regarding heritage resources. This plan requires that artifacts recovered as a result of this plan be stored in an appropriate institution and made available for public exhibit and scientific review (SDC 1975, pp. X-83 to X-85).

Part XIII, Sweetwater Community Plan

A portion of the proposed Otay Mesa Generating Project lies within area addressed by the Sweetwater Community Plan. The Cultural Sites Goal of this portion of the General Plan seeks to preserve and enhance archaeological sites and provide adequate conservation of these cultural resources. Four known sites are present in this planning area and the potential for discovery of additional resources is high. This element states that land development and agriculture activities

have obliterated resources and deprived the public of their heritage. It is now county policy to preserve cultural resources through as broad a spectrum of planning mechanisms as possible (SDC 1997, p. 35).

East Otay Mesa Specific Plan

The proposed Otay Mesa Generating Project lies within the area addressed by the East Otay Mesa Specific Plan (Plan). This Plan provides design guidelines and developmental standards to ensure the creation of a business park that has a strong identity and is a place of distinction and quality. In the area of cultural resources, the Plan provides an Administrative Procedures outline of the necessary steps for discretionary projects. Stage one of the procedures requires that surveys must be conducted in areas not yet surveyed and the surveys must comply with the County of San Diego Archaeological/Historical Report Procedures. Stage two requires testing of all previously untested or unevaluated sites. Stage three discusses treatment of not significant and significant sites. For sites found to be significant, alternate methods of mitigation shall be pursued including the following: site avoidance through capping and landscape; dedication of open space easement; and data recovery through excavation and analysis. Combinations of these three mitigation measures should also be considered (SDC 1994, Appendix 2).

ADDITIONAL COUNTY LORS

Commission staff is in the process of obtaining copies of County Resource Protection Ordinance No. 7631, and County Archaeological/Historical Report Procedures from the County of San Diego. Additional County requirements will be addressed in the Final Staff Analysis.

PROJECT DESCRIPTION

All of the project elements described in the **PROJECT DESCRIPTION** section of this Preliminary Staff Assessment would cause ground disturbance and have the potential to cause significant impacts to cultural resources.

SETTING

REGIONAL DESCRIPTION

NATURAL ENVIRONMENT

The project is located at the eastern margin of the Coastal Plain subprovince of the Peninsular Ranges Physiographic Province of California. Otay Mesa represents a dissected remnant of the once continuous Lindavista terrace. The eastern edge of the site is an old shoreline of the Pacific Ocean, now at an elevation of about 500 feet. The Santiago Peak Volcanics crop out along the eastern margin of the Study Area (defined as approximately one mile from all project components) (URS Greiner 1999e, p. J1-5) A variety of volcanic rock occurs at this outcrop. Two ephemeral streams are the only surface water at the site. One stream drains into Johnson Canyon and the other crosses the southeast corner of the site and flows south into the Tijuana River in Mexico (PG&E 1999a, pp. 3.3-1 to 3.3-2). Refer to the PROJECT DESCRIPTION section of this Preliminary Staff Assessment for a regional map of the project development area.

Large portions of the project vicinity have been disturbed by agricultural activities and road building. Native vegetation is usually located adjacent to and within canyons. Introduced plants and grass cover much of the area. Annual rainfall in this area averages 11 inches and the temperature ranges between 40 degrees F. in December and 80 degrees F. in July (PG&E 1999a, p. 3.3-1).

PREHISTORIC SETTING

In San Diego County there is evidence of two major cultural traditions. The Archaic spans the time period of 9,500 to 1,300 years ago. The Late Period refers to 1,300 years ago to historic contact. The earliest cultural resources sites in San Diego County are found near coastal lagoons and river valleys. The first occupants of the region exploited the coastal and inland resources of plants, animals, shellfish, and fish. These early people can be typified as a hunting and gathering society. The inhabitants of the area during the Late Period established permanent or semi-permanent seasonal village sites. Artifacts from the Late Period include small projectile points, pottery, acorn milling sites, and internment by cremation (URS Greiner 1999e, pp. J1-10 to J1-12).

Within the San Diego area, the Otay Mesa region is unique. Extensive but not intensive lithic scatters cover the mesa top. These scatters are interspersed with habitation sites. Quarries are located on mountain slopes. Santiago Peak volcanic material is present in the scatters and was highly valued as material for tools. “Radiocarbon dating of archaeological sites within the Otay Mesa region identifies

prehistoric occupation from 9,500 years ago to historic contact" (URS Greiner 1999e, p. J1-12).

ETHNOGRAPHIC BACKGROUND

The project area falls within the recorded territory of the Kumeyaay (Tipai) /Diegueno. Dialects of this Yuman language family are still spoken. "The Kumeyaay area included a wide range of environmental zones from ocean front, bays and estuaries, foothills and mountains for exploitation of plants, animals, and construction and tool materials" (URS Greiner 1999e, p. J1-13). There was long interaction and exchange of social patterns between the Diegueno and the Luiseno culture to the north. This blending of culture traits often makes positive associations of archaeological deposits with particular ethnographically known cultures difficult. Contact with Spanish, Mexican, and American settlers resulted in decimation of Native populations by resettlement and disease. At present many Diegueno reside in San Diego County, especially within the 17 San Diego County reservations (URS Grenier 1999e, p.J1-15).

HISTORIC SETTING

SPANISH PERIOD

The Spanish Period (1769-1821) is the earliest period of non-Native settlement. The Spaniards established presidios; missions; and mission outposts; and introduced animals, agricultural products, and building methods to the area.

MEXICAN PERIOD

The Mexican Period (1821-1848) is characterized by grants of land, known as ranchos. Land granted as ranchos was originally considered the territory of indigenous people (URS Greiner 1999e, p. J1-16).

AMERICAN PERIOD

In 1848 Mexico relinquished California to the United States under the Treaty of Guadalupe Hidalgo. The first settlers at Otay Mesa in 1870 were primarily of German origin. Early settlements were comprised of farming families. They shared a social, political, and economic life centered around a common school district. The school building, the first common building to exist in these communities, also served as a center for social activities and as a church. Dry farming was necessary because there was no reliable source of water for irrigation. Primarily due to periodic droughts and other difficulties obtaining water, the population of Otay Mesa decreased. The only visible evidence of former farming communities is olive and eucalyptus trees, agricultural fields, a few buildings,

some building foundations, and surface artifacts (URS Grenier 1999e, p. J1-17).

SITE AND VICINITY DESCRIPTION

Before 1900 a church was built on Otay Mesa and a cemetery was established on church property. The only commercial buildings were located at Siempre Viva near the eastern end of the Mesa. Farming was the primary activity on Otay Mesa area until 1918. Between 1918 and 1954 the US military used the general area to the north of Mesa Road as an airfield. Buildings constructed during World War II are now used as Brown Field Airport (URS Grenier 1999e, pp. J1-17 to J1-18).

RESOURCES INVENTORY

As part of the preparation of the AFC, consultants to the applicant conducted archival research, a pedestrian survey, and Native American consultation.

ARCHIVAL RESEARCH

The applicant's consultant conducted a records search at the South Coastal Information Center of the California Historical Resources Information System (CHRIS) (URS Greiner 1999e, p. J1-2). The consultant also searched the San Diego Museum of Man for all previous archaeological surveys and records of all previously recorded archaeological sites. The consultant also conducted research for National Register listed and eligible properties, California Historical Landmarks, Points of Historic Interest, and locally listed historic properties and structures. Cultural resources and site information on file with Gallegos & Associates was also consulted. These searches are conducted to establish the extent of previous cultural resource surveys and the location of known resources within the project area. Background searches provide a basis from which to predict the archaeological potential of the project area and are also used to provide a context for the evaluation of the significance of known or previously unknown resources that may be affected by the project.

For the OMGP, the record search included the Area of Potential Effect (APE) for project construction and operation (the Proposed Plant Site and Routes 1-5) and areas within one mile of the APE, referenced as the Study Area. The search determined that over 40 studies were previously conducted on Otay Mesa. Within the approximately 16,640 acre cultural resource study area, there are 257 recorded prehistoric and historic sites and 52 isolates. The

types of sites are varied. They include habitation sites, artifact scatters, quarry sites, lithic scatters, a shell scatter, a bedrock milling site, and historic sites. The majority of sites within the Study Area are lithic scatters, artifact scatters, and quarries. Thirty-five prehistoric or historic sites and one isolate are within or adjacent to the project site or proposed and alternate linear facilities. The significance of most or these 35 sites or their eligibility to the NHRP or CRHR has not been determined (URS Greiner 1999e, p. J1-29).

More specific information on a number of sites was filed with the Energy Commission under separate cover to maintain confidentiality of sensitive resource locations (URS Greiner 1999e).

Archaeological Field Surveys

The consultant to the applicant conducted pedestrian field surveys of the proposed power plant site and laydown area and the five proposed and alternate routes (Routes 1, 2A, 2B, 3, 4, and 5). Survey results for the proposed power plant site and proposed project linears are discussed in this preliminary staff analysis. The survey results for alternate route Lone Star Road/Route 4A and Route 5A, suggested by the County, are also addressed. Refer to the **Project Description** section of this Preliminary Staff Assessment for a regional map that includes the power plant site and all the project linears.

Route 1 consists of the 230 kV interconnection to Miguel Substation and 6 pull sites to be used for reconductoring. Route 2A is the proposed natural gas supply line route. Route 3 is the proposed potable water and reclaimed water supply line. Route 4 is the proposed waste water discharge line. Route 5 is the proposed access road. Alternate Route 4A is an alternate waste water discharge line, under consideration at the request of San Diego County. Route 5A is an alternate access road also under consideration at the request of San Diego County.

Results of prior surveys indicated that it was not necessary to survey Route 1 within the existing 230kv transmission line corridor to the existing Miguel Substation or a portion of Route 2A (the natural gas line). For the most part a survey corridor of 300 feet (150 feet on each side of project linears) was used. Some survey corridors were limited to 20 foot wide

public easements because access could not be obtained from landowners. In most instances, areas were surveyed using pedestrian transects spaced at approximately 10 meters (33 feet). Visibility varied according to current land use. Much of the area had been recently disked. Ground visibility was excellent in recently disked areas, but averaged about 30 percent in areas that were not disked (URS Greiner 1999e, p. J2-1).

The purpose of the surveys was to relocate previously recorded sites and to identify unrecorded resources within the footprint of project facilities. Original field surveys were conducted in 1997 with additional surveys conducted in February 1999.

Power Plant Site and Construction Laydown Area

The plant site lies to the east of Alta Road and west of the San Ysidro Mountains. The generating plant facility would cover 27.14 acres. There would be two additional laydown areas; one would cover 7.5 acres and the second would cover 5 acres. The current survey identified a light lithic scatter within the boundaries of the plant site. A variety of artifacts were identified, with concentrations of artifacts appearing in specific locations, and within project facility boundaries (URS Greiner 1999e, p. J2-5).

230 kV Electric Transmission Line Route

Interconnection

Route 1, the proposed 230kV electrical transmission line interconnection, extends about 0.1 mile northeast from the northeast corner of the plant site to connect with the existing Miguel-Tijuana 230kV transmission line. Several dirt roads encircle and cross this area. There are also piles of boulders, rocks, and evidence of light trash dumping (URS Greiner 1999e, pp. J2-5 to J2-6). A site was previously recorded adjacent to this proposed route, but the current survey did not relocate the site or identify any new ones.

Existing Miguel-Tijuana 230kV Transmission Line

The existing Miguel-Tijuana 230kV transmission line is 13 miles long. Ten miles of this line are in the United

States. An approximately 9.05 mile long portion of the existing transmission line may need to be reconductored. The existing transmission line route was not surveyed because it was the subject of a previous survey in 1981 (URS Greiner 1999e, p. J2-5 to 6). There are 19 previously recorded cultural resource sites (several sites are eligible for the NHRP) adjacent to or within the existing transmission line corridor that would be used by the proposed project (URS Greiner 1999e, p. J3-6).

Pull Stations

For the reconductoring effort, six pull stations are proposed and each pull station has two pull sites. Each disturbance area, including a buffer zone, measures 250 X 650 feet and they are each offset from the associated transmission tower by 500 feet. Each pull site was surveyed using 5 to 10 m transects (URS Greiner 1999e, p. J2-6).

Pull station 1 A/B: Pull site 1A is located east of the tower alignment with visibility from 10% to 80%. Disturbance includes a dirt road and grading for an earthen dam. This survey also identified one metavolcanic flake. At pull site 1B, visibility ranged from poor to excellent. The area is disturbed by an access road and farming activities. Some flakes and a tool were identified during this survey (URS Grenier 1999e, p. J2-13).

Pull station 2 A/B: Pull site 2A is located on a west trending slope and visibility varied from 0 to 30% because there was grass cover. One isolate was identified and a lithic scatter was relocated. Visibility at pull site 2B was 100% in the dirt road and 0 to 40% in grassy areas. Prior disturbance at this pull site includes an access road, grading for towers and poles, and farming (URS Grenier 1999e, p. J2-14).

Pull station 3A/B: Pull site 3A is on a west facing slope near the San Diego Aqueduct. Ground visibility varied from 0 to 30% and the area was disturbed by farming activities. This survey did not identify any cultural resources. Visibility at pull site 3B ranged from good to excellent. The area was previously disturbed by access roads and farming. No cultural resources were observed at this location (URS Grenier 1999e, p. J2-14).

Pull Station 4 A/B: Pull site 4A is located near a dirt access road. Visibility was excellent on roads, but poor in grasses. The area is disturbed by roads and farming. No cultural resources were observed. Pull site 4B is located on a small knoll. The pull site was completely obscured by fill dirt. No cultural resources were observed (URS Grenier 1999e, p. J2-15).

Pull Station 5 A/B: Pull site 5A is on an access road. The area was disturbed by road grading and agricultural activities. The present study noted one flake. Pull site 5B is located in a drainage with rock outcrops. There is natural erosion. No artifacts were noted (URS Greiner 1999e, p. J2-15).

Pull Station 6 A/B: Pull site 6A is located west of the Miguel Substation. Visibility was poor. The area is previously disturbed by a dirt road and excavation for development and dumping. No cultural resources were observed. Pull site 6B is located southwest of the substation, in a drainage. Visibility was poor. The area was previously disturbed by excavation for development and no cultural resources were noted (URS Greiner 1999e, p. J2-15).

Natural Gas Pipeline Route

Route 2A, the proposed natural gas pipeline route, runs from the southwest corner of the

plant site to the SDG&E Harvest Regulator Station. The route is approximately 2.05 miles long. It is adjacent to Otay Mesa Road and Alta Road. The two short segments of route connecting the natural gas line to the project site were surveyed using a 40 foot corridor (20 feet on each side of the centerline). A forty foot corridor was also surveyed on each side of Otay Mesa Road. One hundred and fifty feet were surveyed on the east side of Alta Road and 20 feet on the west (URS Greiner 1999e, p. J2-16). Approximately 10m on each side of both roads has been previously disturbed by road construction. The south side of Otay Mesa Road from Alta Road west approximately 1150 feet has been developed. Land north of Otay Mesa Road contains a farm complex. The rest of the area is devoted to agriculture. Visibility varied from poor to good. The survey failed to locate CA-SDI-10067. An isolated flake was noted in the vicinity of this previously identified site. This portion of the survey did not identify additional cultural resources (URS Greiner 1999e, p. J2-18).

Potable Water Supply Line

Proposed Route 3, the potable water supply line, extends 0.2 miles from the southwest corner of the Plant Site to Alta Road. Ground visibility depended on the density of the vegetation. A 300 foot wide corridor was surveyed and a lithic scatter was noted (URS Greiner 1999e, pp. J2-19 to J2-20).

Waste Water Discharge Line

Proposed Route 4, the waste water discharge line, is approximately 2 miles long and would be constructed in the area of Johnson Canyon. The survey area consisted of a 300 foot corridor and was surveyed using 10-20 meter transects. Visibility ranged from poor to excellent depending on the density of vegetation. The survey identified several previously recorded sites and reported identification of some artifacts (URS Greiner 1999e, pp. J2-20 to J2-22).

Alternate Waste Water Discharge Line

Consideration of Alternate Route 4A was requested by San Diego County because this route would better serve the sewer needs of potential future development in the area. This

route was surveyed using a 300 foot wide corridor and 10 to 20 meters wide transects. The area of the survey was expanded to accommodate an area that will be used for fill. For the most part, visibility was poor along the survey route. Disturbance included graded roads and rodent holes. The survey did not identify any new cultural resources and did not relocate two previously recorded sites (URS Greiner 2000f, pp.1-5).

Access Road

Proposed Route 5 is an approximately 0.15 mile long private access road. This route lies entirely within a previously recorded site (URS Greiner 1999e, p. J2-22).

Alternate Access Road

The County of San Diego requested that Route 5A be considered as an alternate access road route. This route was included in the previous survey for Route 3. A 300 foot corridor was surveyed and a lithic scatter was noted (URS Greiner 2000f, p. 5).

HISTORIC RESOURCES IDENTIFICATION

Structures older than about forty-five years are potentially significant historic resources in the project area. A review of previous surveys and early maps revealed the existence of 41 structures in 1903 in the project vicinity. In 1943 only 27 structures were present. Nine historic sites were identified within 1 mile of the proposed plant and project linears. Some of the sites were identified as significant (URS Greiner 1999e, p. J1-60). Only one of these historic sites appears to be within or adjacent to the project APE (URS Greiner 1999e, Table J3-1).

NATIVE AMERICAN CONSULTATION

The applicant's consultant contacted the State of California Native American Heritage Commission (NAHC) requesting information regarding traditional cultural properties such as cemeteries and sacred places within one mile of the project area (URS Grenier 1999e, p. J1-2). The NAHC maintains a list and maps of traditional resource sites located throughout the state. The Heritage Commission also can refer staff, applicants, consultants, and members of the public to Native American representatives who wish to be informed concerning construction-related disturbances in their area. The NAHC responded with a list of Native American contacts for the general project area. Letters were sent to fifteen persons or

organizations. Three responses were received by telephone and one response was received by mail. The respondents' comments focused on the nature of the project, when Native American input would be appropriate, and the conditions for potential Native American monitoring. A second mailing was sent to 17 groups or individuals in February 1999. Only one response was received. This response identified the sensitivity of the Otay region and inquired about requirements for Native American monitors (URS Grenier 1999e, p. J1-2). The NAHC search of the Sacred Lands file indicated that no known sacred properties are located within one mile of the project boundaries (URS Grenier 1999e, p. J1-2).

CATEGORIZATION OF IDENTIFIED RESOURCES

Various laws 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 assessed by a qualified researcher as "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 protection under the National Historic Preservation Act and/or California Environmental Quality Act. The Advisory Council on Historic Preservation, for example, must be given an opportunity to comment on any federally-funded or permitted undertaking that could adversely affect such resources.

The National Register 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 that

(a) are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) that are associated with the lives of persons significant in our past; or

(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

that have yielded or may be likely to yield, information important to history or prehistory.

Isolated finds by definition do not meet these criteria.

A resource is considered to be "historically significant" and eligible for listing in the California Register of Historic 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; or

(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)].

Under federal law, resources determined not to be significant, that is, not eligible for National Register listing, are subject to recording and documentation only, and are afforded no further protection. However, occasionally certain resources, although they may not be assessed as "significant," may nonetheless be of local or regional importance such that mitigation may be warranted regardless of their assessed significance. Staff evaluates any known resources located within or adjacent to the project APE to determine whether they meet the eligibility criteria.

The CEQA guidelines require the lead agency (in this case, the Energy Commission), to make a determination of whether a proposed project will affect "historic resources" and sets forth a list of criteria for making this determination.[1] These criteria are listed below.

A resource listed in, or determined to be eligible by, the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et seq.);

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

Protocol: Any object, building, structure, site, area, place, record, or manuscript
Protocol: which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, 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.

If the criteria are met, the Energy Commission must evaluate whether the project will cause a substantial adverse change in the significance of that historic resource, which the regulations define as a significant effect on the environment.

Using the above criteria, staff has determined that the cultural resource sites described in the AFC meet one or more of the criteria for being an historical resource. The isolate does not meet those criteria.

CEQA establishes limitations on applicants' costs of mitigation for, and does not require discussion of, archeological resources that are not unique (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 a historical resource (California Code of Regulations, Title 14, section 15064.5). Because staff has determined that the impacts to resources for which it is recommending mitigation do meet the definition of historical resources, the prohibition does not apply to the mitigation discussed in this Preliminary Staff Assessment.

IMPACTS

Impacts to cultural resources may result either directly or indirectly during the pre-construction, construction, and operation phases of a project. Direct impacts are those which may result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the

surface, earth-moving activities, or excavation. Indirect impacts are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource materials due to improved accessibility. Cumulative impacts to cultural resources may occur if increasing amounts of land are cleared and disturbed for the development of multiple projects in the same vicinity as the proposed project.

The potential for the project to cause impacts to cultural resources is related to the likelihood that such resources are present and whether they are actually encountered during project development and construction activities. Although the existence of known cultural resources increases the potential for discovering additional resources, the absence of known resources does not necessarily mean that unknown resources will not be encountered and that impacts will therefore not occur. In addition, the potential for discovery does not measure the significance of individual artifacts or other cultural resources present, since it is impossible to accurately predict what specific materials could be encountered. Furthermore, sometimes the full significance of discovered cultural resources can only be determined after they have been collected, prepared, and studied by professional archaeologists.

PROJECT-RELATED IMPACTS

Because project-related site development and construction would entail subsurface disturbance, the proposed project has the potential to adversely affect both known and previously unknown cultural resources. Although development has previously occurred or currently exists on portions of the land where these new facilities would be built, the new facilities may cause ground disturbance to areas (and cultural resources) that have not been previously disturbed. Therefore, the new facilities have the potential to cause impacts to cultural resources.

Thirty-five prehistoric and historic resources are known to be located within or adjacent to the APE of the proposed project, proposed project linears, and alternate routes 4A and 5A. Some of these sites would be impacted by more than one project feature. The presence of this number of sites indicates a high potential for previously unknown historic and prehistoric resources to be encountered and affected during project construction.

If vehicles are driven along the transmission line corridor for routine inspections there is a potential for impacts to resources within that corridor. Emergency maintenance and repair have the potential to cause additional impacts.

POWER PLANT SITE AND LAYDOWN AREA

The final elevation of the facility site would be graded to approximately 663 feet above mean sea level (msl) (OMGC 2000h, p. 1-2). Achieving this elevation would involve

removal, storage, and/or disposal of earth, sand, gravel, vegetation, organic matter, loose rock, boulders, and debris. The existing topography would be cut and filled to provide a level area (PG&E 1999a, p. 3.5-3). Excavations for foundations are typically less than 5 feet deep. There are three previously recorded sites within the boundaries of the proposed plant site. Activities associated with construction of the proposed power plant and linear facilities could potentially disturb these sites.

The first site was identified during the cultural resources survey for this project as a light lithic scatter. Portions of the site outside plant boundaries were previously tested and found to be not significant. Other portions of the site within project boundaries have not been tested.

A complete, bifacially-shaped mano and metate were identified near the previously established boundary of a second site. An artifact scatter was also noted in the vicinity of the site. This site has not been evaluated with regard to significance under CEQA.

A third previously recorded site was relocated and identified by a lithic scatter, a hammerstone, and dark soil. Boundaries of the third site have not yet been determined and the significance of this site has not been determined (URS Greiner 1999e, p. J3-5).

A testing plan is now in progess to determine the site size, depth, content, integrity, and potential to address important research questions (OGMC 1999b, p. 1-29). Information concerning site significance and site specific mitigation recommendation will be provided in a forthcoming document which details the results of the test plan.

230 kV Electric Transmission Line

Proposed Route 1 consists of an existing 230kV transmission line 9.10 miles long. A new interconnection line would extend 0.05 miles from the northeast corner of the plant site to the existing Miguel-Tijuana 230kV transmission line. In addition to the new interconnection, rebundling or reconductoring would be necessary along the existing transmission line (URS Greiner 1999e, p. J3-6). Six pull stations would be necessary for the reconductoring effort. Each of the six pull stations would have two pull sites. Light vehicle access to maintain each selected structure. Heavy vehicle and heavy equipment access to each pull site at major angle and double dead-end structures would be necessary.

There is an existing transmission line access trail that can be entered at various locations along the transmission line route. The existing access trail is narrow, rocky, and rutted and may require repair before use (PG&E 1999a, p. 3.6-2). The transmission line interconnection will be accessed by the new plant access road, Route 5 (PG&E 1999, p. 3.6-3).

There are 19 previously recorded cultural resource sites adjacent to or within the existing transmission line corridor that would be used by the proposed project. Several sites are eligible for the NHRP. As a result of previous construction, sites associated with the existing transmission line have been cleared with respect to Section 106 compliance. However, mitigation for construction of the existing line focused on areas of direct impact. There is a potential for additional impacts to occur if new components of these sites are exposed and disturbed by the proposed project (URS Greiner 1999e, p. J3-6). There does not appear to be a potential for impacts to any of the previously mitigated sites, if disturbance is confined to the existing transmission line corridor. However, the necessity for obtaining access to the transmission line by construction vehicles for reconductoring and the possible need for road repair heighten the potential for impacts (URS Greiner 1999e, pp. J3-6 to J3-9).

Nine previously identified archaeological sites occur within or adjacent to 10 pull site locations. A discussion follows of the potential impacts at pull sites where resources occur. There are two archaeological sites that might be potentially impacted by the reconductoring activities at Pull Station No. 1A/B. The significance of these sites has not been determined. Monitoring is also recommended at this pull station to avoid a third site adjacent to the APE. Two sites whose significance has not been determined are also present within the potential disturbance area of Pull Station No. 2A/B. One site may potentially be affected (significance not determined) by activities at Pull Station No. 3A/B. Disturbance at Pull Station No. 5A/B has the potential to impact one site whose significance has not been determined and another site that has been determined eligible to the NHRP. There is potential for activities at Pull Station No.6A/B to impact one site whose significance has not been determined (URS Greiner 1999e, pp. J3-18 to J3-19).

There is one previously recorded site adjacent to the proposed 0.1 mile interconnector from the plant to the existing transmission line. The survey conducted by the

consultant to the applicant did not relocate this site in the area of the interconnector (URS Greiner 1999e, p. J2-3). If there are subsurface components to this previously recorded site, construction of the interconnector may cause impacts.

NATURAL GAS PIPELINE

Proposed Route 2A is a 2.05 mile natural gas pipeline that would be entirely underground. The trench for the pipeline would be 32 inches wide and 62 inches deep. The pipeline would be 20 inches in diameter (PG&E 1999e, pp. 3.7-1 to 3.7-2). Impacts associated with the gas line would come from subsurface excavation. However, there might also be some impacts associated with grading required for staging areas. Five sites have previously been recorded along the natural gas line route. One site potentially impacted by proposed Route 2A would also be impacted by other project facilities. Two other sites have been found not to be significant. One site was not relocated during the cultural resources survey, but trenching activities could affect a buried portion of that site (URS Greiner 1999e, p. J3-5).

POTABLE WATER SUPPLY LINE

Proposed Route 3 for the potable water supply line is approximately 0.2 mile long. The line would be constructed in the same right of way as the proposed natural gas line (Route 2A). A 24 inch water main exists in Alta Road. The potable water supply line would connect to this line. It would be buried under a minimum cover of 42 inches (PG&E 1999a, p. 3.7-2). There is one previously identified site likely to be impacted by the line. Some portions of this site have been determined to not be significant. Significance determinations are needed for other portions of the site. Impacts to this site would be likely to result from trenching and from creation of an access or staging area (URS Greiner 1999e, pp. J3-11 to J3-12).

WASTE WATER DISCHARGE LINE

Proposed Route 4 for the waste water discharge line runs from the project site to a City of San Diego trunk sewer line located in Johnson Canyon. Two miles of approximately 18 inch pipeline would be constructed and buried under a minimum of 36 inches of soil. Portions of the route parallel an intermittent creek bed. Final alignment of the pipeline would be chosen to minimize impacts to the creek and other resources. This route intersects or is adjacent to 10 previously recorded archaeological sites (URS Greiner 1999e, p. J3-12).

Significance testing needs to be completed for six of the sites likely to be impacted by this line. Two sites were not relocated during surveys for this project, but there is a

potential for subsurface components of the sites to be impacted, if they are present. One of the sites would be impacted if the construction activities extend outside the 300 foot corridor used for the cultural resources survey. The tenth site would not be impacted by the line as currently proposed.

ALTERNATE WASTE WATER ROUTE 4A

The County of San Diego is requesting that alternate water route 4A be considered because it would better serve the sewer needs of potential future development in the Otay Mesa area (URS Greiner 2000f, p. 1). Route 4A begins at the southwest corner of the plant site and then follows the route of the County's proposed Lone Star Road west of Alta Road. Route 4A terminates in Johnson Canyon where it intersects Route 4. Between MP 0.0 and 0.2 one site would be affected. This site would also be impacted by other project facilities. Between MP 0.2 and 0.85 there is a potential for an additional previously recorded site to be affected. The site was not relocated during a recent survey, but there is a potential for encountering subsurface components of the site (URS Greiner 2000f, p. 5).

PROPOSED ACCESS ROAD

Proposed Route 5 is 0.15 mile long and extends between the northwest corner of the plant site and Alta Road. Some grading, in addition to normal cut and fill is anticipated by the applicant. The road would be 30 to 40 feet wide and would be built on a 60 foot wide base (URS Greiner 1999e, p. J3-13). Construction of the access road would impact a previously recorded site. This site would also be impacted by several of the other project elements.

ALTERNATE ACCESS ROAD

Route 5A is being considered by request of the County of San Diego. This road would follow the County's planned Loop Road in the area between Alta Road and the southwest corner of the overall 46 acre OMGP site boundary. This planned access road is in conformance with the County's East Otay Mesa Specific Plan. Impacts for Alternate Route 5A would be the same as Alternate Route 4A. The route for both alternates is the same (OMGC 2000h, p. 1-2).

CUMULATIVE IMPACTS

Over the next 20 years, the Otay Mesa area (including the East Otay Mesa Specific Plan area) is anticipated to become an international industrial and business district, with over 6,700 acres of industrial and commercial planned land use area. The East Otay Mesa Specific Plan is a County of San Diego document that sets the framework for future development. The Plan identifies significant but mitigable impacts in the area of cultural resources

(PG&E 1999a, pp. 5.18-1 to 5.18-13). At present there are thirteen proposed projects within a 5 mile radius of OMGP. The projects most likely to impact the same cultural resources as the proposed OMGP are the extension of State Route 125 and the Route 905 upgrade. These projects involve earth disturbance and would be located close to the plant. If mitigation measures such as avoidance and excavation with data recovery are conducted by all of the development projects, the potential cumulative impacts will be mitigated below a level of significance.

FACILITY CLOSURE IMPACTS

PLANNED CLOSURE

The anticipated lifetime of the OMGP project is expected to be at least thirty years. Upgrades or modifications made prior to the facility's closure might extend the life of the plant. Closure would be caused by either (1) a natural or manmade disaster or economic difficulty or (2) A planned, orderly closure that would occur at the end of the plant's useful mechanical life. At the time of closure, all then-applicable LORS will be identified and the closure plan will address compliance with these LORS.

Generally, if no additional ground disturbance occurs during closure activities and all conditions of certification have been met, no impacts to cultural resources would be expected. However, actual potential impacts are more likely to depend upon the final location of project structures in relation to existing resources, and then upon the procedures used for the removal of project structures. Since the spatial relationship between the closure and removal of project structures and sensitive resources cannot be determined at this time, no final conclusion can be drawn at this time with respect to the impact of permanent facility closure on cultural resources.

UNEXPECTED TEMPORARY CLOSURE

A temporary unplanned closure would be likely to occur in response to an emergency. No impacts to cultural resources are expected from an unexpected temporary closure.

UNEXPECTED PERMANENT CLOSURE

If a site were abandoned, impacts to cultural resources would be unlikely because there would be no immediate soil disturbances. Over time, depending on possible soil disturbance, some impacts on cultural resources might result. If a site were left unattended looting or vandalism to sites might occur.

COMPLIANCE WITH APPLICABLE LORS

Stream crossings in the vicinity of Johnson Canyon make it necessary to obtain a Section 404 Nationwide Permit through the US Army Corps of

Engineers. Obtaining this permit triggers the compliance requirements of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, set forth at 36 CFR 800 (OMGC 1999b, p. 1-1). In regard to local LORS, the cultural resources confidential supplement to the AFC notes that any cultural resources work within the County will follow the requirements in the San Diego County General Plan Conservation Element, County Resource Protection Ordinance No. 7631, and County Archaeological/Historical Report Procedures. If activities affecting cultural resources within the boundaries of the City of San Diego are necessary, the Historical Resource Guidelines will be followed (URS Greiner 1999e, p. J3-2).

Staff's proposed conditions of certification (see below) will ensure compliance with the East Otay Mesa Specific Plan and other applicable LORS.

MITIGATION

For cultural resources, the preferred method of mitigation is for project construction to avoid areas where cultural resources are known to exist, wherever possible. Often, however, avoidance cannot be achieved, and other measures such as surface collection, subsurface testing, and data recovery must be implemented. Mitigation measures are developed to reduce the potential for adverse project impacts on cultural resources to a less than significant level.

APPLICANT'S PROPOSED MITIGATION

The AFC (p.5.7-55) states that "…site avoidance, irrespective of site significance, is an integral part of the engineering for this project," In regard to site significance, since determinations for most sites have not been made, the applicant will assume that all of the recorded sites that have not been formally evaluated for significance are at a minimum a historical resource under Section 15064.5 of CEQA, or are potentially eligible for listing on the NRHP under 36 CFR 60.4 (d) (potential to yield data important to history or prehistory) (PG&E 1999a, p. 5.7-55).

The AFC also provides recommendations for mitigation for sites encountered on each route. For many sites the recommendation is for significance testing or for testing to determine whether there is a subsurface component to a site. In many instances monitoring is recommended to ensure avoidance or that mitigation measures are correctly implemented.

To ensure participation by interested members of the Native American community, the AFC (p. 5.7-56b) recommends that a Native American monitor be present during any needed archaeological site testing and/or data recovery operations that appear to have a prehistoric or ethnographic component.

The AFC (pp. 5.7-56 through 5.7-56b) recommends that a six-point cultural resource monitoring and mitigation program be implemented. The steps in this program are listed here and are more fully represented in the proposed conditions of certification presented later in this analysis.

Avoidance
Physical Demarcation and Protection
Crew Education
Archaeological Monitoring
Native American Monitoring
Formal Compliance with Section 15064.5 of CEQA

Emergency maintenance and repair, and routine inspection have the potential to cause impacts within the transmission line corridor. The consultant to the applicant recommends that crews and vehicles engaged in operation and maintenance would, as project policy, confine activities to the greatest extent possible to existing roads. The consultant to the applicant also recommends that potential impacts to sites by emergency procedures or routine maintenance be addressed first by project design, to avoid the resource(s). Moreover, throughout the area of the proposed project site and proposed linears there will be a test program of 18 sites that occur either adjacent to or within the project APE. Testing will be conducted to determine site size, depth, content, integrity, and potential to address important research questions (OGMC 1999b, pp. 1-29 to 1-30). The pre-construction testing program is now in progress and results of the program will be submitted to the Energy Commission and addressed in the Final Staff Analysis.

STAFF'S PROPOSED MITIGATION MEASURES

Staff concurs with the mitigation measures proposed by the applicant. Staff, in its proposed conditions of certification, has included additional language to clarify and ensure the success of the measures presented by the applicant. The conditions would ensure that appropriate mitigation measures are implemented to protect both previously known sites and previously unknown cultural resources that may be encountered during pre-construction site preparation or during project construction.

Staff recommends that potential impacts to sites by emergency procedures or routine maintenance be avoided by project design or by adhering to specific access routes, if possible. If avoidance is not possible, mitigation measures should be designed on a site by site basis after the results of the testing plan are received.

If information in the tests now being conducted by the consultant to the applicant identifies subsurface components to some sites or makes preliminary determination of significance for others,

additional mitigation measures will be added to the conditions of certification to protect cultural resources from impacts by the OMGP project.

The proposed mitigation measures are derived from good professional practice and they are based on the United States Secretary of Interior guidelines, and Energy Commission staff recommendations, and incorporate the policies and guidelines of San Diego County. All of these mitigation measures have previously proven successful in protecting sensitive cultural resources from construction-related impacts, while allowing the timely completion of many projects throughout California. Proper implementation of these measures would lower any potential impacts to cultural resources below the threshold of significance.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

If the following proposed conditions of certification are properly implemented, the project will comply with applicable laws, ordinances, regulations, and standards; and no significant adverse impacts to cultural resources will occur.

RECOMMENDATIONS

Staff recommends that the Commission adopt the following proposed conditions of certification, which incorporate the mitigation measures discussed above.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of any construction-related vegetation clearance or earth disturbing activities and preparation; the project owner shall provide the California Energy Commission (Commission) Compliance Project Manager (CPM) with the name and statement of qualifications for its designated cultural resource specialist who will be responsible for implementation of all cultural resources Conditions of Certification.

The statement of qualifications for the designated cultural resource specialist shall include all information needed to demonstrate that the specialist meet the minimum qualifications set forth below, including the following:

a. graduate degree in anthropology, archaeology, California history, cultural resource management, or a comparable field;
b. at least three years of archaeological resource mitigation and field experience in California; and
c. at least one year's experience in each of the following areas:
d. leading archaeological resource field surveys;
e. leading site and artifact mapping, recording, and recovery operations;
f. marshalling and use of equipment necessary for cultural resource recovery and testing;

g. preparing recovered materials for analysis and identification;
h. determining the need for appropriate sampling and/or testing in the field and in the lab;
i. directing the analyses of mapped and recovered artifacts;
j. completing the identification and inventory of recovered cultural resource materials; and
k. preparing appropriate reports to be filed with the receiving curation repository, the SHPO, and all appropriate regional archaeological information center(s).

The statement of qualifications for the designated cultural resource specialist shall include:

a. a list of specific projects that the specialist has previously worked on;
b. the role and responsibilities of the specialist for each project listed; and
c. the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

Verification: At least ninety (90) days prior to the start of project construction-related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall submit the name and statement of qualifications of its designated cultural resource specialist to the CPM for review and written approval.

At least ten (10) days, but no more than thirty (30) days prior to the start of construction, the project owner shall confirm in writing to the CPM that the approved designated cultural resource specialist will be available at the start of construction and is prepared to implement the cultural resource Conditions of Certification.

At least ten (10) days prior to the termination or release of a designated cultural resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated cultural resource specialist.

CUL-2 Prior to the start of any construction-related vegetation clearance, or earth disturbing activities or project site preparation, the project owner shall provide the designated cultural resource specialist and the CPM with maps and drawings issued for the construction site plan and site layout, and for the final alignment of all linear facilities. The routes for the linear facilities shall be provided on 7.5-minute USGS quad maps, showing:

a. Post mile markers (including marks for tenths of a mile);
b. Final center lines and right-of-way boundaries; and
c. The location of all of the various areas where surface disturbance may be associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, switchyards, electrical tower or pole footings, and any other project components.

The designated specialist may request, and the project owner shall provide, enlargements of portions of the 7.5 minute maps presented as a sequence of strip maps (or other acceptable format approved by the designated specialist) for the linear facility routes. The strip maps would include post mile and tenth of a mile markers and show the detailed locations of proposed access roads, storage or laydown sites, tower or pole footings, and any other areas of disturbance associated with the construction and maintenance of project-related linear facilities. The project owner shall also provide copies of any such enlargements to the CPM at the same time as they are provided to the specialist.
Verification: At least seventy-five (75) days prior to the start of earth disturbing activities on the project, the project owner shall provide the designated cultural resource specialist and the CPM with final drawings and site layouts for all project facilities and maps at appropriate scale(s) for all areas potentially affected by project construction. If the specialist requests enlargements or strip maps for linear facility routes, the project owner shall also provide a set of these maps to the CPM at the same time that they are provided to the specialist.

CUL- 3 Prior to the start of project construction-related vegetation clearance, earth disturbing activities, or project site preparation, the designated cultural resource specialist shall prepare, and the project owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

Protocol: The Cultural Resources Monitoring and Mitigation Plan 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; a description of each team member's qualifications (including a resume) and their responsibilities; and the reporting relationships between project construction management and the mitigation and monitoring team.
d. A discussion of the inclusion of Native American observers or monitors as part of the cultural resources team, the procedures to be used to select them, and their role and responsibilities.
e. Identification of each known significant or potentially significant cultural resource that may be affected by the project and the specific measures that will be taken to mitigate any potential impacts to the

resource. 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. The discussion shall also address how compliance with the East Otay Mesa Specific Plan will be achieved by the mitigation efforts of this project.

f. A discussion of where monitoring of project construction activities is deemed necessary by the designated cultural resource specialist. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present. Monitoring shall be conducted along the reconductoring route for the transmission line wherever previously identified sites can not be avoided and may experience impacts as a result of the reconductoring effort.

g. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and that all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository.

h. A discussion of the availability of and the designated specialist's access to equipment and supplies necessary for site mapping, and for photographing and recovering any cultural resource materials encountered during construction.

i. Identification of the public repository that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. The repository must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79. 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 repository.

Verification: At least sixty (60) days prior to the start of project construction-related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall provide the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist, to the CPM for review and written approval.

CUL-4 Prior to the start of project construction-related vegetation clearance, earth disturbing activities or project site preparation, the designated cultural resource specialist shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and written approval.

Protocol: The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

Protocol:

Protocol: The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during

project activities. The training program shall be presented by the designated cultural resource specialist or qualified member of the cultural resources team(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontologic resources, hazardous materials, or any other areas of interest or concern.
Verification: At least sixty (60) days prior to the start of project construction-related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall submit to the CPM for review and written approval, the proposed employee training program, the set of reporting procedures, the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction, and the name and resume of the individual(s) designated to perform the training.

CUL-5 Prior to the start of project construction-related vegetation clearance, earth disturbing activities or project site preparation, and throughout the project construction period as needed for all new employees, the project owner shall ensure that the designated cultural resource trainer(s) provide(s) the CPM-approved cultural resources training to all project managers, construction supervisors, and workers. The project owner shall ensure that the designated trainer(s) provide(s) the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.
Verification: Within seven (7) days after the start of project related vegetation clearance or earth disturbing activities or project site preparation, the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers, construction supervisors, and workers hired before the start of construction the CPM-approved cultural resources training and the set of reporting and work curtailment procedures.
In each Monthly Compliance Report after the start of construction the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers, construction supervisors, and workers hired in the month to which the report applies, the CPM-approved cultural resources training and the set of resource reporting and work curtailment procedures.

CUL-6 The designated cultural resource specialist or the specialist's delegated monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered during project-related grading, augering, excavation and/or trenching.

If such resources are found and the specialist determines that they are not significant, the specialist may allow construction to resume. The project owner shall notify the CPM of the find as set forth in the Verification.

If such resources are found and the specialist determines that they are or may be significant, the halting or redirection of construction shall remain in effect until:

a. The specialist has notified the CPM of the find and the work stoppage;
b. The specialist, 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.

The specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.
Verification: No more than thirty (30) days or less than ten (10) days prior to the start of project construction-related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall provide the CPM with a letter confirming that the designated cultural resources specialist and delegated monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find.
For any cultural resource encountered that the specialist determines is or may be significant, the project owner shall notify the CPM within 24 hours after the find.

For any cultural resource encountered that the specialist determines is not significant, the project owner shall notify the CPM within 72 hours after the find.

CUL-7 Prior to the start of project construction related vegetation clearance, earth disturbing activities or project site preparation, and each week throughout project construction, the project owner shall provide the designated cultural resource specialist with a current schedule of anticipated project activity in the following month and a map indicating the area(s) where the construction activities will occur. The specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).
Verification: At least ten (10) days prior to the start of project construction-related vegetation clearance, earth disturbing activities or project site preparation, and in each Monthly Compliance Report thereafter, the project owner shall provide the CPM with a copy of the weekly schedule of the construction activities. The project owner shall

notify the CPM when all ground disturbing activities, including landscaping, are completed.

CUL-8 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the designated cultural resource specialist and delegated monitor(s) shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate by tenths of a post mile, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The specialist shall prepare a weekly summary of the daily logs on the progress or status of cultural resource-related activities.

The specialist and delegated monitor(s) may informally discuss the cultural resource monitoring and mitigation activities with Commission technical staff.

Verification: Throughout the project construction period, the project owner shall ensure that the daily log(s) and the weekly summary reports prepared by the designated cultural resource specialist and delegated monitor(s) are available for periodic audit by the CPM. Upon request by the CPM, the project owner shall provide specified weekly summary reports to the CPM.

CUL-9 The designated cultural resource specialist or delegated monitor(s) shall be present at times the specialist deems appropriate to monitor construction-related grading, excavation, trenching, and/or auguring in the vicinity of previously recorded archaeological sites and in areas where cultural resources may occur. The specialist or delegated monitor(s) shall be present during reconductoring activities along the existing transmission line wherever previously identified sites adjacent to the transmission line cannot be avoided.

If the specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, except on the existing transmission line as indicated above, the specialist shall notify the project owner of the changes. The specialist shall use milepost markers and boundary stakes placed by the project owner to identify areas where monitoring is being reduced or is no longer deemed necessary.

Verification: Throughout the project construction period the project owner shall include in the Monthly Compliance Reports to the CPM copies of the weekly summary reports prepared by the designated cultural resource specialist regarding project-related cultural resource monitoring.

CUL-10 The project owner shall ensure that the designated cultural resource specialist performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural

resource materials encountered and collected during pre-construction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate research specialists which will ensure the necessary recovery, preparation for analysis, and analysis of cultural resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource sites shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-11 Following completion of data recovery and site mitigation work the project owner shall ensure that the designated cultural resource specialist completes a proposed scope of work for the Cultural Resources Report. The project owner shall submit the proposed scope of work to the CPM for review and written approval.

Protocol: The proposed scope of work shall include (but not be limited to):

a. A discussion of any analysis to be conducted on recovered cultural resource materials;
b. Discussion of possible results and findings;
c. Proposed research questions which may be answered or raised by analysis of the data recovered from the project; and
d. An estimate of the time needed to complete the analysis of recovered cultural resource materials and to prepare the Cultural Resources Report.

Verification: The project owner shall ensure that the designated cultural resources specialist completes the proposed scope of work within ninety (90) days following completion of the data recovery and site mitigation work. Within seven (7) days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

CUL-12 The project owner shall ensure that the designated cultural resource specialist prepares a Cultural Resources Report. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The Cultural Resources Report shall include (but not be limited to) the following:

a. For all projects:
1. description of pre-project literature search, any surveys, and any testing activities;
2. maps showing any areas surveyed or tested;
3. a description of any monitoring activities;
4. maps of any areas monitored; and

5. conclusions and recommendations.

b. For projects regarding which cultural resources were encountered, include the items specified under “a” and also provide:

1. Site and isolate records and maps;
2. a description of testing for, and determinations of, significance and potential eligibility of sites; and
3. a discussion of the 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 “1” and “2” and also provide:

1. a description of the methods employed in the field and laboratory;
2. a description (including drawings and/or photos) of recovered cultural materials;
3. results and findings of any special analyses conducted on recovered cultural resource materials;
4. an inventory list of recovered cultural resource materials;
5. an interpretation of the site(s) with regard to the research design; and
6. the name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the designated cultural resources specialist completes the Cultural Resources Report within ninety (90) days following completion of the analysis of the recovered cultural materials. Within seven (7) days after completion of the report, the project owner shall submit the Cultural Resources Report to the CPM for review and written approval.

CUL-13 The project owner shall submit an original, an original-quality copy, and a computer disc copy of the CPM-approved Cultural Resource Report to the public repository to receive the recovered data and materials for curation (or other format to meet the repository’s requirements), with copies to the State Historic Preservation Officer (SHPO), the appropriate regional archaeological information center(s), and a person employed by the County of San Diego who is authorized to receive confidential cultural resources information. If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the Cultural Resource Report to be sent to the curation repository, the SHPO, and the regional information center(s), shall include the following (based on the applicable scenario (1,2,or 3) set forth in condition Cul-12):

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 of significant or diagnostic cultural resource materials found during pre-construction surveys or during project monitoring and mitigation and subjected to post-recovery analysis and evaluation; 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 curation repository with a set of negatives for all of the photographs.

Verification: Within thirty (30) days after receiving approval of the Cultural Resources Report, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, the appropriate archaeological information center(s), and to a person employed by the County of San Diego, authorized to receive confidential cultural resources information.

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved Cultural Resources Report with the public repository receiving the recovered data and materials for curation.

CUL-14 Following the filing of the CPM-approved Cultural Resource Report with the public repository receiving the recovered data and materials, 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 repository. 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 (30) days after providing the CPM-approved Cultural Resource Report to the public repository receiving the recovered data and materials, to the SHPO, to the appropriate archaeological information center(s), and to a person employed by the County of San Diego, authorized to receive confidential cultural resources information.

For the life of the project, the project owner shall maintain in its compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

CUL-15 Prior to the start of any construction-related vegetation clearance, earth disturbing activities or project site preparation, the project owner and the designated cultural resource specialist shall consult with Native American tribal representatives to develop an agreement(s) for qualified (specified in the NAHC Guidelines for Monitoring) monitors. The monitors must be present during the pre-construction and construction phases of the project whenever prehistoric cultural resource monitoring activities are conducted.

Verification: At least thirty (30) days prior to the start of project-related vegetation clearance or earth disturbing activities and preparation, the project owner shall provide the CPM with a copy or all finalized agreements for Native American monitors. If efforts to obtain the services

of qualified tribal monitors prove unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

CUL-16 When the project owner obtains a Section 404 Nationwide Permit from the US Army Corps of Engineers, the project owner shall then consult with that agency and the CPM regarding compliance with Section 106 of the National Historic Preservation Act and any cultural resources mitigation activity.

Verification: The project owner shall submit a copy of the Section 404 Permit in the next monthly compliance report after the permit is obtained. If cultural resources mitigation activity is necessary, after completion of the mitigation activity, the project owner shall provide written documentation of the activity within thirty (30) days to the permitting agency and to the CPM in the next Monthly Compliance Report following the completion of that activity.

REFERENCES

OGMC (Otay Mesa Generating Company/Thompson) 1999b. MSCP Subareas. Submitted to the California Energy Commission on December 15, 1999.

OGMC (Otay Mesa Generating Company) 2000h. Supplement (Dated March 2000) to address project revisions made since the AFC was filed in August 1999. Submitted to the California Energy Commission on March 2, 2000.

OMGC (Otay Mesa Generating Company/DeRosa) 1999a. Application for Certification (AFC) Seeking Authority to construct and operate the Otay Mesa Generating Project, a Natural Gas-Fired, Nominal 510 MW Power Plant to be Located in San Diego County, CA. Submitted to the California Energy Commission on August 2, 1999.

URS Greiner (URS Greiner Woodward Clyde/Gallegos) 1999e. Appendix J Cultural Resources Technical Report (Confidential). Submitted to the California Energy Commission August 1999.

URS Greiner (URS Greiner Woodward Clyde/Gallegos) 2000f. Appendix J, Supplement 1 Technical Report (Confidential). Submitted to the California Energy Commission March 2000.

SDC (San Diego County) 1973. Part I, Open Space Element, San Diego County General Plan. Adopted December 20, 1973 (amended January 11, 1995).

SDC (San Diego County) 1975. Part X, Conservation Element, San Diego County General Plan. Adopted December 10, 1975 (amended November 2, 1993).

SDC (San Diego County) 1997. Part XIII, Sweetwater Community Plan, San Diego County General Plan. Adopted August 25, 1977 (amended October 28, 1993).

SDC (San Diego County) 1994a. East Otay Mesa Specific Plan. Approved July 27, 1994.

SOCIOECONOMIC RESOURCES

Amanda Stennick

INTRODUCTION

The technical area of socioeconomics encompasses several related areas of interest and concern. A typical socioeconomic impact analysis evaluates the effects of project-related population changes on local schools, medical and protective services, public utilities and other public services, the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes in population, and the issue of environmental justice. This analysis discusses the potential effects of the proposed Otay Mesa Generating Project (OMGP) on local communities, community resources, and public services, pursuant to Title 14 California Code of Regulations, Section 15131.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

CALIFORNIA GOVERNMENT CODE, SECTION 65995-65997

SB 50 and other statutory amendments enacted in 1998 provide that, notwithstanding any other provisions of local or state law (including CEQA), state and local agencies may not require mitigation for the development of real property for effects on school enrollment except as provided by new provisions in the Government Code. (Govt. Code, Sec. 65996(a).) The relevant provisions restrict fees for the development of commercial and industrial space to a maximum of $0.31 per square foot of "chargeable covered and enclosed space." (Govt. Code, Sec. 65995(b)(2).)

ENVIRONMENTAL JUSTICE

President Clinton's Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed on February 11, 1994. The order required the US Environmental Protection Agency (USEPA) and all other federal agencies to develop environmental justice strategies. The USEPA subsequently issued Guidelines that require all federal agencies and state agencies receiving federal funds, to develop strategies to address this problem. The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

EAST OTAY MESA SPECIFIC PLAN

The East Otay Mesa Specific Plan (Specific Plan) sets forth a comprehensive plan for the development of 3,300 acres within the East Otay Mesa Specific Plan Area for industrial and business uses. The Specific Plan sets the framework for future development, including policies, standards, and guidelines that facilitate private development over time. The Specific Plan further establishes an implementation program, including infrastructure and public facility plans, and a phasing and financing strategy.

SETTING

PROJECT LOCATION

The project site is located in unincorporated San Diego County in the area designated by the county as the East Otay Mesa Specific Plan Area. For analysis of socioeconomic impacts, Energy Commission staff has defined the project study area as a reasonable commuting distance of about 90 minutes one-way commute for construction workers and operating employees. Thus, for purposes of determining construction worker availability and operation employees, staff considers the study area to consist of San Diego, Imperial, Riverside, and Orange Counties. Because the project is located in San Diego County, staff expects the county will receive the majority of the socioeconomic and fiscal impacts of the project.

IMPACTS

Staff reviewed the Otay Mesa Generating Project AFC, Vol. I, August 1999, executive summary, socioeconomic, and project description sections regarding potential impacts to community services and infrastructure (employment, housing, schools, utilities, emergency and other services), and environmental justice; and the Otay Mesa Generating Project AFC Supplement, March 2000. Staff also reviewed the East Otay Mesa Specific Plan and the East Otay Mesa Specific Plan Final Environmental Impact Report. Based on its independent analysis and Otay Mesa Generating Company's (OMGC) socioeconomic data provided and referenced from governmental agencies and trade associations, staff finds that construction and operation of the project will impact police, fire and emergency medical services in the Otay Mesa area. Because of the availability of local construction labor, there will not be an impact on housing in the area. However, OMGC does not indicate whether new operations employees (engineers, equipment operators, maintenance, and security staff) will be hired locally or from out-of-county. Therefore, staff's analysis is based on a worst-case assumption that all twenty-five permanent employees would relocate to San Diego County and/or cities within commuting distance of the project. Potentially twenty-five new households would be created by project operation.

Staff's criteria for assessing socioeconomic impacts are based on the East Otay Mesa Specific Plan, on impacts to existing levels of service for medical services, law enforcement, fire and emergency services, and housing. Determination of impact is based on input from local agencies and service personnel. Environmental justice has a numeric threshold of 50 percent when determining the presence of minority and low-income populations. Regarding potential impacts to schools, public agencies may not impose fees, charges or other financial requirements to offset the cost for school facilities. Therefore, any project-related revenues to school districts can be imposed only through property taxes and statutory facility fees collected at the time the building permit is acquired. Project-related impacts are discussed under specific headings, below.

CONSTRUCTION EMPLOYMENT AND PROJECT SCHEDULE

Table 5.10-7 in the AFC shows the workforce needs and available labor by craft in San Diego County for project construction. A table provided by OMGC in response to data request Socioeconomics - 10 provides the same information for Orange, Imperial, and Riverside Counties. OMGC expects project construction to begin six months after full award to proceed. Figure 3.8-3 in the AFC indicates that project construction will occur over a 21-month period. Table 3.8-1 in the AFC indicates that peak construction will occur from month 14 through month 18, with an estimated average of 348 construction workers on site during this time. Specific trades required for construction include carpenters, laborers, ironworkers, operators, pipefitters, electricians, millwrights, boilermakers, insulators, painters, and teamsters. Based on employment information provided by OMGC in the AFC and data response, and staff's verification of the data (State of California, Employment Development Department, Labor Market Information), there is a considerable surplus of construction workers available to staff the construction of the project. Because the labor pool will be drawn primarily from San Diego County, and secondarily from Orange, Imperial, and Riverside Counties, staff does not expect workers to relocate to the San Diego area during project construction.

HOUSING

Housing characteristics provided in Table 5.10-6 of the AFC (SANDAG) give the number of housing units, vacancy rates, and estimated motel/hotel rooms in the county and cities within the county. Vacancy rates range from a low of 2.7 percent in the City of Santee to a high of 6.2 percent in San Diego County. OMGC expects that hiring of construction workers will occur within San Diego County or within a reasonable commuting distance from adjacent counties. Therefore the demand for housing during construction is expected to be minimal to non-existent. Any potential demand for housing as a result of project construction can be accommodated by the existing vacancy rates in the cities near the project site; any weekly-commuting construction workers can be accommodated by existing motel/hotel rooms in cities near the project site. As stated above, twenty-five new households resulting from worst-case assumption of the permanent workforce relocating to the San Diego area may be created by the project. Given the vacancy rates for San Diego County and adjacent cities, staff does not expect a significant impact to housing as a result of project operation.

SCHOOLS

The school districts where development will occur are the Chula Vista City Elementary School District and the Sweetwater Union High School District. The Chula Vista City Elementary School District assesses developer fees of $0.14 per square foot for commercial or industrial development (Otay Mesa 1999a). OMGC states that the

project will total an estimated 14,500 square feet. Therefore, the project will be assessed a one-time developer fee of $2,030. Developer fees can be spent on both temporary and permanent construction and on offices, multipurpose rooms, bathrooms, and other facilities, and transportation as well as classrooms. There is no way to determine which schools within the district will receive the fees or how they will be spent. In addition, Senate Bill 50, signed by Governor Wilson on August 27, 1998, amended section 17620 of the Education code, and restricts school funding to property taxes and statutory facility fees collected at the time the building permit is acquired. Public agencies may not impose fees, charges or other financial requirements to offset the cost for "school facilities". School facilities are defined as "any school-related consideration relating to a school district's ability to accommodate enrollment." Therefore, any project-related revenues to school districts can be imposed only through property taxes and statutory facility fees collected at the time the building permit is acquired.

OMGC expects to hire construction workers from within the study area, and therefore does not expect construction workers and their families to relocate for the duration of the construction period. Staff's independent analysis on worker availability concurs with the findings of OMGC's, and staff does not expect any project-related adverse effects to the affected school districts as a result of project construction.

The schools in the project area, Chula Vista City Elementary School District and the Sweetwater Union High School District are operating over capacity (Otay Mesa Specific Plan EIR). Because of the level of urban services and housing vacancy rates, staff expects any project-operation employees hired from out of the area to relocate to the City of San Diego. The average household size in San Diego is 2.87 persons. Assuming that households have two adults, there is a potential for approximately 22 school-age children of new permanent employees to impact the schools within San Diego Unified School District. This district has 57 schools and all schools are operating over capacity (Otay Mesa 1999a). Therefore, staff finds that the project has the potential to impact the schools in the San Diego Unified School District. Although a potential non-environmental impact has been identified for San Diego Unified School District schools, the changes to the Education Code resulting from the passage of SB 50 in 1998 restrict school funding to a combination of property tax revenues and a statutory development fee based on a project's covered or enclosed space. Therefore, state and local agencies may not require mitigation for the development of real property for effects on school enrollment.

PUBLIC SERVICES

The project is located within the East Otay Mesa Specific Plan Area. The East Otay Mesa Specific Plan proposes a comprehensive plan of infrastructure and public facilities to serve planned development within the Specific Plan area. As mandated by the Plan, the county will require evidence of provision of adequate fire protection and emergency medical services and facilities, with a financing strategy acceptable to the fire agency, to be implemented prior to recordation of final subdivision maps. In January 2000, as a response to the East Otay Mesa Specific Plan, the San Diego Rural Fire Protection District (RFPD) prepared the "Fire Protection and Emergency Medical Services Delivery Plan to Address the Goals and Objectives Contained in the East Otay Mesa Specific Plan". The plan identified specific resource requirements necessary to provide an adequate level of service to the Otay area. Please refer to the **Worker Safety** section in the PSA for a discussion on equipment and resources required by the RFPD to provide adequate service in the Otay Mesa service area. As a response to the proposed project, the RFPD has identified in a letter submitted to the CEC that the project will cause impacts to their service capabilities. The RFPD is working jointly with the County of San Diego to develop a plan that identifies the level of emergency medical and fire protection services necessary for the proposed project's impacts on the RFPD's fire protection service capabilities. This plan will include a funding strategy which identifies the amount of fees and the timing of payment the OMGP will be required to provide to cover project-specific and (if deemed necessary) cumulative impacts associated with providing fire protection services to the project. At this time, staff has not heard from San Diego County regarding resolution of issues involving OMGC's contribution toward financing their fair share of public infrastructure (roads, fire, police, and emergency services). Prior to the FSA, staff will meet with OMGC and San Diego County staff to address project-specific impacts, determine OMGC's fair share of the funding, and provide a condition of certification that addresses OMGC's funding of infrastructure.

COMMUNITY FIRE AND EMERGENCY MEDICAL SERVICES

The project site is served by the RFPD. The closest station is located at 14145 Highway 94 in Jamul, with a response time of about 30 minutes. Since the station is remote, it does not conform to the five-minute response time in the Public Facility Element of the County General Plan (East Otay Mesa Specific Plan 1994). As stated above, staff will meet with OMGC and San Diego County staff to address project-specific impacts, determine OMGC's fair share of the funding, and provide a condition of certification that addresses OMGC's funding of infrastructure.

COMMUNITY PROTECTIVE SERVICES

Police protective services are provided by the San Diego County Sheriff's Department. Currently, there are no sheriff facilities within East Otay Mesa (East Otay Mesa Specific Plan 1994). The nearest station is the Imperial Beach station, located about 9.5 miles west of the western edge of East Otay Mesa. A response from this station to the project site would not conform to the response times in the Public Facility Element of the County General Plan (East Otay Mesa Specific Plan 1994). As stated above, staff will meet with OMGC and San Diego County staff to address project-specific impacts, determine OMGC's fair share of the funding, and provide a condition of certification that addresses OMGC's funding of infrastructure.

COMMUNITY MEDICAL SERVICES

The nearest hospital to the site is Sharp Chula Vista Medical Center, located at 751 Medical Center Court in Chula Vista, about nine miles from the site. Sharp Chula Vista Medical Center has 206 licensed acute beds, 100 licensed skilled nursing beds, 325 physicians, and 7 operating rooms. The facility has 24-hour emergency services with heliport. Given the existing levels of service, staff does not expect any adverse impacts to community medical services from the project.

UTILITIES, WASTE MANAGEMENT, HAZARDOUS WASTE, WATER DEMAND, WASTEWATER DISPOSAL

Utility services in the project area are provided by San Diego Gas and Electric (SDG&E). SDG&E serves 710,000 natural gas customers within San Diego County, and 1.1 million electricity customers in San Diego and south Orange Counties. SDG&E completed PipeLine 2000 in 1998, a thirty-mile natural gas transmission line that runs from the City of Santee to Otay Mesa. The pipeline was built to alleviate the loss of natural gas pressures along the system that, without the pipeline, could result in gas shortages.

Please refer to the sections on **WATER RESOURCES** and **WASTE MANAGEMENT** for detailed discussions of water supply, water quality, wastewater disposal, and solid waste disposal.

IMPACT ON FISCAL RESOURCES AND THE LOCAL ECONOMY

PROPERTY TAX

OMGC estimates that the project will generate about $2.7 million in property taxes in San Diego County each year (Otay Mesa 1999).

LOCAL PURCHASING OF EQUIPMENT AND SUPPLIES

The estimated total construction payroll is about $25 million. The estimated annual operations payroll is about $3 million. In the AFC, OMGC states that an estimated $160 million of equipment and materials will be purchased during project construction. However, they do not state what portion will be purchased locally. Therefore, staff is unable to provide an analysis of project benefits from sales tax.

ENVIRONMENTAL JUSTICE SCREENING ANALYSIS

For all siting cases, Energy Commission staff follows the federal guidelines' two-step screening process. The process assesses:

- whether the potentially affected community includes minority and/or low-income populations; and
- whether the environmental impacts are likely to fall disproportionately on minority and/or low-income members of the community.

Depending on the outcome of the screening process, local community groups are contacted to provide the Energy Commission with a fuller understanding of the community and the potential environmental justice issues. In addition, local community groups are asked to help identify potential mitigation measures. In September 1999, staff contacted Hannah Stebbins of the Environmental Health Coalition (EHC) in San Diego regarding any potential environmental justice issues arising from construction of the project. Ms. Stebbins stated that she was familiar with the project but would need more information regarding the project's air emissions. Staff gave her name and phone number to the Commission's Project Manager who spoke with her and directed her to air quality staff regarding project emissions.

EPA's April 1998 "Guidance For Incorporating Environmental Justice Concerns In EPA's NEPA Compliance Analyses" (Guidance) provides a numeric measure to determine the presence of an affected population: a minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. The Guidance does not define the term "affected area", however it states that the analyst should interpret the term "as that area which the proposed project will or may have an effect on." Typically, Energy Commission staff has defined the affected area as the area potentially impacted by the proposed project (primarily for air quality, public health, noise, water, traffic and visual). The affected area for the Otay Mesa Project was initially determined by Energy Commission staff as that area within a six-mile radius of the site and represents the area affected by various project emissions. A more specific analysis of the affected area will be provided in the Final Staff Assessment when isopleths of the project area and the

results of the air quality analysis are incorporated into the environmental justice analysis.

SOCIOECONOMICS TABLE 1 contains 1999 population estimates for each census tract in the six-mile area of the Otay Mesa Project. **SOCIOECONOMICS FIGURE 1** shows the Otay Mesa area with the census tracts used in this analysis. As seen in Figure 1, the census tracts comprise a much larger geographic area than the six-mile radius of the project site. Because of the difficulty of determining population densities within the tracts and because overall population is very sparse in this area, staff has used the total population in these tracts as the basis for the environmental justice screening analysis. The Richard J. Donovan Correctional Facility and the George F. Bailey County Detention Facility are located within the East Otay Mesa area, within census tract 021302. Populations in these group quarters are included in the Claritas estimated 1999 Population count.

Data for **SOCIOECONOMICS TABLE 1** were obtained from the marketing firm of Claritas. Claritas produces demographic estimates and projections based on data solicited from local, state, and federal government agencies, and private sector sources. Sources include U.S. Bureau of Labor Statistics, U.S. Bureau of the Census, U.S. Postal Service, and city and regional planning departments. According to the guidelines, a minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. Based on the screening process for environmental justice, information in **SOCIOECONOMICS TABLE 1** indicates that the minority population of the affected area is 58%.

The poverty threshold for a family of four persons was $12,674 per year (1990 US Census Data). To determine the number of persons below the poverty level, Energy Commission staff reviewed data from the 1990 US Census: Poverty Status By Age; Universe: Persons for whom poverty status is determined (the aggregate number of persons five years and under to seventy-five years and over).

SOCIOECONOMICS TABLE 2 indicates that the total number of people living below the poverty level is 1,000 or about 2.87 percent of the total population of the census tracts within six miles of the Otay Mesa project site. As stated above, a minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. Because the guidelines do not give a percentage of the population as a threshold to determine the existence of a low-income population, Energy Commission staff used the fifty-percent threshold used for minority populations.

BAJA CALIFORNIA

Baja California has a land area of 28,000 square miles and is divided into four municipalities: Tijuana, Mexicali, Ensenada, and Tecate. The Municipality of Tijuana is situated about two miles directly south of the project. The Municipality of Tijuana is the most populated of the four municipalities (991,592 persons in 1995) and population growth in Tijuana was expected to reach 1.2 million by 2000 (SANDAG). The Municipality of Tijuana is highly urbanized and is home to 513 of the 772 maquiladora factories in Baja (SANDAG). Staff did not do a screening analysis of the Mexican population in Tijuana, as the USEPA Guidelines on Environmental Justice and Title VI apply only to the United States.

SOCIOECONOMICS Table 1
Demographic Profile for Census Tracts Within Six Miles of the Otay Mesa Project Site

Census Tract	Hispanic Origin	White	Black	American Indian	Asian Pacific Islander	Other Race	Total by Tract
010007	2992	940	1487	10	52	38	5519
013305	8891	5171	741	33	2826	22	17684
013406	5090	5377	435	23	2369	10	13304
021301	1520	5396	98	62	301	5	7832
021302	750	3521	17	11	51	7	4357
Totals	**19243**	**20405**	**2778**	**139**	**5599**	**82**	**48696**
% of Totals	**40%**	**42%**	**6%**	**<1%**	**12%**	**<1%**	
Source: Claritas. Race and Hispanic Origin population estimates for 1999							

SOCIOECONOMICS Table 2
Percentage of Persons Living Below the Poverty Level Within Six Miles of the Otay Mesa Project Site

Census Tract	Number of Persons in Tract	Persons Below Poverty Level
010007	5176	307
013305	10233	542
013406	10031	49
021302	5827	29
021301	3550	73
Totals	**34817**	**1000**
Source: 1990 US Census Data, Statistical Information on Population		

The screening analysis indicates that there are approximately 58 percent minorities living within the project's affected area. It is important to note that no residential areas are within approximately four miles of the proposed facility. Environmental analysis will be conducted in the areas of

public health and air quality to determine whether there are any significant and adverse impacts and whether these impacts disproportionately affect the minority population. The results of this analysis will be provided in the FSA.

Socio Figure 1

CUMULATIVE IMPACTS

The County of San Diego is currently processing three applications for development in the East Otay Mesa Specific Plan Area (Caldwell 2000). The Sunroad Centrum mixed industrial development, a 250-acre project will be built in two phases to partially mitigate short-term cumulative traffic impacts. The East Otay Mesa Travel Plaza is an 80-acre project to serve trucks and drivers involved in trans-border commerce. Construction on both projects will start at the end of 2000. Staff does not know of any other large-scale development projects that would require a significant amount of construction workers. Because of the availability of local labor, Energy Commission staff does not expect any adverse cumulative impacts to housing.

Based on the analysis of the East Otay Mesa Specific Plan and conversations with San Diego County staff, staff finds that construction and operation of the OMGP will cumulatively impact police, fire and emergency medical services in the Otay Mesa area.

MITIGATION

Because OMGC has not clearly identified economic and fiscal benefits to the project area through sales tax and direct purchases of construction materials and services from local vendors (Otay Mesa 1999a), Energy Commission staff is proposing a condition of certification to ensure that some economic benefit occurs in the project area. Even though a significant non-environmental impact has been identified for San Diego Unified School District schools, the changes to the Education Code resulting from the passage of SB 50 in 1998 restrict school funding to a combination of property tax revenues and a statutory development fee based on a project's covered or enclosed space.

As stated earlier, the RFPD is working jointly with the County of San Diego to develop a plan that identifies the level of emergency medical and fire protection services necessary for the proposed project's impacts on the RFPD's fire protection service capabilities. This plan will include a funding strategy which identifies the amount of fees and the timing of payment the OMGC will be required to provide to cover project-specific and cumulative impacts associated with providing fire protection services to the project. Prior to the FSA, staff will meet with OMGC and San Diego County staff to address project-specific impacts, determine OMGC's fair share of the funding, and provide a condition of certification that addresses OMGC's funding of infrastructure.

FACILITY CLOSURE

Energy Commission staff does not know of any Socioeconomic LORS related to facility closure. Facility closure would have to comply with the Facility Closure conditions of certification contained in the **FACILITY CLOSURE** section of the PSA.

CONCLUSION AND RECOMMENDATION

To ensure that some economic benefit occurs in the project area, Energy Commission staff has proposed a condition of certification that requires the project owner and its contractors and subcontractors to recruit employees and procure materials and supplies locally. Staff also proposes a condition of certification requiring OMGC to pay a one-time school impact fee based on $0.14 per square foot of "chargeable covered and enclosed space." Prior to the FSA, staff will provide a condition of certification addressing project-specific impacts and OMGC's fair share of infrastructure funding. If the Energy Commission certifies the proposed project, staff recommends that it adopt the following conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within San Diego County 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 60 days prior to the start of construction, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The CPM shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall pay the statutory school facility development fee as required at the time of filing for the "in-lieu" building permit with the San Diego County Building Department.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

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BIOLOGICAL RESOURCES

Rick York

INTRODUCTION

This section provides the Energy Commission staff's analysis of potential impacts to biological resources from the construction and operation of the Otay Mesa Generating Project (OMGP). This analysis addresses potential impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological concern. This analysis also describes the biological resources of the project site and at the locations of appurtenant facilities. It also determines the need for mitigation, the adequacy of mitigation proposed by the applicant, and where necessary, specifies additional mitigation measures to reduce identified impacts to less than significant levels. It also determines the applicant's [Otay Mesa Generating Company's (OMGC)] compliance with applicable laws, ordinances, regulations and standards (LORS), and recommends conditions of certification.

This analysis is based, in part, upon information provided in the Otay Mesa Generating Project Application for Certification (AFC) (PG&E 1999a), workshops, staff data requests and applicant responses, site visits, and discussions with various agency representatives.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL

ENDANGERED SPECIES ACT OF 1973

Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat.

FISH AND GAME COORDINATION ACT

Title 16, United States Code, section 661 et seq. requires federal agencies to coordinate federal actions with the U. S. Fish and Wildlife Service (USFWS) to conserve fish and wildlife resources.

CLEAN WATER ACT OF 1977

Title 33, United States Code, section 1344, and Title 30 Code of Federal Regulations, section 330.5(a)(26), regulates the placement of fill in waters of the United States and adjacent wetlands.

MIGRATORY BIRD TREATY ACT

Title 16, United States Code, sections 703 - 712, prohibits the take of migratory birds.

STATE

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

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

NEST OR EGGS – TAKE, POSSESS, OR DESTROY

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

Birds of Prey or Eggs – Take, Possess, or Destroy

Fish and Game Code section 3503.5 protects California's birds of prey and their eggs by making it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

Migratory Birds – Take or Possession

Fish and Game Code section 3513 protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird.

Fully Protected Species

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibits take of animals that are classified as Fully Protected in California.

Natural Community Conservation Plan (NCCP) Act of 1991

This act includes provisions for protection and management of state-listed threatened or endangered plants and animals and their designated habitats.

Streambed Alteration Agreement

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

Native Plant Protection Act of 1977

Fish and Game Code section 1900 et seq. designates state rare, threatened, and endangered plants.

California Code of Regulations

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

LOCAL

Biological Mitigation Ordinance

County of San Diego Ordinance No. 8845, also known as the Biological Mitigation Ordinance, implements the county's Multiple Species Conservation Program (see below).

County of San Diego Multiple Species Conservation Program

The County of San Diego Multiple Species Conservation Program (MSCP) is a comprehensive, long-term habitat conservation program that addresses the needs of multiple species and the preservation of natural vegetation of San Diego County. The MSCP establishes the conditions under which the county will receive long-term take authorization from the USFWS and CDFG.

SENSITIVE RESOURCE AREA REGULATIONS, "G" DESIGNATOR

To ensure that environmentally sensitive areas are appropriately protected, the East Otay Mesa Specific Plan assigns a "G" Designator to these areas. Areas with a "G" Designator are subject to the Sensitive Resources Area Regulations of the Zoning Ordinance. The East Otay Mesa Specific Plan requires that prior to approval of a tentative map, or if no subdivision is needed, prior to any development including clearing or grading, a Resource Conservation Plan must be approved for parcels with a "G" Designator. Portions of the power plant site, the proposed 230 kV connection to the existing Miguel-Tijuana transmission line, and the alternate gas supply pipeline (Route 2B) are within areas with a "G" Designator.

SETTING

REGIONAL DESCRIPTION

The Otay Mesa Generating Project is proposed to be located on the eastern portion of Otay Mesa in southwestern San Diego County. This area historically and currently contains agricultural uses as well as industrial and urban development. The upland areas west of the proposed power plant contains an existing transmission line that may need to be reconductored as part of this project. Otay Mountain is part of the San Ysidro Mountains. The proposed project will be located approximately 1.5 miles north of the United States/Mexican border.

There are many sensitive species found in the proposed project's region, and the following table identifies the sensitive species that either were seen or are expected to occur in the project vicinity.

BIOLOGICAL RESOURCES Table 1
SENSITIVE SPECIES

Sensitive Plants	Status*
Ashy spike-moss (Selaginella cinerascens)	CNPS List 4
California adder's tongue (Ophioglossum californicum)	CNPS List 4
California adolphia (Adolphia californica)	CNPS List 2
California Orcutt grass (Orcuttia californica)	FE/CE/List 1B
Cleveland's bush monkeyflower (Mimulus clevelandii)	CNPS List 4
Coulter's matilija poppy (Romneya coulteri)	CNPS List 4
Deane's milk-vetch (Astragalus deanei)	CNPS List 1B
Delicate clarkia (Clarkia delicata)	CNPS List 2
Dense reed grass (Calamagrostis densa)	CNPS List 4
Dunn's mariposa lily (Calochortus dunnii)	CR/List 1B
Felt-leaved monardella (Monardella hypoleuca lanata)	CNPS List 1B
Fish's milkwort (Polygala cornuta ssp. fishiae)	CNPS List 4
Gander's pitcher sage (Lepechinia ganderi)	CNPS List 1B
Mexican flannelbush (Fremontodendron mexicanum)	CR/List 1B
Munz's sage (Salvia munzii)	CNPS List 2
Nuttall's scrub oak (Quercus dumosa)	None
Orcutt's bird's-beak (Cordylanthus orcuttianus)	CNPS List 2
Orcutt's brodiaea (Brodiaea orcuttii)	CNPS List 1B
Otay manzanita (Arctostaphylos otayensis)	CNPS List 1B
Otay Mesa mint (Pogogyne nudiuscula)	FE/CE/List 1B
Otay Mountain lotus (Lotus crassifolius var. otayensis)	CNPS List 1B
Otay tarplant (Hemizonia conjugens)	FT/CE/List 1B
Palmer's goldenbush (Ericameria palmeri ssp. palmeri)	CNPS List 2
Palmer's grapplinghook (Harpagonella palmeri var. palmeri)	CNPS List 2
Payson's jewelflower (Caulanthus simulans)	CNPS List 4
Pride-of-California (Lathyrus splendens)	CNPS List 4

Prostrate navarretia (Navarretia fossalis)
CNPS List 1B
Rush-like bristleweed (Haplopappus junceus)
CNPS List 4
San Diego ambrosia (Ambrosia pumila)
CNPS List 1B
San Diego barrel cactus (Ferocactus viridescens)
CNPS List 2
San Diego button-celery (Eryngium aristulatum var. parishii)
FE/CE/List 1B
San Diego County needlegrass (Achnatherum diegoense)
CNPS List 2
San Diego goldenstar (Muilla clevelandii)
CNPS List 1B
San Diego marsh elder (Iva hayesiana)
CNPS List 2
San Diego sagewort (Artemisia palmeri)
CNPS List 2
San Diego sunflower (Viguiera laciniata)
CNPS List 4
San Diego thornmint (Acanthomintha ilicifolia)
CE/List 1B
San Miguel savory (Calamintha chandleri)
CNPS List 4
Slender-pod jewelflower (Caulanthus stenocarpus)
CR/List 1B
Small-leaved rose (Rosa minutifolia)
CE/List 1B
Snake cholla (Opuntia parryi var. serpentina)
CNPS List 1B
Southern mountain misery (Chamaebatia australis)
CNPS List 4
Southwestern spiny rush (Juncus acutus ssp. leopoldii)
CNPS List 4
Summer holly (Comarostaphylis diversifolia ssp. diversifolia)
CNPS List 1B
Tecate cypress (Cupressus forbesii)
CNPS List1B
Variegated dudleya (Dudleya variegata)
CNPS List 4
Velvet cactus (Bergerocactus emoryi)
CNPS List 2
Western dichondra (Dichondra occidentalis)
CNPS List 4
Willowy monardella (Monardella linoides ssp. viminea)
CE/List 1B

* CNPS = California Native Plant Society (CNPS 1995) – CNPS List 1B (Rare and endangered in California; CNPS List 2 (Rare in California, More Common Elsewhere); CNPS List 4 (Watch List); CR = State listed Rare; CE = State listed Endangered; FE = Federal listed Endangered; FT = Federal listed Threatened.
Source: PG&E 1999a

Sensitive Wildlife
Status*

Quino checkerspot butterfly (Euphydrus editha quino)
FE

Riverside fairy shrimp (Streptocephalus woottoni)
FE
San Diego fairy shrimp (Branchinecta sandiegensis)
FE
Arroyo toad (Bufo microscaphus californicus)
FE/CSC
Coast patchnose snake (Salvadora hexalepis virgultea)
CSC
Coronado Island skink (Eumeces skiltonianus interparietalis)
CSC
Belding's orangethroat whiptail (Cnemidophorus hyperythrus beldingi
CSC
San Diego horned lizard (Phrynosoma coronatum blainvillii)
CSC
Silvery legless lizard (Anniella pulchra pulchra)
CSC
Southwestern pond turtle (Clemmys marmorata pallida)
CSC
Western spadefoot toad (Spea hammondii)
CSC
Burrowing owl (Athene cunicularia)
CSC
California horned lark (Eremophila alpestris actia)
CSC
Coastal cactus wren (Campylorhyncus brunneicapillus sandiegoense)
CSC
Coastal California gnatcatcher (Polioptila californica californica)
FT/CSC
Cooper's hawk (Accipiter cooperii)
CSC
Ferruginous hawk (Buteo regalis)
CSC
Golden eagle (Aquila chrysaetos canadensis)
CSC
Grasshopper sparrow (Ammodramus savannarum perpallidus)
CSC
Least Bell's vireo (Vireo bellii pusillus)
FE/CE
Loggerhead shrike (Lanius ludovicianus)
CSC
Long-eared owl (Asio otus)
CSC
Long-billed curlew (Numenius americanus)
CSC
Northern harrier (Circus cyaneus)
CSC
Prairie falcon (Falco mexicanus)
CSC
So. Calif. rufous-crowned sparrow (Aimophila ruficeps canescens)
CSC
Short-eared owl (Asio flammeus)
CSC
Tri-colored blackbird (Agelaius tricolor)
CSC
Vaux's swift (Chaetura vauxi)
CSC
White-tailed kite (Elanus peucurus)
CSC

San Diego woodrat (Neotoma lepida intermedia)
CSC
San Diego black-tailed jackrabbit (Lepus californicus bennettii)
CSC
San Diego pocket mouse (Chaetodipas fallax fallax)
CSC
Southern grasshopper mouse (Onychomys torridus ramona)
CSC

* FE = Federal listed Endangered; FT = Federal listed Threatened; CE = State listed Endangered; CSC = California Species of Special Concern. Source: PG&E 1999a.

SITE VICINITY DESCRIPTIONS

The power plant site and access roads are to be located on a 46-acre parcel in the eastern portion of Otay Mesa in southwestern San Diego County, California. The eastern portion of Otay Mesa has been disturbed by agricultural use and industrial development.

POWER PLANT SITE AND ACCESS ROADS

Habitat at the proposed project site and the northern and southern access roads (Route 5 and 5A, respectively) is currently rangeland that has also been used for agricultural production. The area is dominated by non-native, annual grassland species (*Avena* sp.) and other exotic plants. The proposed project is to be located on an alluvial fan that drains the western slope of Otay Mountain. Minor drainages also occur along the southern and eastern portions of the proposed project site. Tree tobacco (*Nicotiana glauca*), rabbit-foot grass (*Polypogon monspeliensis*), Russian thistle (*Salsola tragus*), tamarisk (*Tamarix ramosissima*) and horehound (*Marrubium vulgare*) are found in these drainages. Two sensitive plant species, San Diego sunflower (*Viguiera laciniata*) and San Diego marsh elder (*Iva hayesiana*) are known to occur in the nearby drainage, however they are not found on the project site.

THE OMGP TRANSMISSION LINE

The proposed new transmission line for the OMGP is approximately ¼ mile long, and requires the construction of two new transmission line towers. The new line will exit the northeastern corner of the project site and connect with the existing SDG&E line to the east. The proposed location for the new transmission line is primarily non-native, annual grassland habitat.

RECONDUCTORING THE EXISTING SDG&E TRANSMISSION LINE

The existing 9+ mile, 230 kV San Diego Gas and Electric (SDG&E) transmission line between the proposed power plant and the Miguel Substation may need to be reconductored as part of this project. This existing transmission line traverses a variety of sensitive species habitats located on the lower slopes of the western portion of Otay Mountain. In addition, it crosses the Otay Valley and

the lower hills, flats and drainages of Salt Creek Canyon. Specific sensitive species habitats found in this area include Diegan coastal sage scrub, chamise chaparral, native grasslands, riparian areas (in O'Neal Canyon, Salt Creek, and the Otay River Valley) and vernal pools. At the northern end of the existing transmission line, a significant amount of urban development is found near the Miguel substation. Several sensitive plants (e.g. San Diego sunflower, coast barrel cactus, and Otay tarplant) and sensitive wildlife species (least Bell's vireo and quino checkerspot butterfly) are known to occur along the transmission line route.

WASTEWATER DISCHARGE PIPELINE

The preferred wastewater discharge pipeline (Route 4) will be located primarily within a dirt road within Johnson Canyon, due west of the proposed power plant site. The proposed wastewater discharge pipeline will connect to an existing sanitary sewer main at the lower end of the canyon approximately 2 miles west of the project site.

An alternative route (Route 4A), recommended by the County of San Diego, is also being considered which will locate the pipeline within the right-of-way of a proposed county road (Lone Star Road) for the eastern half of the pipeline route (CSD 1999b). This alternative section will first follow the southern access road and connect with Alta Road and travel due west along the proposed Lone Star Road route for approximately 0.85 miles. At that point it will drop into Johnson Canyon, connect with Route 4, and ultimately connect to the existing sanitary sewer main.

The upper slopes of Johnson Canyon are primarily non-native grassland habitat, however the canyon does contain an intermittent creek. The intermittent creek supports some disturbed tamarisk scrub vegetation, but no riparian species (e.g. willow, *Salix* sp.). At the western terminus of the proposed wastewater discharge pipeline route Diegan coastal sage scrub habitat exists which contains the Otay tarplant, a federal Threatened and state Endangered species. Two other sensitive plants, San Diego sunflower and coast barrel cactus, are also found in this habitat.

NATURAL GAS PIPELINE ROUTES

There are two alternative natural gas pipeline routes (Route 2A and 2B). The preferred route (Route 2A) runs from the southwest corner of the proposed power plant site through disturbed annual grassland habitat and then within the existing Alta Road and Otay Mesa Road rights-of-way. The pipeline will then follow Otay Mesa Road to the west and Harvest Road to the south within the right-of-way and

connect with an existing gas supply. No natural habitat exists along this proposed route.

An alternative natural gas pipeline route (Route 2B) has also been proposed for consideration. Route 2B would traverse natural habitat located along the existing San Diego Gas and Electric 230 kV transmission line route southeast of the proposed project site. This region has a significantly higher number of sensitive species than the preferred Route 2A, described above. This alternative route would exit the proposed power plant site and run south along the existing SDG&E transmission line route towards the Mexican border where it will ultimately connect with an existing natural gas supply pipeline. A variety of habitats including non-native and native grasslands, a variety of scrub habitats, and riparian areas occur along this route. No vernal pools have been found in the area, however mima mound topography and depressions are found along a portion of this alternative route. The scrub communities found along this route include a variety of sensitive plant species including coast barrel cactus, San Diego sunflower, and ashy spike-moss (*Selaginella cinerascens*). In addition, the Otay tarplant, a state and federally listed species, occurs in a grassland area in the eastern portion of the proposed pipeline corridor.

POTABLE WATER SUPPLY PIPELINE

The proposed potable water supply pipeline (Route 3) will run from the southwestern corner of the power plant site through disturbed annual grassland habitat and connect with an existing water supply pipeline located along Alta Road. No sensitive species are found along the potable water supply pipeline route.

IMPACTS

PROJECT SPECIFIC DIRECT AND INDIRECT IMPACTS

In the California Environmental Quality Act Guidelines, direct impacts are defined as those impacts that are directly attributable to the project and occur at the same time and place. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance, but are still reasonably foreseeable and related to the project.

For the OMGP, the project will have direct habitat impacts associated with the construction of the power plant, power plant access road, and wastewater discharge pipeline, which will result in permanent loss of habitat. Construction of the potable water supply pipeline and the gas supply pipeline will result in only temporary habitat impacts.

Reconductoring of the existing Tijuana-Miguel 230 kV transmission line, a potential indirect effect of the proposed project, will result in temporary disturbance to sensitive species habitat. The existing transmission line and associated access roads are owned and maintained by the San Diego Gas & Electric Company (SDG&E). If it is necessary to reconductor the Tijuana-Miguel transmission line for the OMGP, then the reconductoring work will be completed by SDG&E in accordance with the terms and conditions of the SDG&E Subregional Natural Communities Conservation Plan (SDG&E 1995). This plan allows SDG&E to complete maintenance work and certain types of facility expansion with the minimum of regulatory involvement, and be in accordance with the federal and state endangered species acts. The plan requires SDG&E to follow certain construction and maintenance protocols so impacts to state and federally listed and other sensitive species and their habitats are either avoided or minimized.

One potential concern about the SDG&E Subregional Natural Communities Conservation Plan is that it does not currently address the quino checkerspot butterfly since this species was federally listed subsequent to completion of the current (1995) plan. In late 1999, SDG&E filed for an amendment to their plan so that this species will be addressed in a revised conservation plan (Rose, personal communication 2000). Staff does not know when the revised plan will be available.

For a complete accounting of the habitat acreage impacts associated with all portions of the OMGP, refer to the following table, Biological Resources Table 2 (Guldman 2000b).

BIOLOGICAL RESOURCES – Table 2
PROJECT COMPONENT HABITAT ACREAGE IMPACTS

Project Component	Permanent Acreage Impacts	Temporary Acreage Impacts	Impact Totals
Power plant	46.0		46.0
Transmission line reconductoring	0.2	12.3	12.5^
New transmission line loop only	0.2	3.5	1.0*
Gas Line Route 2A (Proposed)		2.1	2.1
Gas Line Route 2B (Alt.)		19.4	19.4
Potable Water Line (Route 3)		2.1	2.1
Wastewater Line 4 (Proposed)		12.0	12.0

Wastewater Line 4A (Alt.)	1.5	14.1	15.6
Access Roads 5 & 5A	3.4	3.4	

^ This temporary acreage impact will be addressed by SDG&E, in accordance with the terms and conditions of their Subregional Natural Communities Conservation Plan (SDG&E 1995), during the reconductoring work SDG&E will complete.

* Construction of the new transmission line loop will result in only 1.0 acre of permanent habitat impacts. The anticipated additional acreage impacts [0.2 acres + 3.5 acres = 3.7 acres (on-site and off-site) – 1.0 (off-site) acres = 2.7 (on-site) acres] associated with the new transmission line are accounted for in the power plant permanent, within fence line, habitat loss calculations.

OXIDES OF NITROGEN (NO_x) EMISSIONS AND POTENTIAL EFFECTS ON OTAY TARPLANT AND THE QUINO CHECKERSPOT BUTTERFLY HABITAT

Occurrences of the Otay tarplant and the quino checkerspot butterfly, both protected species, are known to occur east of the proposed power plant site near the base of the San Ysidro Mountains. The proposed project will produce oxides of nitrogen (NO_x) emissions that will be released into the atmosphere, and the prevailing westerly breezes will deposit a portion of these emissions onto the adjacent hillsides. The principle concern regarding these NO_x depositions is that when they are released into the atmosphere they are converted to nitrates and nitrites that may be absorbed by the soil and associated vegetation and act as a fertilizer. This deposition could change the vegetation composition of the hillside and negatively affect the native species found in the area.

The loamy soil types found on the hillsides east of the proposed power plant are known to be nitrogen poor, so additional nitrogen deposited on the hillsides may promote the growth of aggressive, non-native plants. These non-native plants could compete with the native plant species found in the area and compete with the Otay tarplant for space, water and sunlight. For the quino checkerspot butterfly, the additional nitrogen could encourage the growth of weedy species that could compete with the native plantain (*Plantago erecta*) which the butterfly larvae feeds upon early in its life cycle.

Staff does not have sufficient information to ascertain whether the increased NO_x emissions created by the proposed power plant project has the potential to impact nearby sensitive species habitat. The applicant is completing an analysis of the potential issue, and the results of their analysis and input from staff, USFWS, and CDFG will be incorporated into the Final Staff Assessment.

INDIRECT EFFECTS

In addition to reconductoring the existing 230Kv San Miguel to Tijuana transmission line, there may be additional downstream transmission projects because of interconnecting the OMGP to the local power grid. These downstream transmission projects may have biological resource implications, and will need to be studied when additional information is provided.

CUMULATIVE IMPACTS

The California Environmental Quality Act defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” Cumulative impacts can occur when individually minor but collectively significant projects take place over time.

The issue of whether the proposed project will increase the nitrogen deposition on the adjacent sensitive species habitat is not resolved. However, if after a suitable analysis it is decided that there will be impacts, staff will argue that there will be cumulative impacts to biological resources. However, staff has not drawn any conclusions at this time since the study is not complete.

Direct, indirect, and cumulative impacts to sensitive species and the loss of habitat are critical issues in the San Diego County region since there are many sensitive species known to occur in the area. Consequently, state, federal and county agencies have been working together for years to develop regional and subregional strategies to help minimize sensitive species impacts. The Multiple Species Conservation Program (MSCP) administered by the County of San Diego is the prime example of this regional species

protection strategy. One of the principal strategies to address habitat impacts is to require developers to provide habitat compensation when habitat losses are anticipated for development projects, including energy projects. For the OMGP, the applicant has proposed to provide suitable habitat compensation, in accordance with the MSCP, for the project's temporary and permanent habitat impacts. At this time, it is expected that habitat compensation will occur at a habitat mitigation bank located in the general vicinity of the proposed power plant site.

A definitive statement about whether there will be biological resource cumulative impacts is not possible at this time since the NO_x emission issue is not yet resolved. However, if the applicant agrees to appropriate mitigation, works to minimize impacts to individual sensitive species, and adequately compensates for all temporary and permanent habitat impacts, staff will likely conclude that the project will not have any cumulative impacts.

FACILITY CLOSURE

In the future, the OMGP will experience either a planned closure, or be unexpectedly (either temporarily or permanently) closed. When facility closure occurs, it must be done in such a way as to protect the environment and public health and safety. To address facility closure, an "on-site contingency plan" will be developed by the project owner, and approved by the Energy Commission Compliance Project Manager (CPM) (See General Conditions section in Facility Closure and Biological Resources Condition of Certification **BIO-11**). Facility closure mitigation measures will also be included in the Biological Resources Mitigation Implementation and Monitoring Plan (See Biological Resources Condition of Certification **BIO-9**).

PLANNED OR UNEXPECTED PERMANENT FACILITY CLOSURE

The region surrounding the proposed project site is a mosaic of disturbed and relative undisturbed habitat. The various habitats provide food, cover and other necessary things for the rare and common species found in the region. Consequently, facility closure needs to address habitat restoration measures when a planned or an unexpected permanent facility closure occurs. Habitat restoration measures should address such tasks as the removal of all power plant structures and the immediate implementation of habitat restoration measures to re-establish suitable vegetation on site.

UNEXPECTED TEMPORARY CLOSURE

Staff does not have any biological resource facility closure recommendations to address an unexpected temporary closure of the proposed power plant. However, in the event that the Energy Commission CPM decides that the facility is permanently closed, the above-mentioned permanent facility closure measures need to be given careful consideration.

MITIGATION

OMGC has developed a mitigation strategy that maximizes the avoidance of impacts to sensitive species and their habitats (PG&E 1999a) and compensates for temporary and permanent loss of sensitive species habitats.

HABITAT COMPENSATION

During a workshop held in Chula Vista on February 25, 2000, OMGC indicated that they might provide habitat compensation funds to a habitat mitigation bank managed by the Environmental Land Trust.

Habitat compensation ratios are established by the County of San Diego Multiple Species Conservation Program and the Biological Mitigation Ordinance, and the compensation ratios change depending upon the type of habitat type (i.e. natural community) being impacted. As an example, impacts to Diegan Coastal Sage Scrub require the use of the 1 to 1 compensation ratio, while impacts to Chamise Chaparral require the use of the 0.5 to 1 compensation ratio. See Biological Resources **Table 5**, below.

For the OMGP, the applicant has applied the required compensation ratios to the project's calculated acreage impacts. This resulted in a total acreage amount requiring off-site habitat compensation, as described below.

BIOLOGICAL RESOURCES – Table 3
HABITAT (ACREAGE) IMPACTS CALCULATIONS

Habitat impacts are calculated based upon the following OMGC assumptions - 1) the entire power plant site (46 acres) will be used, 2) Route 2B gas line Route 4A wastewater line will be constructed, and 3) the potable water line will be located in the area disturbed by construction of access roads.

PROJECT COMPONENTS	*Diegan Coastal Sage Scrub*	**- HABITAT TYPES -** *Disturbed Diegan Coastal Sage Scrub*	*Non-native Grassland*	*Chamise Chaparral*
Route 2B gas line	2.3 acres	6.6 acres	1.1 acres	8.0 acres
Route 4A wastewater	0.1 acre	0.3 acre		11.2 acres
Power plant				45.6 acres
T-line loop only				1.0 acre
Routes 3/5/5A, access roads				0.5 acre
SUB - TOTALS	*2.4 acres* +	*6.9 acres* +	*1.1 acres* +	*66.3 acres =*
GRAND TOTAL	***76.7 acres****			

* Total acreage calculation is assumed to be the worst case scenario, i. e. gas line Route 2B, instead of 2A, will be constructed.

Other habitat types will also be impacted, however compensation is not required according to the County of San Diego Multiple Species Conservation Program. Those habitat types not requiring habitat compensation, and the OMGP acreage impacts, are identified in **Table 4**, below:

BIOLOGICAL RESOURCES – Table 4
ACREAGE IMPACTS NOT REQUIRING HABITAT COMPENSATION

HABITAT TYPES	**PROJECT COMPONENT**	**ACREAGE IMPACT**
Tamarisk scrub	Power plant	0.2 acre
Open water	Route 2B gas line	0.5 acre
Disturbed habitat	Power plant/gas line/water lines/access roads/sewer line	6.3 acres
Agriculture	Water lines and access roads	1.6 acres
Urban development	Water lines and access roads	0.1 acre

ACREAGE TOTAL

8.7 acres

Habitat compensation ratios, based upon habitat type, are used to calculate the total amount of habitat compensation. These habitat compensation ratios are established by the County of San Diego Multiple Species Conservation Program and the Biological Mitigation Ordinance, and OMGC has agreed to abide by the following habitat compensation ratios:

BIOLOGICAL RESOURCES – Table 5
HABITAT COMPENSATION RATIOS

HABITAT IMPACTS TO	COMPENSATION RATIOS
Diegan Coastal Sage Scrub	1.0 to 1
Disturbed Diegan Coastal Sage Scrub	1.0 to 1
Chamise Chaparral	0.5 to 1
Non-native grassland	0.5 to 1
Tamarisk scrub	0
Open water	0
Disturbed habitat	0
Agriculture	0
Urban development	0

Applying the compensation ratios to the expected acreage impacts results in the total, habitat (acreage) compensation requirement:

BIOLOGICAL RESOURCES – Table 6
HABITAT COMPENSATION REQUIREMENTS

HABITAT TYPES	ACREAGE IMPACTS	COMPENSATION RATIOS	COMPENSATION REQUIREMENTS
Diegan Coastal Sage Scrub	2.4 acres	1.0 to 1	2.4 acres
Disturbed Diegan Coastal Sage	6.9 acres	1.0 to 1	6.9 acres
Chamise Chaparral	1.1 acres	0.5 to 1	0.55 acre
Non-native grassland	66.3 acres	0.5 to 1	33.15 acres

Total habitat (acreage) compensation requirement = ***43.00 acres***

For more information about the OMGP habitat compensation, see the section entitled **UNRESOLVED ISSUES AND RECOMMENDATIONS** in this staff assessment. For more information about Habitat Compensation, see Biological Resources Condition of Certification **BIO-10**.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)

OMGC must develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to fully disclose, well in advance of any project related ground disturbance activities, the required mitigation measures the project must comply with during project construction and operation, The final BRMIMP will include, but not be restricted to, species impact avoidance

measures, an approved habitat compensation strategy, environmental compliance reporting requirements, pre-activity survey methods, a worker environmental awareness strategy, post-construction clean-up and reclamation, and streambed alteration agreement requirements. The BRMIMP will be developed by OMGC in consultation with Energy Commission staff, the U. S. Fish and Wildlife Service, the California Department of Fish and Game, and the County of San Diego. A draft BRMIMP must be provided as soon as possible so staff can review it prior to the Final Staff Assessment and OMGC can consult the various agencies and address any deficiencies prior to the Evidentiary Hearings.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The proposed project must comply with various state, federal, and county laws, ordinances, regulations, and standards that address state and federally listed species, as well as other sensitive species, and their habitats. Ultimately, the OMGC must build and operate the OMGP in accordance with the terms and conditions provided in a federal Section 7 Biological Opinion to be issued by the USFWS. The Biological Opinion will incorporate mitigation measures identified in the County of San Diego Multiple Species Conservation Program and Biological Mitigation Ordinance.

In addition, the OMGP will need to acquire a “Consistency Determination” from CDFG. CDFG intends (Kim Marsden, personal communication, March 22, 2000) to make certain that the federal Biological Opinion addresses issues CDFG wants addressed in the federal Opinion. If CDFG concludes that the federal Biological Opinion is 1) consistent with the conditions for Incidental Take (per Section 2081(b) of the Fish and Game Code), 2) the mitigation is fully funded, and 3) the effectiveness of the mitigation will be monitored, then CDFG intends to provide the “Consistency Determination” within 30 days after completion of the federal Section 7 Biological Opinion.

UNRESOLVED ISSUES, CONCLUSIONS, AND RECOMMENDATIONS

UNRESOLVED ISSUES

DOWNSTREAM TRANSMISSION PROJECTS

In addition to reconductoring the existing 230Kv San Miguel to Tijuana transmission line, there may be additional downstream transmission projects because of interconnecting the OMGP to the local power grid. These downstream transmission projects may have biological resource implications, and will need to be studied when additional information is provided.

FEDERAL SECTION 7 BIOLOGICAL OPINION AND STATE CONSISTENCY DETERMINATION

OMGC has not yet received a USFWS Biological Opinion and a CDFG Consistency Determination; consequently, OMGC has not received a complete listing of agency mitigation requirement. However, mitigation measures proposed by OMGC in their application (PG&E 1999a) have not been rejected by CDFG and USFWS or the County of San Diego at this time. Consequently, staff expects that when the federal Biological Opinion and state Consistency Determination documents are provided, the required mitigation will be consistent with what OMGC has expected and proposed, and OMGC will implement all required mitigation during project construction and operation.

The USFWS has indicated that the federal Biological Opinion may be available by the summer of 2000, and CDFG has indicated that the state Consistency Determination may be provided within 30 days of the release of the federal Opinion.

QUINO CHECKERSPOT BUTTERFLY AND OTAY TARPLANT

The applicant is completing an analysis of the potential impacts the project's air emissions may have on these two federally listed species and their habitat. However, the analysis has not been completed, and preliminary results have not been provided or discussed, so this issue is currently unresolved. This issue will need to be fully addressed in staff's Final Staff Assessment.

DRAFT BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

OMGC has not provided a draft Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). Prior to the hearings, staff will need to review a draft BRMIMP and provide comments to OMGC. The USFWS, CDFG, and the County of San Diego will also need to provide comments on the draft plan. Once these agency comments are satisfactorily addressed, staff will be better able to draw conclusions about the acceptability of OMGC's overall mitigation and monitoring implementation plan. See Condition of Certification **BIO-9** for a more complete identification of what must be included in the final OMGC BRMIMP.

Staff has been informed (Guldman, personal communication 2000) that the applicant is currently working on the project's Biological Assessment that is required by the U. S. Fish and Wildlife Service for the Section 7 consultation and Biological Opinion. Once the Biological Assessment is provided, the applicant intends to begin work on the draft BRMIMP. At this

time, staff is uncertain when the draft BRMIMP will be provided.

HABITAT COMPENSATION STRATEGY

Staff has not received a complete explanation of the OMGP habitat compensation strategy. Specific information about the overall strategy must be provided so its acceptability can be determined by the USFWS, CDFG, Energy Commission, and the County of San Diego. The final compensation strategy must be discussed in the Final Staff Assessment.

Staff has been informed (Guldman personal communication 2000a) that OMGC is considering providing habitat compensation funds to a local habitat conservation mitigation bank operated by Environmental Land Solutions. If a working relationship is established between OMGC and Environmental Land Solutions, the compensation habitat and the associated endowment will ultimately be managed by Environmental Land Trust. Environmental Land Solutions has informed OMGC that the complete price per acre is $7,150 including endowment funds. If the project needs to compensate for 43.0 acres of habitat impacts (see previous discussion of acreage impacts and required compensation), and the project owner establishes a working relationship with Environmental Land Solutions, then OMGC will need to provide approximately $307,450 to Environmental Land Solutions.

Compensation funds will need to be provided to whomever is selected by OMGC to receive the funds, and the Energy Commission must receive confirmation that the fund transfer has occurred, prior to any project related ground disturbance activities. The habitat compensation strategy will need to be included in the OMGP BRMIMP. See Condition of Certification **BIO-9** for more information about the BRMIMP and **BIO-10** for more information regarding habitat compensation.

CONCLUSIONS

Several issues are currently unresolved, and quite a bit of information has not been provided by OMGC, so staff can not make a recommendation regarding whether or not this project should be permitted. Once the unresolved issues are adequately addressed, staff will be better able to conclude whether the proposed project will be in compliance with all laws, ordinances, regulations, and standards and whether project approval is recommended.

RECOMMENDATIONS

To make certain that the OMGP is in compliance with all laws, ordinances, regulations, and standards during project construction

and operation, staff recommends that the Energy Commission adopt the following Biological Resources Conditions of Certification.

CONDITIONS OF CERTIFICATION

The following Biological Resources Conditions of Certification are proposed by staff.

OMGP MITIGATION

BIO-1 The project owner will implement the mitigation measures identified in Section 5.6.3.1 (Mitigation Measures) of the AFC (PG&E 1999a). These mitigation measures will be incorporated into the OMGP's Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) unless it conflicts with mitigation required by the USFWS, CDFG and the County of San Diego. If there is a conflict between the draft BRMIMP and the federal and/or state conditions, then the federal and/or state conditions will supercede those found in the draft BRMIMP. For more information about the mitigation implementation and monitoring plan, see Condition of Certification **BIO–9** below.

Protocol:

1. Pre-construction, in-season surveys for sensitive biological resources will be performed at construction areas to identify sensitive resources and to develop a plan for avoiding impacts on sensitive resources to the extent feasible. Takings of Federal or State-listed Threatened or Endangered species will be avoided or will be consistent with appropriate permits and approvals.

2. Monitors will be provided during construction to educate construction contractors of sensitive biological resource issues and areas intended for avoidance. Sensitive resources near construction areas will be identified and clearly marked for avoidance.

3. Temporary construction disturbance areas will be allowed to naturally revegetate with pre-disturbance species. Grades and soil surfaces will be maintained to support this type of natural revegetation.

4. Best management practices for pipeline construction will be implemented to ensure that movement of groundwater from upland habitats to seep areas in the drainage within Johnson Canyon is not permanently disrupted. This may include features such as impermeable trench breakers placed at the downstream ends of sections of groundwater seep activity to prevent capture of the seep and downstream underground movement of groundwater along the wastewater discharge pipeline. A monitoring program will be implemented after construction to determine if measures have been

adequate and to implement corrective measures, if necessary, to restore the groundwater seeps to pre-construction conditions.

Verification: At least 60 days prior to the start of any project related ground disturbance activities, the project owner shall provide the Energy Commission Compliance Project Manager (CPM) with the final BRMIMP for the OMGP, and the CPM will determine the plan's acceptability within 15 days of receipt of the plan. Implementation of the above measures, or their replacement(s) based upon the federal Biological Opinion and/or the CDFG Consistency Determination, will be included in the final BRMIMP.

DESIGNATED BIOLOGIST

BIO-2 Construction site and/or ancillary facilities preparation (described as any ground disturbing activity other than Energy Commission approved geotechnical work) shall not begin until an Energy Commission CPM approved Designated Biologist is available to be on site.

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

1. A Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;

2. At least three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;

3. At least one year of field experience with biological resources found in or near the project area; and

4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new biologist is on site.

Verification: At least 90 days prior to the start of any ground disturbance activities, the project owner shall submit to the CPM for approval, the name, qualifications, address and telephone number

of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement, as specified in the condition, must be submitted in writing at least ten working days prior to the termination or release of the preceding Designated Biologist.

BIO-3 The CPM approved Designated Biologist shall perform the following during project construction and operation:

1. Advise the project owner's Construction Manager on the implementation of the Biological Resource Conditions of Certification;

2. Supervise or conduct mitigation, monitoring and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as, wetlands and special status species; and

3. Notify the project owner and the CPM of non-compliance with any Biological Resources Condition of Certification.

Verification: During project construction, the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

BIO-4 The project owner's Construction Manager shall act on the advice of the Designated Biologist to ensure conformance with the Biological Resources Conditions of Certification.

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

The Designated Biologist shall:

1. Inform the project owner and the Construction Manager when to resume construction, and

2. Advise the Energy Commission CPM if any corrective actions are needed or have been instituted.

Verification: Within two (2) working days of a Designated Biologist notification of non-compliance with a Biological Resources Condition of Certification or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project

owner, a determination of success or failure will be made by the CPM within five (5) working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-5 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about the sensitive biological resources associated with the project area.

Protocol: The Worker Environmental Awareness Program must:

1. Be developed by the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;

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

3. Present the reasons for protecting these resources;

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

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

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

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

Verification: At least 60 days prior to the start of rough grading, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and

made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for six (6) months after their termination.

U. S. FISH & WILDLIFE SERVICE SECTION 7 BIOLOGICAL OPINION

BIO-6 Prior to the start of any ground disturbance activities, the project owner shall provide the CPM with a final copy of the OMGP Section 7 Biological Opinion in accordance with the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service.

Verification: At least 60 days prior to the start of any project related ground disturbance activities the project owner shall submit to the CPM a copy of the federal Section 7 Biological Opinion. The OMGP Section 7 Biological Opinion terms and conditions will be incorporated into the final BRMIMP and implemented during project construction and operation. For more information about the BRMIMP, see Condition of Certification **BIO-9**.

CALIFORNIA DEPARTMENT OF FISH AND GAME CONSISTENCY DETERMINATION

BIO-7 OMGC shall provide a copy of the California Department of Fish and Game's (CDFG) Consistency Determination for the OMGP.

Verification: At least 60 days prior to the start of any project related ground disturbance activities the project owner shall submit a copy of the CDFG Consistency Determination to the CPM. The CDFG Consistency Determination terms and conditions will be incorporated into the final BRMIMP. For more information about the BRMIMP, see Condition of Certification **BIO-9**.

CALIFORNIA DEPARTMENT OF FISH AND GAME STREAMBED ALTERATION AGREEMENT

BIO-8 The applicant will acquire and implement the terms and conditions of a California Department of Fish and Game Streambed Alteration Agreement.

Verification: At least 60 days prior to the start of any project-related ground disturbance activities, the applicant will provide the CPM with a copy of the final CDFG Streambed Alteration Agreement. The terms and conditions of the agreement will be incorporated into the project's BRMIMP. For more information regarding the BRMIMP, see Condition of Certification **BIO-9**.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-9 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and shall

implement the measures identified in the plan. Any changes made to the adopted BRMIMP must be made in consultation with the CEC as well as with the U. S. Fish and Wildlife Service, the California Department of Fish and Game, and the County of San Diego.

Protocol: The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance conditions included in the Commission's Final Decision;

2. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;

3. All mitigation measures provided in the USFWS Section 7 Biological Opinion, County of San Diego Multiple Species Conservation Program/Biological Mitigation Ordinance, and the CDFG Consistency Determination;

4. All required mitigation measures/avoidance strategies for each sensitive biological resource;

5. Required habitat compensation strategy, including provisions for acquisition, enhancement and management, for any temporary and permanent loss of sensitive biological resources;

6. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;

7. Aerial photographs of all areas to be disturbed during project construction activities - one set prior to site disturbance and one set after completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;

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

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

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

11. A discussion of biological resource-related facility closure measures;

12. A process for proposing plan modifications to the Energy Commission CPM and appropriate agencies for review and approval; and

13. Terms and conditions of a CDFG Streambed Alteration Agreement.

Verification: At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of the BRMIMP, and the CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved BRMIMP must be made only after consultation with CEC, USFWS, CDFG, and the County of San Diego. The project owner shall notify the CPM five (5) working days before implementing any CPM approved modifications to the BRMIMP.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.

HABITAT COMPENSATION

BIO-10 To compensate for temporary and permanent impacts to sensitive species habitat, the project owner will implement a habitat compensation strategy that guarantees the perpetual care of off-site habitat in the region of the proposed project.

Verification: At least 60 days prior to the start of any project related ground disturbance the project owner will provide written verification to the CEC CPM that all habitat compensation purchases have been completed. At the same time, written verification must also be provided that shows that the associated endowment and any other associated costs related to the habitat compensation have also been provided.

Within 90 days after completion of project construction, the project owner shall provide the CPM aerial photographs taken after construction and an analysis of the amount of any additional habitat disturbance than that identified in this staff assessment. The CPM will notify the project owner of any additional funds required to compensate for any additional habitat disturbances at the adjusted market value at the time of construction to acquire and manage habitat.

FACILITY CLOSURE

BIO-11 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. The biological resource facility closure measures will also be incorporated into the OMGC project BRMIMP. (See Condition of Certification **BIO-9**, above)

Protocol: The planned permanent or unexpected permanent closure plan will require the following biological resource-related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all power plant site facilities; and

3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species.

Verification: At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

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SOIL AND WATER RESOURCES

Lorraine White

INTRODUCTION

This section of staff's Preliminary Staff Assessment (PSA) analyzes potential effects on soil and water resources by the Otay Mesa Generating Project (OMGP), specifically focusing on the potential for the project to induce erosion and sedimentation, adversely affect surface and groundwater supplies, and degrade surface and groundwater quality. This preliminary assessment also addresses the project's ability to comply with all applicable federal, state and local laws, ordinances, regulations and standards, identifies mitigation measures and recommends conditions of certification.

Flooding and drainage issues are addressed in the **Facility Design** section of this PSA.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

CLEAN WATER ACT

The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Stormwater discharges during construction and operation of a facility, and incidental non-stormwater discharges associated with pipeline construction also fall under this act, and are addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point source discharges and stormwater discharges are delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB). Section 404 of the act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. Site specific or general (nationwide) permits for such discharges are issued by the Army Corp of Engineers (ACOE) and are certified by the Regional Water Quality Control Boards. As proposed, a number of ephemeral drainages that may be considered waters of the United States may be crossed by linear facilities of the OMGP.

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 Water Quality Control Plan for the San Diego Basin (1994). 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 and Title 27, California Code of Regulations. These regulations require that the RWQCB issue a Waste Discharge Requirement that specifies conditions regarding the construction, operation, monitoring and closure of the waste disposal site.

Under provisions of the Clean Water Act, the SWRCB adopted two general National Pollutant Discharge Elimination System (NPDES) Permits for control of stormwater runoff during construction and operation of industrial facilities, such as a power plant and associated facilities.

Ground disturbance activities affecting greater than five acres are required, under the General Construction Activity Storm Water Permit, to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). This plan identifies best management practices to reduce sediment, oil and other contaminants in stormwater discharges from the site. The general NPDES permit for Industrial Activities also requires industrial facilities, such as power plants, to prepare and implement a SWPPP that identifies best management practices to reduce the discharge of contaminants from facility operation in stormwater discharge.

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB which addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (adopted by SWRCB on June 19, 1976 by Resolution 75-58). This policy states that use of fresh inland waters should only be used for powerplant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should, in order of priority come from wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This

policy goes on to address cooling water discharge prohibitions.

Section 13551 of the Water Code prohibits the use of "…water from any source of quality suitable for potable domestic use for nonpotable uses, including …industrial… uses, if suitable recycled water is available…" given conditions set forth in section 13550. These conditions take into account the quality and cost of the water, the potential for public health impacts and the effects on downstream water rights, beneficial uses and biological resources.

401 WATER QUALITY CERTIFICATION

Section 401 of the Clean Water Act provides for state certification that federal permits allowing discharge of dredged or fill material into waters of the United States will not violate federal and state water quality standards. For the OMGP, a number of the proposed linear facilities cross ephemeral drainages that may be considered waters of the United States. The San Diego RWQCB will issue the 401 certification for this project.

LOCAL

East Otay Mesa Specific Plan

- **Policy PF-5** sets the County's policy and specifies implementation for a reclaimed water distribution system that will facilitate the use of reclaimed water for landscape irrigation, toilet flushing and processing water.
- **Policy PF-6** establishes the Storm Water Drainage Policy and describes implementation.

San Diego County Zoning and Land Use Regulations, Division 7 sets forth grading requirements, and the County's Procedure Manual for the Preparation and Checking of Street Improvements and Grading Plans specifies grading and drainage system criteria (San Diego County 1994c).

Otay Water District Code of Ordinances, Section 26 - Water Reclamation Plan and Implementation Procedures includes provisions for mandating the installation of reclaimed water distribution systems or other facilities in new development if future reclamation facilities are proposed in the Reclamation Master Plan.

ENVIRONMENTAL SETTING

SITE DESCRIPTION

Otay Mesa Generating Company, LLC (OMGC) proposes to locate the Otay Mesa Generating Project (OMGP) in the Otay Mesa area in western San Diego County. The site for the 510 megawatt

(MW), natural gas-fired combined cycle power plant is about 15 miles southeast of San Diego, California, and about 1.5 miles north of the United States/Mexico border. The 46-acre site consists of a 15-acre power block footprint and a 3-acre construction laydown area.

Otay Mesa is a coastal terrace situated along the eastern edge of the coastal plain subprovince at the base of the San Ysidro Mountains. This subprovince is within the Peninsular Ranges Physiographic Province that extends from the Traverse Ranges of Southern California well into the Baja California peninsula. This region is typified by gently to strongly sloping coastal plains bordered on the north and east by steeply sloping hills. Elevations of Otay Mesa range from approximately 600 to 700 feet above mean sea level. At the plant site, elevations range from 625 feet to 708 feet above mean sea level. The region enjoys a long growing season and there is a history of cultivation and agricultural production in the area (PG&E 1999a, pg. 5.4-1).

Major water bodies in the vicinity of the project include the Otay Lakes and the Sweetwater Reservoir. San Diego Bay is approximately 11 miles to the west. Lower Otay Reservior, located approximately 3 miles north of the power plant site and just east of the proposed Route 1 (transmission line reconductoring), is primarily used for water supply and recreation. When full, it occupies 1,100 surface acres with a maximum depth of 137 feet (City 2000a; San Diego RWQCB 1994). Upper Otay Lake, a much smaller lake occupying only 26 acres, is primarily for water supply and a natural hatchery (sdfish.com 2000; San Diego RWQCB 1994). Sweetwater Reservoir is located 4,000 feet north of the San Miguel Substation, the termination point of Route 1 (P&GE 1999a, Figure 3.2-1).

Ephemeral drainages dissect the hills and plains throughout the area. Closer to the power plant site, two drainage channels are present. One drains from the San Ysidro Mountains and passes just to the north of the plant site (flow is an east to west direction). It forms the headwaters to Johnson Canyon and is approximately one foot wide near the plant site. The second is an intermittent drainage channel approximately one foot wide that crosses the southeast portion of the 46-acre property (outside the plant footprint) and drains to the south (PG&E 1999a, pg. 5.4-2, 5.5-2).

Located in a semi-arid region with hot, dry summers, temperatures range from approximately 30 to 110 degrees F with an annual average of 62 degrees F. Rainfall in the area of OMGP is infrequent averaging 11 inches a year. Average monthly evaporation rates in the project vicinity are approximately 53 inches per year. The National Weather Service identified the 50-year

recurrence, 24-hour duration storm event to be 3.45 inches of rain. Based on average rainfall data obtained from San Diego County, 90 percent of the precipitation in the area occurs November through April. Maximum wind gusts recorded in the area are 64 mph (PG&E 1999a, page 5.5-2&3, B-9&10).

Groundwater bodies in the San Diego region tend to be small and shallow. Designated beneficial uses of the groundwater resources of the Otay Valley can include municipal supplies, agricultural, and industrial service (San Diego RWQCB 1994). According to the applicant, however, groundwater within the vicinity of the project is not used for any of these purposes because of poor quality (PG&E 1999a). With low precipitation and high evaporation rates, rainfall provides little groundwater recharge in the area. Groundwater was not encountered in any of the borings conducted by the applicant (the deepest was to 81.5 feet) and is expected to be 100 - 150 feet below the surface. To the west of the plant site, there is some minor expression of groundwater downstream in Johnson Creek (PG&E 1999a).

Soils in the project area are predominantly clay loams in texture. At the proposed plant site, two soil mapping units are present. Approximately 29 acres of the site's 46 acres are Diablo Clay which is characterized as well-drained, moderately deep to deep clays derived from soft calcareous sandstone shale that has a low permeability and high shrink-swell potential. Slopes for this soil mapping unit range from 2 to 9 percent. Water erosion potential for this soil is slight to moderate and wind erosion potential is low. Included in this portion of the site are the water supply line and the access road. The remaining 17 acres are Huerhuero loam containing moderately well drained loams with a clay subsoil. These areas are strongly sloping with 9 to 15 percent slopes. This soil has very low permeability, high shrink-swell potential, moderate water erosion potential and low wind erosion potential. Vegetation at the site tends to be non-native grasses with some scattered native plants (PG&E 1999a pg. 5.4-1 &2).

Along the linear routes, numerous soil mapping units are encountered. Seventeen different soil mapping units are found along the proposed reconductoring route (9.15 mile Route 1). Water erosion potential for these soils is generally moderate (Diablo Clay and Olivehain Cobbly Loam) with areas of high (Huerhuero Loam), while the wind erosion potential is mostly low. Along this route, there are areas of steep slopes and soils of high erosion susceptibility (Huerhuero Loam and San Miguel-Exchequer Rocky Silt Loams). The route for the proposed wastewater discharge line (Route 4) consists almost entirely of Diablo Clay with only a small area of Linne Clay Loam. The Diablo Clay along this route has moderate water erosion potential, low wind erosion

potential, slow permeability and high shrink-swell potential. The Linne Clay Loam has moderate water erosion potential, low wind erosion potential, moderately slow permeability and moderate shrink-swell potential.

There are two proposed natural gas pipeline routes. Route 2A is almost entirely Diablo Clays with small areas of Salinas Clay. The Diablo Clay and Salinas Clay have similar charateristics: moderate water erosion potential, low wind erosion potential, slow permeability and high shrink-swell potential. Along Route 2B, four different soil mapping units are found, predominately San Miguel-Exchequer Rocky Silt Loam. These clays and loams have high water erosion potential. Wind erosion potential is low and the shrink-swell potential is high.

For a complete description of soil mapping units for the OMGP, please refer to Map 5.4-1 and Tables 5.4-1 and 5.4-2 in the Application for Certification (AFC) (PG&E 1999a).

OTAY WATER DISTRICT

Water will be supplied to the OMGP by the Otay Water District (OWD). OWD is a revenue neutral public agency with a service territory approximately 129 square miles (85,000 acres) in southeastern San Diego County. It serves approximately 115,000 people, residing in the communities of El Cajon, La Mesa, Rancho San Diego, Jamul, Spring Valley, Bonita, eastern Chula Vista and the Otay Mesa area. The district also has approximately 33,557 connections for industrial and agricultural users. In 1998-99, OWD delivered over 24,000 acre feet (8.0 billion gallons) of water to its customers. Current water storage facilities owned and operated by OWD can hold 174.8 million gallons when full (OWD 2000).

OWD is a water purveyor that obtains its water supply through six connections to the San Diego County Water Authority (Authority), which in turn purchases their water from the Metropolitan Water District of Southern California (MWD). MWD is a consortium of 27 cities and districts in Southern California that imports water into the region. Historically, 70 percent of MWD's imports are Colorado River water obtained via the Colorado River Aqueduct. State Water Project resources make up the remaining 30 percent and is obtained via the California Aqueduct. The Authority obtains nearly 85 percent of their water resources from MWD and supplies it to its 23 member agencies throughout San Diego County, including OWD. In 1999, the Authority provided more than 619,400 acre feet of water (466,884 acre feet of imported and 152,525 acre feet of local resources) and by 2015, the Authority expects demand to exceed 787,000 acre feet. Through a recent agreement, the Authority will obtain up to an additional 200,000 acre-feet of newly

conserved irrigation water from Imperial Irrigation District by 2009, reducing its dependency on MWD (SDCWA 2000; SDCWA 1997).

Under current arrangements, water is delivered by the Authority to member agencies on an annual basis (no long-term contracts). Otay Water District is entirely dependent on imported water obtained by the Authority through MWD because of their lack of groundwater resources or impounded reservoirs.

OWD also owns and operates a reclaimed water system. Approximately 1.3 million gallons of reclaimed water is produced daily at the Ralph W. Chapman Water Recycling Facility and transported to eastern Chula Vista. Current use of this reclaimed water is primarily irrigation (OWD 2000). Currently, OWD is in negotiations with the City of San Diego for additional supplies of reclaimed water upon completion of the South Bay Water Reclamation Plant anticipated in 2001 (CEC 2000h). The East Otay Mesa Specific Plan includes descriptions of the dual main infrastructure needed to supply reclaimed water to the Otay Mesa area (San Diego County 1994a, 1994b). In particular, a 20 inch reclaimed water main is planned to be installed in Alta Road adjacent to the proposed power plant, as part of the dual main system.

WASTEWATER TREATMENT

Currently, no wastewater facilities exist in East Otay Mesa. Wastewater in the region is the responsibility of the San Diego Metropolitan Wastewater Department that operates and maintains reclamation and treatment facilities, pump stations, and miles of pipelines. The County of San Diego purchased 1.0 million gallons a day capacity in the San Diego Metropolitan (Metro) Sewage System until other infrastructure can be developed to serve East Otay Mesa (San Diego County 1994a, CSD 1999a). Wastewater generated at the OMGP will be discharged to an existing Metro sewer line located in Johnson Canyon approximately 2 miles west of the proposed power plant. The Metro system delivers raw sewage to the 40-acre Point Loma Wastewater Treatment Plant that treats approximately 190 mgd from 450 square miles. Maximum treatment capacity is 240 mgd (CEC 2000l, City 2000b). Wastewater receives advanced primary treatment at the facility prior to discharge to the Pacific Ocean.

ENVIRONMENTAL IMPACTS

PROJECT SPECIFIC IMPACTS

The OMGP will use dry cooling technology, while 385 acre-feet per year of process water for steam generation and potable water for domestic needs will be supplied by the Otay Water District (OWD) via a 0.2-mile pipeline connection. Wastewater from the plant will be transported to the San Diego Metropolitan (Metro) sewer system from the plant, via a new 2-mile pipeline that will connect to an

existing line in Johnson Canyon (two routes are being considered). Two short access roads will be constructed from the Otay Mesa site to Alta Road. OMGC will construct either a 2-mile natural gas pipeline to connect the project with SDG&E Pipeline 2000 Project (currently under construction) or a 1.6-mile pipeline to connect into SDG&E's metering station at the U.S/Mexican Border. To serve the project, a 0.1-mile 230kV transmission line to interconnect into the existing transmission system and possibly the reconductoring of approximately nine miles of the Miguel-Tijuana 230kV line (PG&E 1999a, PG&E 1999c, OMGC 2000h).

EROSION AND SEDIMENTATION

Accelerated wind and water induced erosion may result from earth moving activities associated with construction of the proposed project. Removal of the vegetative cover and alteration of the soil structure leaves soil particles vulnerable to detachment and removal by wind or water. Construction and maintenance-related erosion is of particular concern in areas of steep slopes and sandy soils. Increasing the amount of impervious surfaces will increase the amount of runoff and peak discharges from a development. Typical of an arid environment, rainfall in the Otay Mesa area is infrequent, but at times intense which greatly enhances the potential for water erosion. Grading activities may redirect runoff into areas more vulnerable to erosion. Areas where linear facilities cross drainages or steep sloped terrain are also vulnerable to erosion.

Soils that will be affected by the proposed project range in susceptibility to water erosion from moderate to high and have low wind erosion potential (PG&E 1999a). Once the protective cover of vegetation is removed and the structure of the surface soil has been altered, however, all of these soils can be highly vulnerable to erosion. Soils and Water Resources Table 1 shows the estimated permanent and temporary disturbances resulting from construction and operation of the project (OMGC 2000d, Data Response #44; OMGC 2000h).

SOIL & WATER RESOURCES Table 1
Estimated Land Disturbance

Project Component	Construction (acres)	Operation (acres)
Generating Plant	18	15
T- Line (Rte 1)		
new tower sites	1.4	0.01
pull sites	12	--
NG Pipeline (Rte 2A)	2.4	1.2
(Rte 2B)	19.4	9.7
Water Supply Line* (Rte 3)	--	--
Wastewater Discharge Line (Rte 4)	12.12	6.06
(Rte 4A)**	8.2	1.9
Northern Access Road (Rte 5)	1.82	1.82
Southern Access Road (Rte 5A)**	--	--

*The potable water supply line is proposed to be built in the same right of way as the natural gas pipeline and therefore is already accounted for in the figures for in Route 2A.

**A portion of Route 4A and Route 5A share the right of way with the potable water line and the natural gas pipeline and, therefore, is already accounted for in Route 2A.

Source: PG&E 1999a, Table 3.8-5; OMGC 2000d. Table 1; OMGC 2000h, Table 3.8-5

Site preparation will include excavation, grading, removal of vegetation and storage and disposal of various materials. The site will be cut and filled to provide a level area for the power plant at an elevation of 663 feet above mean sea level. Vegetation and topsoil from the power plant site will be removed and disposed. Approximately 411,000 cubic yards of material will be excavated from portions of the site and 315,000 cubic yards will be compacted in other portions of the site to achieve the finished grade. OMGC does not expect to import soils to the site. Excess cut materials may be removed or used as fill along the alternate wastewater discharge line (Route 4A) if chosen. Material unsuitable for compaction or contaminated materials will be disposed of in compliance with applicable requirements. Material to be used for compaction will be stockpiled. Some vegetation removal and earth moving activities will likely be needed for the 3-acre laydown area. Slopes for embankments will be 2:1 (horizontal:vertical). Surface materials to be used at the site will include concrete, asphalt and or gravel. Graded surfaces will have a mild slope resulting in surface runoff flowing toward the southwest of the site to the detention pond (PG&E 1999a; OMGC 2000d, Data Response #44; OMGC 2000h).

New temporary and permanent disturbances will occur as a result of constructing and operating the new linear facilities

(see Soil and Water Resources Table 1). Connecting the site to Alta Road, the two access roads will be cleared and graded. The roads will be approximately 30 feet wide on a 40 foot base of a 100 foot easement and be covered with an asphalt/concrete mix.

Water will be delivered to the power plant by OWD via a new 0.2-mile connection to OWD's 24-inch water supply main located in Alta Road. The new supply line will be buried with approximately 42 inches of cover (PG&E 1999a). No drainages will be crossed along this route. In the AFC, OMGC proposed a new 18-inch diameter wastewater pipeline be constructed with a minimum of 36 inches of cover that traverses hilly, naturally vegetated terrain mostly along the floor of Johnson Canyon. An alternate route was suggested by the County of San Diego (CSD 1999b). This route places the waste discharge line within the planned Lone Star Road extension and is consistent with the County's Otay Mesa Specific Plan (CSD 1999b, CSD 1999c, Otay Mesa Specific Plan). Only rough grading for the construction of Lone Star Road will be required if this route is chosen. The applicant has included this route in the March Supplement to the AFC (OMGC 2000h). Both of these routes traverse undeveloped lands. Soil disturbance associated with construction and maintenance of either of these wastewater discharge pipelines is expected to be significant because of the topography and erosion potential of the soils along these routes.

Two new short lines will be needed to interconnect the OMGP switchyard to the Miguel-Tijuana line route. It is possible that OMGC will be required to reconductor approximately 9 miles of the Miguel-Tijuana transmission line to the east of the power plant. As proposed by the applicant, existing access trails will be used to install these lines. Construction of the new towers is expected to result in land disturbance of approximately 1.4 acres. Tension and pull sites for the reconductoring will result in the disturbance of approximately 12 acres. The existing right-of-way is adequate for these activities (PG&E 1999a, pg. 3.6-3). Only a small amount of land (0.01 acres) will be permanently developed for the six tubular poles needed for the new transmission line segment between the plant and the existing line (PG&E 1999a; OMGC 2000d; OMGC 2000h).

Construction of the 2-mile natural gas supply line, Route 2A, will require a trench 32 inches wide and 62 inches deep crossing approximately 0.2 miles of undeveloped land and then traveling in existing roadways the remainder of the

length to the SDG&E Harvest Regulator Station. The 1.6-mile alternative Route 2B will require a similar trench and travel 0.1 miles parallel to the proposed interconnection to the existing transmission system. At this point it will then travel south parallel to the existing Miguel-Tijuana Line terminating at SDG&E's border metering station along hilly, undeveloped lands.

During project operation, wind and water action can continue to erode unprotected surfaces. An increase in the amount of impervious surfaces can increase runoff, leading to the erosion of unprotected surfaces. OMGC has provided a draft Erosion Control and Stormwater Management Plan that identifies potential temporary and permanent erosion and stormwater runoff control measures (OMGC 2000d, Data Response 44). This plan is discussed further under the proposed mitigation presented below.

Linear facilities being constructed for the proposed OMGP will cross several intermittent drainages. Route 2B (natural gas pipeline) crosses two ephemeral channels, while the applicant's proposed route for the wastewater discharge line will run parallel to and north of the creekbed of Johnson Canyon (PG&E 1999a). These drainages are considered under the Clean Water Act as waters of the United States. At this time OMGC is continuing their discussions with the U.S. Army Corp of Engineers regarding the Nationwide 404 permitting and with the RWQCB regarding the 401 Certification. At this time, no applications have been submitted to the Commission for staff's review.

In addition, a Streambed Alteration Agreement will be required from the California Department of Fish and Game. These permits and their requirements are discussed in more detail in the **BIOLOGICAL RESOURCES** Section of this PSA and will be discussed further in the Final Staff Assessment (FSA).

WATER SUPPLY

Approximately 385-acre feet of water will be needed annually for the proposed OMGP. This annual average estimate is based on an assumed capacity factor of 93 percent and includes assumptions for 1,800-hours peak operation per year for steam injection for power augmentation (PG&E 1999a, page 3.4-8). Daily water supply requirements are estimated at an average of 370,000 gallons per day (gpd) at 60 degrees F and 705,000 gpd at 85 degrees F (PG&E 1999a; OMGC 2000h, Table 3.4-1).

OWD will supply OMGP with potable water "provided that regional water supplies are met by the San Diego Water Authority and the Metropolitan Water District" (PG&E 1999a, page 3.4-9 &10, pg. 5.5-2, OWD 1999a). Project water-related needs include make-up water to the steam turbine, fire service water, service water and treatment system. OWD has also clarified that they will not provide potable water for all project-related water needs. Recycled water will be used for irrigation purposes. If possible, OWD wants the applicant to consider the use of recycled water for process water needs as well (OWD 1999b). OMGC has identified no backup water supply (PG&E 1999a, page 3.1-2). Water storage on site will consist of demineralized water storage tank (800,000 gallons) and a fire/service water (450,000 gallons) water storage tank (PG&E 1999a, pg. 3.4-10 & 3.5-2).

Historically, OWD has received most, if not all, the water it has requested annually from the Authority. However, because additional water supply options for MWD are limited, the Authority is securing additional water supplies in the region to meet growing demand and lessen its dependence on MWD. According to OWD, "(t)he Otay Mesa Generating Project's annual demand represents about one percent of the District's current supply (25,000 AFY) and, as such, represents an insignificant increase in demand on OWD supplies…" (OWD 1999a). Staff concurs with this determination and that the additional water requirements for the OMGP would not pose an adverse effect to other OWD customers. Staff has also confirmed with City of San Diego representatives that adequate capacity exists in the Metro sewage system and at Point Loma Treatment Facility to accommodate the discharge of the facility (maximum waste discharge of 0.2 mgd). Currently the plant treats about 180-190 mgd and has a maximum capacity of 240 mgd (CEC 2000l).

WATER QUALITY

Incorrect disposal of wastewater or inadvertent chemical spills can degrade soil, surface water and groundwater. OMPG proposes to dispose of their wastewater discharge to an existing Metro sewer main in Johnson Canyon approximately 2 miles west from the site that eventually travels to the Point Loma Wastewater Treatment Plant.

Liquid waste from OMGP to be discharged to the Metro sewer system includes sanitary wastes, demineralization wastes from the reverse osmosis system and carbon filter, HRSG blowdown, CTG Evaporative Cooler blowdown,

equipment drains and streams directed to the oil-water separator. An oil-water separator will be used for water collected from some equipment and plant drains as well as stormwater runoff from portions of the project where oil and grease may be present. OMGC estimated wastewater flows to the Metro sewer system are shown in SOIL & WATER RESOURCES Table 2.

SOIL & WATER RESOURCES Table 2
Estimated Wastewater Volumes

Waste Stream	Daily Average (gal/day)	Daily Maximum (gal/day)
CTG Evaporative Cooler Blowdown	6,000	6,000
Carbon Filter Backwash/ RO Reject	62,000	126,000
Steam Cycle Drains	38,000	38,000
Oil/Water Separator Wastes	22,000	22,000
Sanitary Wastes	3,000	3,000
Total Discharge to Metro	131,000 (91 gpm)	195,000 (135 gpm)

Source: OMGC 1999a; OMGC 2000h, Table 3.4-4A

The applicant will be required to obtain an Industrial Users Wastewater Discharge Permit from the City of San Diego prior to discharging the effluent to the Metro system. In staff's December 3, 1999 data request, the applicant was asked to submit a copy of their permit to staff. The applicant has yet to submit such material. Until staff has had the opportunity to analyze this information and discuss this material with the City of San Diego, staff is unable to determine if the project will result in any impacts or comply with local requirements. Staff has confirmed with city representatives that ample capacity exists in the Metro system and at the Point Loma Treatment Facility to receive the expected volume of discharge from the OMGP (CEC 2000k, CEC 2000l).

SOIL AND WATER RESOURCES Table 3 shows the anticipated characteristics of the wastewater streams.

SOIL & WATER RESOURCES Table 3
Estimated Wastewater Characteristics*

Constituent	Combined Waste (mg/L)
Calcium	90
Magnesium	36
Sodium	120
Potassium	6
BOD5	17
Alkalinity (CaCO3)	225
Sulfate	283
Chloride	115
Fluoride	0.3
Ammonia	3
Nitrate	0.3
Phosphate	0.3
Chemical Oxygen Demand	10
Boron	0.7
Silica	21
Total Dissolved Solids	<1
Total Suspended Solids	263
Oil & Grease	897**
PH	7.5-8.5

Source: OMGC 1999a, Table 3.4-3
*These figures were not updated by the applicant in the March 2000 AFC Supplement.
** This concentration exceeds local limit of 500 mg/l.

CUMULATIVE IMPACTS

Temporary and permanent disturbance associated with construction of the proposed project will cause accelerated wind and water induced erosion. Implementation of the proposed mitigation measures should ensure that the proposed project would not contribute to cumulative erosion and sedimentation impacts.

The Otay Mesa Specific Plan anticipates significant industrial and commercial development in the vicinity of the plant site. OWD anticipates that potable water demand in its service area will be approximately 40,000 acre feet by 2020 (OWD 1999a). OWD has also established requirement for the use of reclaimed water for certain uses to slow the growing demand for potable water. Recognizing the need to increase the available water supplies, the San Diego Water Authority is pursuing additional water supplies to serve the needs of their member agencies, including OWD. In addition, the Point Loma Wastewater Treatment Facility currently has excess capacity and additional treatment facilities are being constructed to accommodate additional treatment needs in the region.

At this time, three industrial projects are planned. A 245-acre industrial park is proposed northeast of the intersection of Otay Mesa Road and the proposed State Route 125. This development is characterized as a speculative industrial development with no anchor tenant yet identified (CEC 2000k). Near the northeast corner of Airway Road and Enrico Fermi Drive, a 40-acre travel plaza/truck stop is proposed and south of this development, a 40-acre truck storage facility is proposed. All three of these projects are within the East Otay Mesa Specific Plan Area. Proposed developments along Route 1 (transmission reconductoring) include some fairly large residential projects. At this time, no specific data is available on the anticipated water supply needs or wastewater discharge characteristics of these projects. Staff will continue to investigate these proposals and consult with the appropriate agencies to determine if any significant cumulative impacts may occur and provide a discussion in the Final Staff Assessment.

FACILITY CLOSURE

A planned, unexpected temporary or permanent closure of the proposed OMGP should not be a significant concern if the site drainage and erosion are properly dealt with for any potential closure.

Unexpected permanent closure may pose the potential for drainage and erosion problems due to a lack of maintenance of the facilities. Staff will require OMGC to address this concern in their closure plan.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Staff's evaluation of the proposed OMGP to date can not determine that the proposed project will comply with all applicable laws, ordinances and standards. In staff's data request #49 dated December 3, 1999, staff requested the applicant to submit the pre-treatment discharge permit from the City of San Diego Metropolitan Wastewater Department (CEC 1999e). On March 21, 2000, the applicant submitted a draft Industrial User Discharge Permit Application. The applicant stated in their cover letter that the draft permit application would be provided to the City of San Diego under separate cover. Staff has reviewed the draft permit and found that it lacked the necessary spill prevention and management plan (OMGC 2000j). This plan was also lacking from the applicant's stormwater management plan (OMGC 2000d). Although the City of San Diego does not normally issue such a permit until 90 days prior to the discharge of the waste to the system, it is aware of the Commission's process requirements. In order for staff to make the needed determination regarding compliance with local requirements, the City is willing to issue a draft permit, assuming all the necessary information is contained in the application, for staff to include it in the Final Staff Assessment (FSA). It will be necessary for the applicant to complete their application in order for the City to issue a draft permit.

In addition, staff finds that the application failed to incorporate the requirements of OWD's Code of Ordinances. If this project fell within the jurisdiction of the local authorities, OMGP would be required to install dual infrastructure for the use of reclaimed water for appropriate uses at the facility. According to OWD's letter to the Commission clarifying their potable water service agreement with OMGC, recycled water will be required for irrigation and possibly for process water use (steam cycle). At this time, staff is continuing to evaluate the use of reclaimed water for these project components and will address this issue further in the Final Staff Assessment. The applicant's proposal for dry cooling complies with the requirements of SWRCB Policy 75-58 and no further consideration is required for the use of recycled water for cooling purposes.

MITIGATION

APPLICANTS PROPOSED MITIGATION

EROSION AND SEDIMENTATION

In response to a staff data request, OMGC provided a draft Erosion Control and Stormwater Management Plan that generally identified temporary and permanent erosion and stormwater control measures which may be employed at OMGP (OMGC 2000d, Data Response #44). In particular, all uncontaminated stormwater runoff will be directed to an unlined detention pond to be located at the southwest portion of the site. The pond will be designed for a 50-year, 24-hour storm. However, this plan did not fully discuss the project specific actions that would be employed for various project components, including how drainage will be segregated from that which has come in contact with potential contamination. When finalized, this plan will satisfy the County of San Diego drainage requirements and serve as the stormwater pollution prevention plan as required under the General Construction Stormwater Permit issued by the State Water Resources Control Board. It must also incorporate measures identified by the Department of Fish & Game in the Streambed Alteration Agreement and revegetation efforts consistent with the landscaping plan and biological mitigation measures.

The Erosion Control and Stormwater Management Plan generally identifies best management practices for the construction and operation phases of the project.

BEST MANAGEMENT PRACTICES THAT REDUCE EROSION AND SEDIMENT-LADEN STORMWATER RUNOFF

- Cover disturbed soils with mulch. This may be used in combination with temporary or permanent seeding strategies.
- Direct runoff away from disturbed areas by means of temporary drainage ways.

- Stabilize plant site roadways with compaction or gravel.
- Utilize soil stabilizers (most commonly water) on disturbed areas as appropriate and as required in Air Quality conditions.
- Utilize straw bale barriers to intercept sediment-laden runoff from small areas of disturbed soil.
- Create straw check dams to reduce erosion of existing drainage channels and to promote sedimentation behind the dam.
- Place silt fencing to promote sedimentation behind silt fence.
- Create stormwater detention basins to retain runoff and allow excessive sediment to settle out.
- Inspect temporary erosion control devices during construction in accordance with the Final Plan schedule.
- Insure replacement of damaged or missing structures.
- Notify project construction crew when to implement adequate precautions in anticipation of poor weather conditions.
- Dictate appropriate wetness when watering a road for dust suppression.
- Develop remedial erosion controls for problem areas, if any.
- Complying with applicable codes.
- Protect stockpiled soil with water-resistant tarps, protect stockpiles from runoff with hay bales or silt fencing, or surpress dust with water.
- Install temporary slope breakers (water bars or berms) at the portion of the pipeline that crosses grades steep enough to require such measures in order to divert water off the construction right-of-way and to reduce velocities.
- Slope breakers will be installed at a spacing recommended by the Bureau of Land Management or Natural Resources Conservation Service.
- Slope breakers may be constructed from soil, silt fences, or stacked hay or straw bales.
- Straw bale barriers and/or check dams will be inspected and replaced or repaired as needed. Accumulated sediment will be removed when it reaches a depth of 6 inches.
- Sandbags placed along the toes of slopes and at linear facility structures will be inspected. Sediment

will be removed after each significant storm event and deposited in a stable area not subject to erosion.

- If sediment accumulates over 1 foot behind the (sandbag) barrier, the contractor/project owner will remove or regrade the sediment.
- Mulched areas will be examined for damage or deterioration and reapplied as necessary.
- Protected storage areas for stockpiled soils or other materials will be inspected. Tarps or other coverings will be replaced and secured.
- Depending on the season, slope breakers will be inspected in areas of active equipment or within 24 hours of each 0.5 inch of rainfall.
- Slope breakers will be maintained until revegetation measures are successful or the area is stabilized.

Best Management Practices To Prevent Stormwater Contamination

- Provide secondary containment for hazardous material delivery and storage areas to prevent spills or leakage of fluid materials from contaminating soil or soaking into the ground.
- Covered dumpsters and waste containers.
- Designate storage areas for construction wastes.
- Provide for proper storage of hazardous materials, paints, and related products.
- Train employees on the proper use of materials such as fuel, oil, asphalt and concrete compounds, acids, glues, solvents, etc.
- Implement a spill prevention and control plan.
- Timely remove construction wastes.
- Store all liquid wastes in covered containers.
- Use portable toilet facilities managed by licensed contractor.

Spill Prevention

A site spill contingency plan will need to be developed for chemical spill control and management. Concrete curbs will need to be provided for chemical additive / lube oil skid areas, and hazardous materials storage areas. Appropriate surface coatings may be required for the protection of the containment structure. The containment structure will need to be sized to hold at least the volume in the largest tank or container plus the volume of rainfall from a 25-year, 24-hour storm event. Areas in which more than one vessel is to be located will be designed to contain the volume from the largest tank. This plan must be included in the Industrial

User Discharge Permit Application and incorporated in the Erosion Control and Stormwater Management Plan.

SITE DRAINAGE

The site drainage system must be designed to comply with all applicable federal, state, and local regulations. At this time, OMPC has provided a general description of the proposed on-site drainage and submitted a plot plan of the on-site drainage system and associated facilities (OMGC 2000h). OMGC's current proposal is to have onsite drainage accomplished by gravity flow, whenever possible, consisting of mild slopes and open channels (PG&E 1999a; Section 87.415 of the Zoning and Land Use Regulations require at least one percent grade toward approved disposal areas). The ground floor elevation of buildings and structures will be maintained at a minimum of 6 inches above the finished grade. The graded areas will gently slope away from structures (PG&E 1999a). Design of the site drainage facilities must be performed in accordance with the San Diego County's regulations and Procedure Manual for the Preparation and Checking of Street Improvements and Grading Plans (San Diego 1998) as well as the Otay Mesa Specific Plan (San Diego 1994).

CEC STAFF PROPOSED MITIGATION

Without additional information on the specific mitigation measures (i.e., pretreatment of wastewater discharge, if necessary and additional erosion or stormwater control measures) the applicant proposes for the project, Energy Commission staff can not determine what additional measures can mitigate possible impacts of the project. Staff is recommending only general conditions in regard to Soil & Water Resources at this time. Additional Conditions for Certification may be identified in the Final Staff Assessment.

CONCLUSIONS AND RECOMMENDATIONS

Staff is not able to recommend approval of the proposed OMGP for the technical area of Soil & Water Resources at this time. Based on information submitted by the applicant to date, staff is unable to make an affirmative determination of the project's compliance with wastewater discharge requirements, erosion control and stormwater management requirements, or the requirements of OWD's Code of Ordinances. In the event the applicant submits additional information to the Commission in a timely manner, staff will review it and incorporate it into the Final Staff Assessment as appropriate. Staff will also continue to work with appropriate agencies to evaluate compliance of the project with LORS.

CONDITIONS OF CERTIFICATION

SOILS&WATER 1: Prior to beginning any clearing, grading or excavation activities associated with construction of any project element, the project owner shall obtain Energy Commission staff approval for the final Storm

Water Pollution Prevention Plan (SWPPP) for the project as required under the General Stormwater Construction Activity Permit.

Verification: Thirty days prior to the start of construction of any project element, the project owner will submit a copy of the Storm Water Pollution Prevention Plan (SWPPP) for construction activities to the Energy Commission Compliance Project Manager (CPM) for review and approval. Approval of the final plan by the Energy Commission CPM must be received prior to the initiation of any clearing, grading or excavation activities associated with the construction of any project element.

SOILS&WATER 2: Prior to the initiation of any clearing, grading or excavation activities associated with any project element, the project owner shall obtain staff approval for a final erosion control and revegetation plan that addresses all project elements. The final plan to be submitted for staff's approval shall contain all the elements of the draft plan with changes made to address the final design of the project.

Verification: The erosion control and revegetation plan shall be submitted to the Energy Commission CPM for approval thirty days prior to the scheduled construction start date. Approval of the final plan by the Energy Commission CPM must be received prior to the initiation of any clearing, grading or excavation activities associated with construction of any project element.

SOIL&WATER 3: No later than sixty days prior to commercial operation, the project owner, as required under the General Industrial Activities Storm Water Permit, must develop and implement a Storm Water Pollution Prevention Permit (SWPPP). Approval for the final Industrial Activities SWPPP must be obtained from the Energy Commission staff prior to commercial operation of the power plant.

Verification: Thirty days prior to the start of commercial operation, the project owner will submit to the Energy Commission CPM a copy of the Storm Water Pollution Prevention Plan (SWPPP) prepared under the requirements of the General Industrial Activities Storm Water Permit. The final plan shall contain all the elements of the draft plan with changes made to address staff comments and the final design of the project.

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GEOLOGY AND PALEONTOLOGY

Robert Anderson

INTRODUCTION

The geology and paleontology section discusses the project's potential impacts regarding geological hazards, geological and paleontological resources, and surface water hydrology. The purpose of the geology analysis is 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, and in a manner that protects environmental quality and assures public health and safety. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts to significant geological and paleontological resources, and surface water hydrology during project construction, operation and closure. The section concludes with the staff's proposed monitoring and mitigation measures with respect to geological hazards, geological and paleontological resources, and surface water hydrology, with the inclusion of nine conditions of certification.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The applicable LORS are listed in the AFC, in Sections 5.3, 5.5, and 5.8 (OMGP 1999a). A brief description of the LORS for paleontological resources, geological hazards and resources, and surface water hydrology follows:

FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control. The Otay Mesa Generating Project (OMGP) 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 in the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The CBC supplements the UBC's grading and construction ordinances and regulations.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

Section (V) (c) asks if the project will directly or indirectly destroy a unique
paleontological resource or site or unique geological feature.

Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether

or not the project would expose persons or structures to geological hazards.

Sections (X) (a) and (b) pose questions about the project's effect on mineral
resources.

Public Resources Code section 5097.5 requires that no person shall cause the destruction or removal of vertebrate paleontologic resources on public lands unless express permission of the public agency having jurisdiction over the lands has been granted.

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).

SETTING

The OMGP is proposed to be a 510 megawatt combined cycle natural gas-fired power plant. A 0.1 mile long 230 kilovolt (kV) electric transmission line will run from the power plant to the existing 230 kV transmission tower near the site. In addition to the power plant, approximately 9.05 miles of an existing 230 kV electric transmission line may be reconductored. A 2.05 mile long natural gas supply line is proposed to run from the Harvest Regulator Station to the power plant. A 1.6 mile long alternate natural gas line is proposed from a gas metering station near the U.S./Mexico border to the power plant. A 0.2 mile long water line is proposed to run from the existing water main along Alta Road to the power plant. A 2.0 mile long wastewater pipeline is proposed to run from the power plant to a sanitary sewer interconnection in Johnson Canyon. A 0.15 mile long access road is proposed to run from the power plant to Alta Road. A 0.85 mile long alternate wastewater discharge line and a 0.2 mile long southern access road have also been proposed (OMGC 2000a).

The proposed power plant is located adjacent to the western slope of Mount San Ysidro, which is located in the eastern portion of the Peninsular Range geomorphic province. The site is mantled in alluvium and silty to clayey sands of the Otay Formation and the Santiagio Peak Volcanics in the eastern portion of the power plant footprint. The Otay Formation is Oligocene in age. Both the alluvium and the Otay Formation are made up of dense silty to clayey sand. The Otay Formation may also be locally cemented. The Otay Formation was reported by the applicant to have been described to contain bentonite, a clay with a low shear strength. No bentonite deposits of commercial size are known in the vicinity of the site. No significant landslides were observed at or adjacent

to the proposed power plant's footprint. The Santiago Peak Volcanics Formation, which is made up of metamorphosed volcanic, volcaniclastic and sedimentary rocks is located on the east side of the power plant, along the east side of the project, and locally, north of the proposed power plant. The Santiago Peak Volcanics Formation ranges in age from late Triassic to mid-Cretaceous. The sedimentary unit of the Santiago Peak Volcanics has been reported (CDMG 1975) to contain fossils in the vicinity of Del Mar.

No permanent surface water bodies are located on or adjacent to the power plant footprint. There are two ephemeral drainages that run by the site. The existing grade of the power plant footprint is shallow (less than 5%). The proposed 46-acre site varies in elevation from a low of 625 feet above mean sea level to a high of 708 feet above mean sea level. The power plant is to be located on a transition pad with a tentative final peak elevation for the pad of 663 feet above mean sea level. In order to get the pad to the required final grades, portions of the power plant original ground will be excavated with a total cut of approximately 411,000 cubic yards while other areas will be built up with approximately 315,000 cubic yards of fill. Should the alternate waste water pipeline be constructed the applicant has estimated that up to 60,000 cubic yards of cut and 60,000 cubic yards of fill will be required to develop the alignment for the pipeline.

ANALYSIS AND IMPACTS

GEOLOGICAL HAZARDS

FAULTING AND SEISMICITY

Energy Commission staff reviewed the California Division of Mines and Geology publication "Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions," dated 1994 (CDMG 1994). Energy Commission staff visited the proposed power plant location on July 30, 1999 and did not observe any surface faulting at the proposed power plant site or along the reconductoring corridor. No active faults are known to cross the proposed power plant footprint or the possible reconductoring corridor from the power plant to the San Miguel Substation. The project is located within seismic zone 4 as delineated on Figure 16-2 of the 1998 edition of the California Building Code. The closest known active fault is the Rose Canyon fault which is located 19 kilometers (km) west of the proposed power plant. La Nacion fault is considered to be a potentially active fault and is located approximately 9 km from the proposed power plant footprint. The estimated peak horizontal ground acceleration for the power plant is 0.32g based upon a moment magnitude 6.75 earthquake on the La Nacion fault. The minimum design acceleration for the project is set by the California Building Code as 0.4g since the site is located in seismic zone 4. The potential of surface rupture on a fault at the power plant

footprint is considered to be very low, since no faults are known to cross the proposed power plant location.

The reconductoring corridor crosses the Otay River. A concealed (buried) fault is shown in the Otay River drainage on the California Division of Mines and Geology San Diego-El Centro Map Sheet (CDMG 1992) and on the Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions" (CDMG 1994). The fault, should it be confirmed, is not considered to have a significant impact on the reconductoring project since the existing transmission line towers to be used in the reconductoring effort are not known to straddle the fault trace.

LIQUEFACTION, HYDROCOMPACTION, SUBSIDENCE, AND EXPANSIVE SOILS

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. One of the parameters used to assess the potential for liquefaction is the depth to ground water at the site under study. Generally the depth to ground water at a site should be less than 100 feet for liquefaction to be possible. The depth to groundwater beneath the site has not been established, but is estimated to be in excess of 80 feet below existing grade based on soil boring logs for the project. Because the alluvium, the Otay Formation and the fanglomerate under the site are dense and the depth to ground water is in excess of 80 feet below existing grade, the potential for liquefaction at the power plant site is considered to be negligible.

Hydrocompaction is the process of the loss of soil volume upon the application of water. The soils at the site are dense enough that hydrocompaction is not considered to be a significant problem at the power plant location.

Soils that contain a high percentage of expansive clay minerals are prone to expansion, if subjected to an increase in water content. Expansive soils are usually measured with an index test such as the expansive index potential. In order for a soil to be a candidate for testing, the soil must have a high clay content and the clay must have a high shrink-swell potential and a high plasticity index. Two soil units are reported to occur within the footprint of the proposed power plant, the Diablo Clay and the Huerhuero loam. Both soils are considered to have a high shrink-swell potential (OMGC 1999a page 5.4-2.) Soil samples tested by the applicant's consultant show the soils to have a low to high expansion

index for on-site soils (from 16 to 92) (OMGC 1999a Appendix G). Soils with a high expansive index potential will have to be mitigated in order to keep soils from expanding when wetted.

LANDSLIDES

No landslides were observed on or adjacent to the proposed power plant footprint during a staff site visit on July 30, 1999. A study of this area (CDMG 1995) indicated that the area of the proposed power plant is considered to be generally susceptible to landsliding. Approximately 411,000 cubic yards of soil and rock will be excavated, and 315,000 cubic yards of fill will be used in the construction of the power plant footprint pad. Cut and fill slopes are proposed to be no steeper than 1.5:1 and 2:1 (horizontal to vertical) respectively. Landsliding potential at the proposed power plant site is considered to be low to moderate. The potential for landslide debris inundating the proposed power plant site is considered low as long as the adjacent slopes are not significantly disturbed. Approximately 60,000 cubic yards of soil and rock will be excavated and 60,000 cubic yards of fill no steeper than 4:1 will be constructed for the alternate waste water discharge line (route no. 4A), should it be built.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

No geological resources have been identified at the power plant location, the natural gas supply line route, or the water supply line route. Energy Commission staff's review (CDMG 1989) indicates that the proposed power plant site and linear facilities are designated by the State to be MRZ-3 (areas containing mineral deposits the significance of which can not be evaluated from the available data). Mineralogical resources in the vicinity of the project include sand, gravel, bentonite and dimension stone. At the time of the site visit, there was no mining in the vicinity of the proposed power plant or its linear facilities. The areas where the reconductoring corridor crosses mineralogical resource zones are not considered to have a significant impact since the transmission line towers are already in place, as are the transmission line set and pull locations.

Regarding paleontological resources, Energy Commission staff has reviewed the paleontological resources assessments, Appendix K to the AFC (OMGC 1999a and OMGC 2000a). Geology at the power plant footprint location is made up of quaternary alluvium and the Otay Formation. The alluvium is considered to be too young to contain significant fossils, and therefore considered to have a low sensitivity and a low potential with respect to paleontological resources. The Otay Formation is considered to be highly sensitive since it has been known to contain vertebrate fossils north and south of Telegraph Canyon along a portion of the

existing electric transmission line route (route 1). Routes 1 (electric transmission line reconductor route), 2A (proposed natural gas supply route), 3 (potable water supply line route), 4A the alternate waste water discharge pipe route, 5 (access road route) and 5A (the southern access road) are located in the Otay Formation or alluvium.

The unnamed fanglomerate, which is a member of the Otay Formation, is reported by the applicant to not be known to contain fossils and therefore has a low sensitivity and potential with respect to paleontological resources. Route 4 (wastewater discharge line route) crosses alluvium, the Otay Formation, and the unnamed fanglomerate unit. Segments of Route 1 (the possible electric transmission line reconductor route) and Route 2B (alternate natural gas supply line route) are located in the Santiago Peak Volcanics or within the Otay Formation. The Santiago Peak Volcanics is considered to have a moderate sensitivity potential for paleontological resources since marine fossils have been reported in the sedimentary unit of the formation (CDMG 1975). No fossils were observed by staff at the power plant during a site visit on July 30, 1999. The applicant has reported that no paleontological resources were observed at the proposed power plant footprint or along the linear facility corridors, during the pre-construction paleontological field survey done in May 1997 or the supplemental paleontological surveys of February 1999 and February 2000 (Lawler 1999 and Lawler 2000). Staff have proposed conditions of certification that will enable the applicant to mitigate impacts upon paleontological resources to a less than significant level should they be encountered during construction, operation, and closure of the project.

SURFACE WATER HYDROLOGY

The power plant footprint is not located in a 100 year flood zone as it is located in zone “C,” an area of minimal flooding as depicted on the Federal Emergency Management Agency Flood Insurance Rate Map sheet no. 060295-0001-0235. Minimum grade for the power plant area will be 1% and all drainage will be directed away from buildings within the footprint. A storm water retention pond is proposed to be constructed on site. A portion of the on-site drainage is to be captured in the ephemeral stream channel on site and discharged off site to the south. The 50-year 24-hour storm event precipitation amount is 5 inches (NOAA 1973). Run-off during a 50-year 24-hour storm event should not overwhelm the capacity of the proposed surface water drainage system.

SITE SPECIFIC IMPACTS

The excavation of 411,00 cubic yards of Alluvium, Otay Formation and/or Santiago Peak Volcanics at the power plant site represents a minor potential impact to paleontological resources. However, as of the time that this document was prepared the site was not known

to have any fossils located on it. The excavation of approximately 60,000 cubic yards of Alluvium, Otay Formation and/or Santiago Peak Volcanics along the alignment for the alternate wastewater discharge line represents a minor but potential impact to paleontological resources. Minor excavations, drilling and clearing and brushing operations associated with construction of the project are considered to be an insignificant impact on paleontological resources. The adoption and implementation of the proposed conditions of certifications for paleontological resources should mitigate any potential impacts to paleontological resources associated with the construction of this project. It should be noted that no paleontological resources are known to exist along the alignment for the proposed wastewater discharge pipeline (route 4A) or for the southern roadway extension (route 5A). The site is also not located in an area of known geological resources. No major surface water bodies are located at the proposed power plant site. Crossing of local drainages by proposed linear facilities are proposed to present a minimum impact on surface water resources. Storm water run-off is proposed to be managed through the proposed power plant's drainage control plan and by complying with the proposed conditions of certification for the **Soils and Water Resources** section of this document. None of the geological hazards identified by the applicant or by Energy Commission staff are considered to be significantly impacted by the construction and operation of the proposed project. In conclusion, the project is not likely to have any significant impact on geological or paleontological resources, surface water resources, or geological hazards.

CUMULATIVE IMPACTS

It is staff's opinion that the potential for a significant adverse cumulative impact on paleontological resources, geological resources, or surface water hydrology is unlikely, if the OMGP is constructed according to the proposed conditions of certification. This opinion is based on the fact that the site is not known to have significant paleontological or geological resources.

FACILITY CLOSURE

A definition and general approach to closure is presented in the General Conditions section of this document. Facility closure activities are not anticipated to impact geological or paleontological resources. This is due to the fact that no paleontological or geological resources are known to exist at the power plant location. In addition, decommissioning and closure of the power plant should not negatively affect geological or paleontological resources since the majority of the ground disturbed in plant decommissioning and closure would have been disturbed in the construction of the plant. Surface water hydrology impacts will depend upon the closure activities proposed.

MITIGATION

Based upon the literature and archives search, field surveys and the preliminary geotechnical investigation for the project, the applicant has proposed monitoring and mitigation measures to be followed during the construction of the power plant, related natural gas supply line, electrical transmission line, and the waste water pipelines. Energy Commission staff agree with the applicant that there is a low probability that vertebrate fossils will be encountered during construction of the power plant and related features.

The proposed conditions of certification are to allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will ensure LORS applicable to geological hazards, geological and paleontological resources, and surface water hydrology for the project are complied with.

CONCLUSION AND RECOMMENDATIONS

The applicant will likely be able to comply with applicable LORS. The project should have no adverse impact with respect to geological and paleontological resources and surface water hydrology. Staff proposes to ensure compliance with applicable LORS for geological hazards, geological and paleontological resources and surface water hydrology with the adoption of the proposed conditions of certification listed below, and the conditions of certification for surface water hydrology which are located in the **Soils and Water Resources** section of this document.

PROPOSED CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the CPM. The functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the Chief Building Official (CBO)) prior to the start of construction, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 Engineered Grading Requirement, and Section 3318.1 – Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.
2. Monitor geologic conditions during construction.

3. Prepare the Final Engineering Geology Report.

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 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 submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318 Completion of Work, to the CBO, and to the CPM on request.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the designated paleontological resource specialist approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The designated paleontological resources specialist shall be responsible for implementing all the paleontological conditions of certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resource specialist.

The statement of qualifications for the designated paleontological resources specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year's experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

If the CPM determines that the qualifications of the proposed paleontological resource specialist do not satisfy the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

If the approved, designated paleontological resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least ten (10) days prior to the termination or release of the preceding designated paleontological resource specialist.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least ninety (90) days prior to the start of construction, the project owner shall submit the name and resume and the availability for its designated paleontological resource specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resource specialist.

At least ten (10) days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist

become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, the designated paleontological resource specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner's designated paleontological resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout project construction.

In addition to the project owner's adoption of the guidelines of the Society of Vertebrate Paleontologists (SVP 1994) the Paleontological Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;
- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;
- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;
- An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;
- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

- Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least sixty (60) days prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the Monitoring and Mitigation Plan prepared by the designated paleontological resource specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontological resource specialist shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological resource specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least (30) thirty days prior to the start of project construction, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The designated paleontological resource specialist shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing sediments have been identified. If the designated

paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resource specialist.

PAL-5 The project owner, through the designated paleontological resource specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resource specialist. The Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

Protocol: The report shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resource specialist that project impacts to paleontological resources have been mitigated.

Verification: The project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the designated paleontological resource specialist within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activity's potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

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FACILITY DESIGN

Steve Baker, Al McCuen and Kisabuli

INTRODUCTION

Facility Design encompasses the technical areas of civil, structural, mechanical and electrical engineering aspects of the project. The purpose of the Facility Design analysis is to verify that laws, ordinances, regulations and standards (LORS) applicable to the design and construction of the project have been identified; and that the project and ancillary facilities have been described in sufficient detail, including design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable LORS, and in a manner that protects environmental quality and assures public health and safety.

This analysis also examines whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety, environmental protection or the operational reliability of the project. This analysis further identifies the design review and construction inspection process and establishes conditions of certification that will be used to ensure compliance with the LORS and any special design requirements.

FINDINGS REQUIRED

The Warren Alquist Act requires the commission to "prepare a written Decision ….which includes…(a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety [and] (d)(1) Findings regarding the conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state and federal standards, ordinances, or laws…"(Pub. Resources Code, §25523).

SUBJECTS DISCUSSED

Subjects covered in this analysis include:

1. Identification of the LORS applicable to facility design;
2. Evaluation of the applicant's proposed design criteria, including the identification of those that are essential to ensuring protection of the environment and public health and safety;
3. Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable LORS;
4. Identification of the Energy Commission's design review and construction inspection process, which is used to ensure compliance with applicable LORS and protection of the environment and public health and safety; and
5. Conditions of certification proposed by staff to ensure that the project will be designed and constructed to comply with all

applicable LORS, and protect environmental quality and assure public health and safety.

SETTING

Otay Mesa Generating Company, Limited Liability Company (LLC) (the applicant) is seeking approval from the California Energy Commission (CEC) to construct and operate the Otay Mesa Generating Project (OMGP). The OMGP will be a nominally rated 510-megawatt (MW) natural gas fired combined cycle powerplant. The OMGP facilities (power block) will occupy approximately 15 acres within a 46-acre parcel on the eastern portion of the Otay Mesa in southwestern San Diego.

The site is located approximately 15 miles southeast of the City of San Diego and approximately 1.5 miles north of the US/Mexico border. The 46-acre parcel is approximately 8,000 feet east of Alta Road and 1,500 feet north of Otay Mesa Road.

The OMGP is located in seismic zone 4, the highest seismic shaking zone in the country. Additional engineering details of the proposed project are contained in the Application for Certification (AFC), in Appendices A and B (PG&E 1999a, PG&E 2000a).

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical, are included as part of the engineering appendices, Appendices A through G, and summarized in Sections 7.3 and 7.4 and Table 7.0-1 (PG&E 1999a). A summary of these LORS includes: Title 24, California Code of Regulations, which adopts the current edition of the California Building Code (CBC) as minimum legal building standards; the 1998 CBC for design of structures; American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code; and National Electrical Manufacturers Association (NEMA) standards.

ANALYSIS

The basis of this analysis is the applicant's proposed analysis methods, construction methods and list of LORS and design criteria set forth in the AFC. Applicable engineering sections include:

Section 1.4	Project Schedule
Section 1.5	Facility Location and Description
Section 3.	Project Description and Location
Section 7.0	Compliance with applicable LORS
Section 7.2	Project Siting and Construction
Section 7.3	Project Design and Construction
Section 7.4	Project Design Construction and Operation

Appendices

1. Appendix A Foundation and Civil Engineering Design Criteria
2. Appendix B Structural and Seismic Engineering Design Criteria
3. Appendix C Mechanical Engineering Design Criteria
4. Appendix D Control Systems Engineering Design Criteria
5. Appendix E Electrical Engineering Design Criteria
6. Appendix F Major Equipment List
7. Appendix G Geotechnical Engineering Investigations

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as a natural gas pipeline and electric transmission line. The applicant proposes to use accepted industry standards (see AFC Sections 7.3 and 7.4 and Appendix A for a list of the applicable industry standards), design practices, and construction methods in preparing and developing the site. The applicant's proposed methods follow industry standard practices. Staff concludes that the project, including its linear facilities, will likely comply with all applicable site preparation LORS, and proposes conditions of certification included below to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly to repair or replace, or that require a long lead time to repair or replace, or those used for the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment are listed in the conditions of certification (**GEN-2** below).

The AFC contains a list of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable LORS, and which staff believes are essential to ensuring that the project is designed in a manner that protects the environment and public health and safety.

PROPOSED MODIFICATIONS

The AFC (PG&E 1999a, Sections 7.3 and 7.4, Appendices A and B) identifies LORS that are applicable to the project. The project should be designed and constructed to the 1998 edition of the CBC, and other applicable codes and standards in effect at the time design and construction of the project actually commence. In the event the design for the OMGP is submitted to the Chief Building Official (CBO)[1] for review when the successor to the 1998 CBC is in effect, the 1998 CBC provisions, identified herein, shall be replaced with the applicable successor provisions.

CBC LATERAL FORCE REQUIREMENTS

The procedures and limitations for the seismic design of structures by the 1998 CBC are determined considering seismic zoning, site characteristics, occupancy, structural configuration, structural system and height. Different design and analysis procedures are recognized in the 1998 CBC for determining seismic effects on structures. The dynamic lateral force procedure of Section 1631 is always acceptable for design. The static lateral force procedure of Section 1630 is allowed under certain conditions of regularity, occupancy and height determined under Section 1629. Nonbuilding structures are included in Section 1634. Most of the structures in powerplant projects are considered nonbuilding structures.

STATIC LATERAL FORCE PROCEDURE

In seismic Zones 3 and 4, the static lateral force procedure of Section 1630 may be used for the following:

1. Regular structures under 240 feet in height with lateral force resistance provided by systems, listed in Table 16-N, except where Section 1629.8.4, Item 4, applies. (Structures, regular or irregular, located on Soil Profile Type S_F, that has a period of vibration greater than 0.7 second require dynamic analysis.)
2. Irregular structures not more than five stories or 65 feet in height.

DYNAMIC LATERAL FORCE PROCEDURE

In seismic zones 3 and 4, the dynamic lateral force procedure of Section 1631 shall be used for all other structures, including the following:

1. Structures having a stiffness, weight or geometric vertical irregularity of Type 1, 2 or 3, as defined in Table 16-L, or structures having irregular features not described in Table 16-L or 16-M, except as permitted by Section 1630.4.2. (Where a combination of structural systems is included in the same structure, the structure can be analyzed as two independent structures for purposes of determining regularity.)
2. Structures over five stories or 65 feet, not having the same structural system throughout their height except as permitted by Section 1631.2. (An elastic design response spectrum constructed in accordance with Figure 16-3 of the 1998 CBC, using the values of C_a and C_v consistent with the specific site can be used.)
3. Structures, regular or irregular, located on Soil Profile Type S_F, that have a period of vibration greater than 0.7 seconds.

Rigid Structures Lateral Force Design

Rigid structures (those with a fundamental period less than 0.06 second) and their anchorage shall be designed using procedures consistent with the requirements of Section 1634.3 and any other applicable provisions of Section 1634.

Tanks with Supported Bottoms

Flat bottom tanks or other tanks with supported bottoms founded at or below grade shall be designed consistent with Section 1634.4 and any other applicable provisions of Section 1634.

Other Nonbuilding Structures

Nonbuilding structures not covered by Sections 1634.3 and 1634.4 shall be designed consistent with the requirements of Section 1634.5 and any other applicable provisions of Section 1634.

Ensuring the Appropriate Lateral Force Procedure

In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff has included Proposed Condition of Certification **STRUC-1** below, which in part requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction.

CIVIL/STRUCTURAL FEATURES

Power Island: The power island complex will have two separate power island areas, consisting of one each of the following: combustion turbine generator (CTG), heat recovery steam generator (HRSG), steam turbine generator (STG), air-cooled condenser, generator step-up transformer and an auxiliary transformer. Each power island area will also contain the balance-of-plant (BOP) mechanical and electrical equipment. The two exhaust stacks will be co-located (PG&E 2000a).

The applicant proposes, and staff concurs that CTGs and HRSGs can be supported on reinforced concrete mat foundations at grade. The STGs can be supported on reinforced concrete pedestals mounted on a base mat at grade. Individual reinforced pads at grade will be used to support the BOP mechanical and electrical equipment.

Buildings: The plant buildings will include the administration with control/electrical room and warehouse/mechanical shop, fire pump building, switchyard control building and generator building.

Each building will be single story and pre-engineered. The applicant proposes, and staff agrees that building columns can be supported on mat foundations or individual spread footings. The floor will be a reinforced concrete slab at grade.

Tanks: The water storage tanks will include the demineralized water storage tank and fire water/service water storage tank. The storage tanks will be supported on suitable foundation consisting of either a reinforced concrete ring wall with an interior bearing layer of compacted sand for the tank bottom or a reinforced concrete mat. Staff concludes that either foundation will be suitable to support the water storage tanks.

Groundwater: Groundwater was not encountered in the borings drilled for the onsite subsurface investigation. The borings were drilled to a maximum depth of 81.5 feet without encountering water; therefore, groundwater conditions will not be a factor in the design of power plant foundations.

MECHANICAL SYSTEMS

The facility will be a combined cycle power plant. There will be two power islands. Each island will consist of a CTG, HRSG, STG and an air-cooled condenser. Each CTG will produce approximately 170 MW of electricity at site conditions using evaporative inlet air cooling. Power will be generated by the CTGs at 18 kV and stepped up by two transformers to 230 kV.

Each CTG will exhaust directly into an unfired HRSG, before passing through the exhaust stack. Steam from the HRSG will be admitted into a condensing reheat STG. Up to 90 MW of additional power will be produced by each steam turbine at standard conditions.

Combustion gas turbine NO_X emissions will be controlled by dry low NO_X combustors and a post-combustion $SCONO_X$™ control system to meet best available control technology (BACT) limits.

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

MECHANICAL LORS AND DESIGN CRITERIA

The application (PG&E 1999a, Appendix C) lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely ensure the project's mechanical systems are designed to the appropriate codes and

standards. Staff has proposed conditions of certification (**MECH-1** through **MECH-4**, below) to monitor compliance with this requirement.

ELECTRICAL SYSTEMS

Major electrical features of the project other than transmission include generators, power control wiring, protective relaying, grounding system, cathodic protection system and site lighting (PG&E 1999a, Appendix E).

1. Power and Control Wiring. In general, conductors will be insulated based on a normal maximum conductor temperature of 90ºC in 40ºC ambient air with a maximum emergency overload temperature of 130ºC and a short circuit temperature of 250ºC. In areas with higher ambient temperatures, larger conductors will be used or higher temperature rated insulation will be selected.
2. Protective Relaying. These relays protect equipment in the auxiliary power supply system, generator terminal systems, 230 kV system, 4.16 kV systems, turbine-generator system, and the electrical loads powered from these systems. The protective relaying scheme will be designed to remove or alarm any of the abnormal occurrences.
3. Classification of Hazardous Areas. Areas where flammable and combustible liquids, gases, and dusts are handled and stored will be classified for determining the minimum criteria for design and installation of electrical equipment to minimize the possibility of ignition. The criteria for determining the appropriate classification are specified in Article 500 of the National Electrical Code's National Fire Protection Association/American National Standards Institute (NFPA/ANSI), Section C1.
4. Grounding. The station grounding system will be an interconnected network of bare copper conductors and copper clad ground rods. The system will be provided to protect plant personnel and equipment from hazard, which can occur during power system faults and lightning strikes. The station-grounding grid will be designed for adequate capacity to dissipate heat from ground current under the most severe conditions in areas of high ground fault current concentrations.
5. Site Lighting. The site lighting system will provide personnel with illumination for the performance of general yard tasks, safety, and plant security. Power used to supply outdoor roadway and area lighting will be 277 volts.
6. Freeze Protection. A freeze protection system will be provided for selected outdoor piping as required. Parallel circuit type heating cable will be utilized where possible.
7. Cathodic Protection System. Cathodic protection and other corrosion control measures for all plant structures, including the exterior surface of underground piping and bottoms of surface mounted steel tanks will be provided as required.

The AFC (PG&E 1999a, Appendix E) lists and describes the electrical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely ensure the project's electrical systems are designed to the appropriate codes and standards.

Staff concludes that the applicant can design the electrical systems in accordance with all LORS and in a manner that protects the environment and public health and safety by complying with the applicable LORS and electrical design criteria (PG&E 1999a, Appendix E). Staff has proposed conditions of certification (**ELEC-1** and **ELEC-2**, below) to monitor this compliance.

ANCILLARY FACILITIES

NATURAL GAS SUPPLY LINE

Natural gas will be delivered to the site via a new 20-inch diameter gas pipeline. Two alternative routes, proposed route 2A and alternate route 2B, are under consideration. Route 2A is approximately 2 miles long and Route 2B is about 1.6 miles long. The gas pipeline will be buried and trench dimensions are expected to be a minimum of 32-inches wide and 62-inches dep. The two alternate routes are discussed in detail in the AFC (PG&E 1999a § 3.7.2).

WATER SUPPLY PIPELINE

The Otay Water District, the local water purveyor, will supply potable water to the plant. Anticipated water demand is relatively low at approximately 300,000 gallons per day. The water will be supplied via an existing 24-inch water main in Alta Road. Connection to this main will require an approximately 0.2-mile-long portable water supply line. The water supply line is discussed in more detail in the AFC (PG&E 1999a § 3.7.3).

WASTEWATER DISCHARGE LINE

Wastewater from the project will be discharged to the City of San Diego trunk sewer located in Johnson Canyon adjacent to the Richard J. Donovan Correctional Facility. Connection to this existing 18-inch trunk sewer will necessitate the construction of approximately 2 miles of pipeline through Johnson Canyon. The applicant has also proposed an alternate route that follows the planned Loop Road and Lone Star Road alignments for a total of 0.85 miles (PG&E 2000a). The wastewater pipeline is discussed in more detail in the AFC and Supplement (PG&E 1999a § 3.7.4; PG&E 2000a, § 3.3.2.2).

PROJECT QUALITY PROCEDURES

The AFC (PG&E 1999a, § 4.3.5) describes a Project Quality Program that will be used on the project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed, and tested in accordance with the technical codes and standards appropriate for a powerplant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this Quality Assurance/Quality Control (QA/QC) program will ensure that the project is designed, procured, fabricated and installed in accordance with LORS.

COMPLIANCE MONITORING

THE ENERGY COMMISSION'S DESIGN REVIEW AND CONSTRUCTION INSPECTION PROCESS

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and ensure that all facility design conditions of certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegate agents typically include the local building official and independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff has completed, or will complete, the following to ensure the design review and construction inspection process is consistent with the applicant's timing of the project:

1. Staff will meet with the local building department to discuss the Energy Commission compliance process and the

potential involvement of the local building official as delegate agent.

2. Staff will propose an MOU with the local officials outlining the roles and responsibilities of the local officials and their subcontractors as delegate agents appointed by the Energy Commission to ensure compliance with the CBC and facility design conditions of certification.

3. Staff will meet with the local officials and their subcontractor (if applicable) to discuss the details of the design review and construction inspection process, fees, types of submittals required of the process and timing of the review.

Staff has developed conditions of certification (see the section below, titled "Proposed Conditions of Certification") to ensure compliance with LORS and protection of the environment and public health and safety. Some of these facility design conditions address the roles, responsibilities and qualifications of PG&E's engineers responsible for the design and construction of the project (proposed conditions of certification **GEN-1** through **GEN-8**). Engineers responsible for the design of the civil, structural, mechanical, and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations, and specifications submitted to the CBO. These conditions require that no element of construction proceed without approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility with construction activities, these conditions are written to require that no element of construction of permanent facilities, which is difficult to reverse, may proceed without approval of plans from the CBO. For those elements of construction that are not difficult to reverse and are allowed to proceed without approval of the plans, the applicant shall have the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's plan review and approval process.

FACILITY CLOSURE

A facility closure was evaluated under three scenarios; Planned Closure, Unexpected Temporary Closure and Unexpected Permanent Closure.

PLANNED CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life,

may range from "mothballing" to removal of all equipment and appurtenant facilities. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to ensure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe, and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission and CBO for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of the following items:

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

UNEXPECTED TEMPORARY CLOSURE

Under this scenario, it is expected that the facility is closed unexpectedly, on a short-term basis. Natural disasters, such as an earthquake or severe storm, can cause an unexpected temporary closure of the facility. If damage to the facilities is too great, the temporary closure may become permanent.

If the facility is closed on a temporary basis, the applicant shall secure the site in order to protect public health and safety. If temporary closure becomes permanent, the applicant shall follow the "Planned Closure" procedures outlined in the Planned Closure section.

UNEXPECTED PERMANENT CLOSURE

Under this scenario, the project owner closes the facility unexpectedly on a permanent basis. In this case, the project owner shall implement the closure procedures outlined above for "Planned Closure".

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. To ensure that these measures are included in the Facility Closure Plan, staff has proposed a Condition of Certification (**GEN-9**).

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The laws, ordinances, regulations, and standards (LORS), identified in the AFC and supporting documents, are those applicable to the project.
2. Staff has evaluated the AFC, and the project LORS and design criteria in the record. Staff concludes that the design, construction and eventual closure of the project are likely to comply with applicable LORS. If properly implemented, design criteria, including staff proposed modifications, will ensure that LORS are met during the project design and construction phases.
3. The conditions of certification proposed will ensure that the proposed facilities are designed, constructed, operated, and eventually closed in accordance with applicable LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the local CBO or other commission delegate agent. Staff will audit the CBO to ensure satisfactory performance.
4. The Energy Commission design review and construction inspection process will be in place for the project and will allow construction to start as scheduled if the project is certified. The process will provide the necessary reviews to ensure compliance with applicable facility design LORS and conditions of certification.
5. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan required by **GEN-9** prior to the commencement of decommissioning, the decommissioning procedure is likely to result in satisfactory decommissioning performance.

RECOMMENDATIONS

If the Energy Commission certifies the project, staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to comply with applicable LORS, and also to protect environmental quality, and assure public health and safety;
2. The project be designed and built to the 1998 CBC (or successor standard, if such is in effect); and
3. The CBO review the final designs, conduct plan checking and perform field inspections during construction, and staff audit and monitor the CBO to ensure satisfactory performance.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC)[2] and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. The CBC in effect is that

edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.

Protocol: In the event that the OMGP is 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 (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission 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 for facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 – Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List, and a Master Specifications List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment in **Table 1: Major Equipment List** below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Table 2: Major Structures and Equipment

Quantity	Description	Dimensions (ft)[1]		
		Length	Width	Height
2	Combustion gas turbine with starter package (CT)	50	45	20
2	CT air inlet filter with air cooling	100	20	35
2	Generator with enclosure	40	20	25
2	Fuel gas filter – separator	10	10	40
2	Heat recovery steam generator (HRSG)	70	45	65
2	HRSG stack	--	18'-6" Ø	131
2	$SCONO_X$™ skid	20	15	10
2	Generator breaker	15	20	25
2	Steam turbine pedestal w/turbine	45	50	30
2	Air cooled condenser	165	100	76
2	Auxiliary transformer	20	20	25
2	Step-up transformer	45	30	25
1	Demineralized water storage tank	--	50' Ø	48
1	Fire/service water storage tank	--	70' Ø	48
1	Water treatment building	100	75	20
1	Administration building	205	60	27
1	Fire pump building	15	30	12
1	Switchyard, busses and towers	360	360	35
1	Electrical control building	40	30	27
1	Guard house	10	10	12
1	Switchyard control building	20	20	14
1	Warehouse/mechanical shop[2]	100	60	27
1	Boiler feed pump building	25	20	12

[1] All dimensions are approximate and may change during project final design.
[2] Rooms are located within the administration building.

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

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

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the

CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fee has 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).]

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

Protocol: The RE shall:

1. Monitor construction progress to ensure compliance with LORS;

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

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

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

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

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

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

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and

approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

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

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

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

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

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

Protocol: A: The civil engineer shall:

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

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

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

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

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

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

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

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

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

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

Protocol: C: The design engineer shall:

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

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

3. Monitor construction progress to ensure compliance with LORS;

4. Evaluate and recommend necessary changes in design; and

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

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

Protocol: E: The electrical engineer shall:

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

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

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

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

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

Protocol: The special inspector shall:

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

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

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and

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

A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).
Verification: At least 15 days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

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

GEN-7 The project owner shall keep the CBO informed regarding the status of engineering and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, the applicable sections of the CBC and/or other LORS.
Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

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

plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections.]
Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans.

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

Protocol: 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 OMGP decommissioning plan requires removal of all equipment and appurtenant facilities; and
4. Closure/decommissioning alternatives, other than complete restoration of the site.

Verification: At least 12 months prior to closure or decommissioning activities, the project owner shall file a copy of the closure/decommissioning plan with the CBO 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 before the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval and a copy of the submittal letter to the CPM. In the next Monthly Compliance Report following the CBO's approval, the project

owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [1998 CBC, Section 104.2.4, Stop orders.]
Verification: The project owner shall notify the CPM, within five days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within five days of the CBO's approval, the project owner shall provide to the CPM a copy of the CBO's approval to resume earthwork and construction in the affected areas.

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

If, in the course of inspection, it is discovered that the work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report detailing all discrepancies and non-compliance items, and the proposed corrective action, and send copies to the CBO and the CPM.
Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy.]
Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans,

and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for:

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

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

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement

that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.
If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the nonconforming submittal with a copy of the transmittal letter to the CPM.

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

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

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

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

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, Section 106.3.2, Submittal documents, and Section 106.3.3, Information on plans and

specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.
Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC. Chapter 16, Table 16–K of the 1998 CBC requires use of the following seismic design criteria: $I = 1.25$, $I_p = 1.5$ and $I_W = 1.15$.
Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.
The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests.]

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

1. The proposed final design plans, specifications and calculations conform with all of the piping requirements set forth in the Energy Commission's Decision; and

2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:

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

The CBO may require the project owner to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation [1998 CBC, Section 104.2.2, Deputies.]
Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the above listed documents for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Energy Commission's Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

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

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

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

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

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

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

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

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

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

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request

that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.]

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

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

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

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

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

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;
7. lighting energy calculations; and
8. other reasonable calculations as customarily required by the CBO.

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical equipment installation, the project owner shall

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

REFERENCES

OMGC (Otay Mesa Generating Company/DeRosa) 1999a. Submittal of Application for Certification (AFC) Seeking Authority to construct and operate the Otay Mesa Generating project, a Natural Gas-Fired, Nominal 510 MW Power Plant to be Located in San Diego County, CA. Submitted to the California Energy Commission on August 2, 1999.

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OMGC (Otay Mesa Generating Company/Adam) 1999c. Data Adequacy Responses. Submitted to the California Energy Commission on September 10, 1999.

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POWER PLANT RELIABILITY

Steve Baker

INTRODUCTION

In this analysis, staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because the resulting project would likely not degrade the overall reliability of the electric system it serves.

The scope of this power plant reliability analysis covers:

- Equipment availability;
- Plant maintainability;
- Fuel and water availability; and
- Power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While Otay Mesa Generating Company, LLC (OMGC, the applicant) has predicted a level of reliability for the power plant (see below), staff believes the applicant should not be held responsible for achieving this goal, so long as the plant's reliability matches or exceeds that of similar plants.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system.

SETTING

In the regulated monopoly electric industry of past decades, the utility companies assured overall system reliability, in part, by maintaining a "reserve margin." This amounted to having on call, at all times, sufficient generating capacity, in the form of standby power plants, to quickly handle unexpected outages of generating or transmission facilities. The utilities generally maintained a seven- to ten-percent reserve margin, meaning that sufficient capacity was on call to quickly replace from seven to ten percent of total system resources. This margin proved adequate, in part because of the reliability of the power plants that constituted the system.

Now, in the newly restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California

Independent System Operator (Cal-ISO), a newly-formed entity that will work with the California Power Exchange (PX) to purchase, dispatch and sell electric power throughout the state. How Cal-ISO will ensure system reliability is only now being determined; protocols are being developed and put in place that will, it is anticipated, allow sufficient reliability to be maintained under the competitive market system. "Must-run" power purchase agreements and "participating generator" agreements are two mechanisms being considered to ensure an adequate supply of reliable power (Mavis 1998, pers. comm.).

The Cal-ISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the Cal-ISO (Detmers 1999, pers. comm.).

The Cal-ISO's mechanisms to ensure adequate power plant reliability apparently are being devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize maintenance expenditures will act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants exhibit individual reliability sufficiently lower than this historical level, the assumptions used by Cal-ISO to ensure system reliability will prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone a shakeout period, and the effects of varying power plant reliability are understood and compensated for, staff deems it wise to encourage power plant owners to continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

OMGC proposes to operate this 510 MW combined cycle merchant power plant at baseload, selling capacity and energy on the market and by contract to wholesale customers. In addition, the applicant proposes to provide reliability to the San Diego region and sell ancillary services, but offers no specific plans. The project is expected to operate at an overall availability of 93 percent, at a capacity factor determined by market demand (OMGC 1999a, AFC §§ 1.6, 2.1, 2.2, 3.1, 3.9.2). In order to reduce water consumption, the plant is to be cooled by an air cooled condenser, rather than by the more common evaporative cooling system (OMGC 1999a, AFC §§ 1.5.2, 3.2.1, 3.4.4, 3.11.3.4). Power augmentation will be provided by gas turbine steam injection (OMGP 2000a, §§ 1.2, 3.5; Table 3.4).

ANALYSIS

A reliable power plant is one that is available when called upon to operate. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the OMGP and compares them to industry norms. If they compare favorably, staff can conclude that the OMGP will not degrade utility system reliability.

Throughout its intended life, the project will be expected to perform reliably in baseload service. Power plant systems must be able to operate for extended periods (sometimes months on end) without shutting down for maintenance or repairs. This requirement for equipment availability is typically addressed by control of quality in machinery design, construction, and installation. Plant reliability is further assured by providing for plant maintainability and sufficient redundancy of critical equipment, fuel and water availability, and resistance to natural hazards.

EQUIPMENT AVAILABILITY

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

QA/QC PROGRAM

The QA/QC program delineated by the applicant (OMGC 1999a, AFC § 4.3.5) describes a program typical of the power industry. Equipment and supplies will be purchased from qualified suppliers of proven capabilities in accordance with the QA plan. Suppliers will be evaluated for their capabilities, personnel, past performance and QA program. Equipment will be inspected on receipt, installation inspected and function tested. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

EQUIPMENT REDUNDANCY

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

The applicant plans to provide appropriate redundancy of function for the combined cycle portion of the project (OMGC 1999a, AFC §§ 3.4.5.3, 3.4.6, 3.9.2.6.1, 3.9.2.7, 4.3.2). OMGC plans to provide the following redundant equipment:

- two 100 percent capacity boiler feed pumps per HRSG;
- two 100 percent capacity condensate pumps per HRSG;
- two 100 percent capacity auxiliary cooling water pumps;
- two 100 percent capacity air compressors;
- two 100 percent capacity air dryers;
- typically redundant control, lubricating and safety systems for gas turbines and steam turbines; and
- a Distributed Control System (DCS) with redundant sensors, controllers and data highways.

The OMGP will thus be designed with an adequate level of equipment redundancy. Additionally, the fact that the project consists of two parallel trains of gas turbine generators/HRSGs provides inherent reliability. Failure of a non-redundant component of one train should not cause the other train to fail, thus allowing the plant to continue to generate (at reduced output). With this opportunity for continued operation in the face of equipment failure, staff believes that equipment redundancy will be sufficient for a project such as this.

MAINTENANCE PROGRAM

The applicant proposes to establish a plant maintenance program typical of the industry (OMGC 1999a, AFC §§ 1.6, 3.9.2.2, 4.3.1.1, 4.3.1.2.2, 4.3.5.3). The program will encompass preventive and predictive maintenance techniques, employing both plant maintenance staff and contractors. Maintenance staff will be properly trained, and spare parts and supplies will be warehoused on-site or tracked off-site. Maintenance outages will be planned for periods of low electricity demand. In conjunction with an overall plant quality control program, staff expects that this will ensure that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

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

FUEL AVAILABILITY

The OMGP will burn natural gas from the existing San Diego Gas & Electric Company (SDG&E) pipeline system, transmitted to the plant via a new 20-inch diameter pipeline (OMGC 1999a, AFC §§ 1.5.5, 3.1.1, 3.4.6, 3.7.2, 3.8.3.1).

The SDG&E natural gas system, which provides access to gas from the Southwest, the Rocky Mountains and Canada, represents a resource of considerable capacity (Wood 2000a, pers. comm.). This system offers access to far more gas than the plant would require. Staff agrees with the applicant's prediction that there will be adequate natural gas supply to meet the project's needs.

However, at this time, it is questionable whether there will be adequate pipeline capacity to serve the OMGP. The SDG&E system currently has the capacity to receive approximately 550 mmcfd[1] of natural gas from its supplier, the Southern California Gas Company's (SoCalGas) pipeline system; currently planned upgrades will increase this to 575 mmcfd. Current system demand is 325 to 350 mmcfd. The OMGP will add 100 mmcfd to this; expansions and repowering at the Rosarito power complex across the Mexican border will add an additional 200 mmcfd to demand. A proposed power facility at La Jovita[2] in Mexico would add a further 120 mmcfd, for a total of 770 mmcfd (Wood 2000b, pers. comm.).

Discussions have been underway for some time among SDG&E, SoCalGas and the California Public Utilities Commission regarding the need to expand the capacity of SDG&E's delivery system. Until decisions have been made on how to finance these improvements, however, no expansion is likely (Wood 2000a, pers. comm.). See the **Power Plant Efficiency** section of this document. Until this situation has been resolved, staff can reach no conclusion regarding whether the OMGP will enjoy a reliable supply of natural gas fuel. Staff has written a Data Request asking the applicant for information that could enable a conclusion.

WATER SUPPLY RELIABILITY

Water will be used in the power plant chiefly to feed the gas turbine generators' evaporative inlet air cooling systems; to supply domestic, fire protection, and steam cycle makeup water needs; and to supply the gas turbine injection steam for power augmentation[3] (OMGC 1999a, AFC §§ 1.5.1, 1.5.2, 1.5.6, 3.1, 3.1.3, 3.4.4, 3.4.7.1, 3.9.2.1, 3.11.3.4). The applicant predicts average water consumption of approximately 300,000 gallons per day (gpd) (OMGC 1999a, AFC § 3.1.3). This is an exceptionally low figure for a combined cycle power plant of this size, and is due to the applicant's decision to employ an air cooled condenser, which uses no water, instead of the more common, and cheaper, evaporative cooling system. Plant water

consumption will thus be only about five percent of that used by a plant with evaporative cooling.

For example, the Sutter Power Project (97-AFC-2), a 500 MW combined cycle project, initially planned to employ evaporative cooling, with attendant water consumption of 4.3 million gpd, or 3,000 gallons per minute (gpm). When the project was redesigned to employ dry cooling, design water consumption dropped to only 140 gpm, less than five percent of the initial figure.

Water will be supplied to the project from an existing 24-inch diameter Otay Water District (OWD) potable water pipeline, via a new 0.2-mile long interconnecting pipeline (OMGC 1999a, AFC §§ 1.5.6, 3.1.3, 3.4.7, 3.7.3, 4.3.4.1). The OWD is a member of the San Diego County Water Authority, which is a member of the Metropolitan Water District. The OWD receives 17 million gpd from the County Water Authority; it is capable of supplying the 300,000 gpd required by the OMGP (OMGC 1999a, AFC § 4.3.4.1). Staff regards this as an adequately reliable water supply. (See the **Soil and Water Resources** portion of this document for further discussion of water supply.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, flooding, tsunamis (tidal waves) and seiches (waves in inland bodies of water) will not likely represent a hazard for this project,[4] but seismic shaking (earthquake) presents a credible threat to reliable operation (see those portions of this document entitled **Facility Design** and **Geology**).

SEISMIC SHAKING

The site lies within Seismic Zone 4 (OMGC 1999a, AFC §§ 1.7, 4.1.1.1). The nearest earthquake faults lie nine and 22 kilometers distant (OMGC 1999a, AFC § 3.3.2.2). The project will be designed and constructed to the latest appropriate LORS. Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking, compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded (see that section of this document entitled **Facility Design**.) By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special

concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1993 through 1997 (NERC 1998):

For Combined Cycle units (All MW sizes)
Availability Factor = 91.10 percent

All the gas turbines considered for use in the project have been on the market for several years now, and can be expected to exhibit typically high availability. The applicant's prediction of an annual availability factor of 93 percent (OMGC 1999a, AFC § 2.1) is quite reasonable compared to the NERC figure for similar plants throughout North America (see above). In fact, these new, large machines can well be expected to outperform the fleet of various gas turbines that make up the NERC statistics. Further, since the plant will consist of two parallel gas turbine generating trains, maintenance can be scheduled during those times of year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures (OMGC 1999a, AFC §§ 1.6, 3.9.2.2, 4.3.1.1). The applicant's estimate of plant availability therefore appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

AIR COOLED CONDENSER

Dry cooling, whether the air cooled condenser proposed for the OMGP, or a dry cooling system utilizing circulating water and a dry cooling tower, offers a vast reduction in project water consumption (see above). On hot days, however, cooling effect is reduced, causing a reduction in power output and fuel efficiency (see the **Power Plant Efficiency** portion of this document). If temperatures rise too high, steam is no longer condensed rapidly enough, and plant output must be curtailed, or the plant shut down. This decreases plant availability in hot weather, when power is most needed (and prices paid are highest).

The temperature at which output is curtailed is a function of the design of the cooling system. The larger the air cooled

condenser (and the more expensive), the higher the temperature causing curtailment, and the fewer the number of days per year the plant is unavailable. Balancing project cost against hot weather curtailment is an economic decision to be made by the applicant. Staff assumes that the applicant will reach a balance that allows the project to compete effectively in the market.

SCONOx

The applicant proposes to employ SCONOx, a proprietary post-combustion air emissions control process that has yet to be employed on this scale (OMGC 1999a, AFC §§ 1.5.2, 1.5.7, 1.8.2, 3.4.1, 3.4.10.1.1, 3.11.3.3.3). While pioneering a new technology such as this can result in reliability problems, the applicant has allayed staff's concerns by offering a fallback option. If SCONOx is unavailable in time to meet project schedules, or if it fails to perform satisfactorily, the applicant reserves the right to install selective catalytic reduction (SCR) in its place. SCR is a well-proven technology, and its use would pose no particular reliability concerns.

Because of this fallback option, staff deems the plan to use SCONOx acceptable from a reliability standpoint.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, cannot impact project reliability. Reliability impacts on the electric system from facility closure, should there be any, are dealt with in that portion of this document entitled **Transmission System Engineering**.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

The applicant predicts an equivalent availability factor of 93 percent, which staff believes is achievable in light of the industry norm of 91 percent for this type of plant. The applicant speaks only in general terms of providing reliability services, and has not committed to providing any specific services. Given this lack of commitment, staff assumes that the project will be used chiefly for baseload generation, and has evaluated reliability in this light. Neither the use of an air cooled condenser and steam injection, nor the plan to employ SCONOx to control air emissions, causes concern. Staff concludes that the project, as proposed, will be built and operated in a manner consistent with industry norms for reliable operation, with one exception. Until a mechanism has been put in place to accomplish needed capacity upgrades to the gas pipeline system serving the project, staff can reach no conclusion regarding whether the OMGP will have access to a reliable source of natural gas fuel. Staff has written a Data Request asking the applicant for further information on which to base a conclusion.

RECOMMENDATION

Until staff's Data Request has been answered and the question of the necessary upgrade to the natural gas delivery pipeline system has been answered, staff cannot produce a recommendation regarding certification of the OMGP. No Conditions of Certification are proposed.

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POWER PLANT EFFICIENCY

Steve Baker

INTRODUCTION

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

In order to support the Energy Commission's findings, this analysis will:

- determine whether the facility will likely present any adverse impacts upon energy resources;
- determine whether these adverse impacts are significant; and if so,
- determine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES

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

LOCAL

No local or county ordinances apply to power plant efficiency.

SETTING

Otay Mesa Generating Company, LLC (OMGC, the applicant) proposes to construct and operate a (nominal) 510 MW combined cycle merchant power plant to generate baseload power and provide reliability to the San Diego region while selling ancillary services (OMGC 1999a, AFC § 2.2). The combined cycle project will consist of two "F-class" combustion turbine generators, with evaporative inlet air coolers and steam injection for power augmentation, producing approximately 170 MW each, two

unfired heat recovery steam generators (HRSGs), and one 180 MW or two 90 MW reheat steam turbine generators, totaling approximately 510 MW (OMGC 1999a, AFC §§ 1.5.2, 3.4.1; OMGC 2000a, AFC Supplement, §§ 1.2, 3.5; Table 3.4). To minimize water consumption, steam turbine exhaust steam will be cooled in an air cooled condenser, rather than by means of a more typical evaporative cooling system.

ANALYSIS

ADVERSE IMPACTS ON ENERGY RESOURCES

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

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

PROJECT ENERGY REQUIREMENTS AND ENERGY USE EFFICIENCY

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. The OMGP will burn natural gas at a maximum rate up to 84.6 billion Btu per day LHV[1] (OMGC 1999a, AFC Fig. 3.4-1C). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies.

Under expected project conditions, electricity will be generated at a peak load efficiency between 53.8 and 56.8 percent LHV, depending on which gas turbine generators are employed.[2] Compare these figures to the average fuel efficiency of a typical utility company baseload power plant at approximately 35 percent LHV.

ADVERSE EFFECTS ON ENERGY SUPPLIES AND RESOURCES

The applicant has described its source of supply of natural gas for the OMGP (OMGC 1999a, AFC §§ 1.5.5, 3.1.1, 3.4.6, 3.7.2). The project will burn natural gas from the San Diego Gas & Electric (SDG&E) pipeline system, which draws gas from the Southern California Gas Company (SoCalGas) system. SoCalGas, in turn, acquires gas from El Paso Natural Gas Company, thus accessing gas reserves in Texas. In addition, these systems are interconnected in such a way that they can ultimately draw on gas supplies from the Rocky Mountains and Canada (OMGC 1999a, AFC § 4.3.3; Wood 2000a, pers. comm.). These sources represent far more gas than would be required for a project

this size. It is highly unlikely that the OMGP could pose a substantial increase in demand for natural gas in California.

ADDITIONAL ENERGY SUPPLY REQUIREMENTS

Natural gas fuel will be supplied to the project via either of two new interconnection pipelines from the SDG&E system. A 2.05-mile 20-inch diameter pipeline will bring gas from SDG&E's Pipeline 2000. Alternatively, a 1.6-mile 20-inch diameter pipeline will bring gas from the SDG&E metering station near the Mexican border (OMGC 1999a, AFC §§ 1.5.5, 3.1.1, 3.7.2, 3.8.3.1). This would provide an adequately reliable connection to the SDG&E gas supply system.

There is some question, however, whether the SDG&E gas supply system will be able to satisfy demand in the near future. The current receipt capacity of SDG&E's system from the SoCalGas system is approximately 550 mmcfd;[3] upgrading now underway will increase this to 575 mmcfd. Current system demand is 325 to 350 mmcfd, of which 100 mmcfd goes to the Rosarita power complex across the Mexican border. Expansions and repowering currently underway at Rosarita will add another 1,200 MW of capacity, or 200 mmcfd or more of gas demand. Another 100 mmcfd would be required by the OMGP, and 120 mmcfd by the proposed La Jovita power facility in Mexico.[4] Total demand could thus grow to 770 mmcfd, outstripping the capability of the system to supply its customers (Wood 2000b, pers. comm.).

Discussions have been underway for some time among SDG&E, SoCalGas and the California Public Utilities Commission (CPUC) regarding the need to expand the capacity of SDG&E's delivery system. Until decisions have been made on how to finance these improvements, however, no expansion is likely (Wood 2000a, pers. comm.). SDG&E's gas system is currently under consideration at the Biennial Cost Allocation Proceeding before the CPUC; after this process is complete, SDG&E plans to commence the studies necessary to determine the required system upgrades. After these studies have been completed, it will remain to determine how the upgrades will be funded. Alternatives include the CPUC assessing all the customers on the SDG&E system to pay for these upgrades.

Until this situation has been resolved, staff can reach no conclusion on whether the OMGP will establish a requirement for additional energy supply capacity. In order

to move toward an answer, staff has written a Data Request asking the applicant for more information on this situation.

Compliance with Energy Standards

No standards apply to the efficiency of the OMGP or other non-cogeneration projects.

Alternatives to Reduce Wasteful, Inefficient and Unnecessary Energy Consumption

The OMGP could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.

Project Configuration

The OMGP will be configured as a combined cycle power plant, in which electricity is generated by two gas turbines, and additionally by one or two[5] reheat steam turbines that operate on heat energy recuperated from the gas turbines' exhaust. By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency of any combined cycle power plant is increased considerably from that of either gas turbines or steam turbines operating alone. Such a configuration is well suited to the large, steady loads met by a baseload plant, intended to supply energy efficiently for long periods of time.

The number of turbines further contributes to efficiency at part load. Gas turbine generators operate most efficiently at one particular output level, typically at full load. Whenever desired output is less than full load, the unit must be throttled back. Rather than being forced to throttle back one large turbine, with the consequent reduction in efficiency, the power plant operator will have the option of shutting off one gas turbine. This allows the plant to generate at less than full load while maintaining optimum efficiency, suitable for a plant meant for flexible generation, such as load-following and other ancillary services. Loads down to 50 percent of full load allow one gas turbine, operating at full load, and its steam turbine to maintain peak efficiency.

Additionally, the gas turbines will be equipped with steam injection (OMGP 2000a, §§ 1.2, 3.5; Table 3.4), whereby a portion of the steam generated in the HRSGs is injected into the gas turbine downstream of the compressor. This increases mass flow through the turbine, increasing power output without an attendant increase in fuel consumption, and with minimal impact on efficiency. Steam injection allows additional power output for peaking and load following duty.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The "F-class" gas turbines to be employed in the OMGP represent some of the most modern and efficient such machines now available. The applicant will employ combined cycle power trains from a prominent manufacturer; the actual supplier will be determined based on competitive bids.

One possible choice is the General Electric Frame 7FA, nominally rated in a two-on-one[6] train combined cycle at 530 MW and 56.5 percent efficiency LHV at ISO[7] conditions (OMGC 1999a, AFC §§ 1.5.2, 3.4.1; Fig. 3.4-1B; GTW 1998). Actual site rating will be less due to altitude (665 feet above mean sea level) (OMGC 1999a, AFC §§ 1.5.1, 3.2.2, 3.3.1, 3.5.7), temperature, and the use of an air cooled condenser instead of the more effective evaporative cooling system.

One alternative to the General Electric machine is the Siemens-Westinghouse 501F, nominally rated in a two-on-one train combined cycle configuration at 546 MW and 55.8 percent efficiency LHV at ISO conditions (OMGC 1999a, AFC §§ 1.5.2, 3.4.1; Fig. 3.4-1C; GTW 1998).

Another alternative is the ABB KA-24 (OMGC 1999a, AFC §§ 1.5.2, 3.4.1; Fig. 3.4-1A). While the KA-24, with its sequential combustion system, promises slightly higher fuel efficiency (57.9 percent) (GTW 1998) than the other "F-class" machines, any differences among the three in actual operating efficiency will be insignificant. Selecting among these machines is thus based on other factors, such as generating capacity, cost, ability to meet air pollution limitations, and commercial terms and price. The ABB machine, for instance, is available only in one-

on-one power trains, with one gas turbine and one steam turbine paired on a single shaft, generating a nominal 271 MW (Orsini 1999, pers. comm.). The GE and Siemens-Westinghouse machines, which can be configured either one-on-one or two-on-one, may offer some advantages in operational flexibility.

Efficiency of Alternatives to the Project

The project objectives include generation of baseload electricity and ancillary services, as market conditions dictate (OMGC 1999a, AFC § 2.2).

Alternative Generating Technologies

The applicant addresses alternative generating technologies in its application (OMGC 1999a, AFC § 3.11.3). Oil-burning, coal-burning, solar, wind, hydroelectric, biomass and geothermal technologies are all considered. Given the project objectives, location and air pollution control requirements, staff agrees with the applicant that only natural gas-burning technologies are feasible for the OMGP (see **Alternatives** analysis).

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel efficient machinery.

Capital cost is also important in selecting generating machinery. Recent progress in the development of large, stationary gas turbines, aided by the incorporation into these machines of technological advances made in the development of aircraft jet engines, has created a situation in which several large manufacturers compete vigorously to sell their machines. This, combined with the cost advantages of assembly-line manufacturing, has driven down the prices of these machines. Thus, the power plant developer can purchase a turbine generator that not only offers the best available fuel efficiency, but at the same time sells for the lowest per-kilowatt capital cost.

One possible alternative to an “F-class” gas turbine is the Siemens-Westinghouse 501G gas turbine generator, a “G-class” machine that employs partial steam cooling to allow slightly higher gas temperatures, yielding greater efficiency. The 501G is rated at 58 percent efficiency, only 0.1 percent higher than the ABB KA-24, and produces 367 MW to the KA-24’s 271 MW; a two-train “G-class” power plant would produce a nominal 734 MW. However, the 501G is brand new; the first such machine has only recently entered service at a site in Florida owned by Lakeland Electric and Water (Power 1999). Given the minor efficiency improvement promised by the “G-class” turbine and the lack of a proven track record for the 501G, the applicant’s decision to purchase “F-class” machines is a reasonable one.

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods. The two commonly used techniques are the evaporative cooler and the chiller; both devices increase gas turbine power output by cooling the gas turbine inlet air. A chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An evaporative cooler boosts power output best on dry days; it uses less electric power than a chiller, thus yielding slightly higher operating efficiency. The applicant plans to install evaporative cooling (OMGC 1999a, AFC § 1.5.2; Fig. 3.4-1; §§ 3.4.7.1, 3.9.2.1, 3.11.3.2.4). Staff deems this a reasonable approach that will yield no adverse energy impacts.

Steam Cycle Cooling Technology

The choice of cooling methods for the steam turbine’s condenser influences efficiency as well as maximum power output. Typically, an evaporative cooling system employing a wet cooling tower is used, particularly in hot, dry climates such as this. Evaporative cooling, however, consumes vast quantities of medium-quality water. In an arid climate with restricted

water supplies, it may be feasible to employ dry cooling. This can take either of two forms.

One dry cooling option is that of a dry cooling tower, in which cooling water is used to condense steam in the condenser, similarly to an evaporative cooling system. This water is then cooled, in turn, by pumping it through a large heat exchanger, past which air is blown by fans. The other option is an air cooled condenser, in which the steam exhausted from the steam turbine is sent directly to the dry cooling heat exchanger; fans blow air past it. The air cooled condenser consumes less electric power than a dry cooling tower due to the absence of cooling water pumps. Water consumption of either of these techniques is effectively nil.

Dry cooling relies on the dry bulb temperature of the ambient air. Evaporative cooling takes advantage of the wet bulb temperature of the air, achieving lower cooling water temperatures by evaporating some of the water. In dry climates, the wet bulb can be considerably lower than the dry bulb temperature, and results in enhanced cooling effect. The more cooling available, the more effectively the steam turbine's exhaust steam can be condensed, increasing its power output and, thus, its efficiency. Depending on the climate and the power plant's actual operating schedule, overall annual plant fuel efficiency can be reduced in the range of two percent.[8] Given the vast reduction in plant water requirements (see the **Soil and Water Resources** portion of this document), staff deems this an insignificant reduction.

In conclusion, the project configuration (combined cycle) and generating equipment ("F-class" gas turbines, air cooled condenser) chosen appear to represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

One nearby power plant project that holds the potential for cumulative energy resources impacts when aggregated with the OMGP is the Rosarita power complex in Mexico. Another more speculative project is the proposed La Jovita power facility, also in Mexico (Wood 2000b, pers. comm.; Montoya 2000, pers. comm.). While ultimate supplies of natural gas are adequate to serve all these facilities (see ***Adverse Effects on Energy Supplies and Resources*** above), projected increases in demand for the OMGP and the Rosarita and La Jovita facilities may exceed the delivery capacity of the natural gas supply system (see ***Additional Energy Supply Requirements*** above).

Based on conversations with SoCalGas staff, Energy Commission staff is concerned that adding the OMGP to the existing gas distribution system will contribute to a reduction in gas pressure throughout a significant portion of the SDG&E system, restricting gas delivery to customers and necessitating rotating curtailments (Montoya 2000, pers. comm.). Adding the OMGP could contribute to far-reaching supply and price impacts on other existing and new gas customers in the San Diego/Baja California region. While discussions are underway to solve these delivery capacity problems, until a solution is in hand, staff can reach no conclusion on whether the OMGP will establish a requirement for additional energy supply capacity.

FACILITY CLOSURE

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

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The OMGP, if constructed and operated as proposed, would generate 510 MW of electric power at an overall project fuel efficiency between 54 and 57 percent. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable while conserving water through use of air cooling. It will not create significant adverse effects on energy supplies or resources, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Facility closure would present no impacts on electric system efficiency. However, the OMGP may require additional sources of energy supply, specifically, upgrades to the natural gas delivery system. At this time, staff can reach no conclusion on whether the OMGP will establish a requirement for additional energy supply

capacity. Staff has written a Data Request asking the applicant for further information on which to base a conclusion.

RECOMMENDATION

Until staff's Data Request has been answered and the question of necessary upgrades to the natural gas delivery pipeline system has been answered, staff cannot produce a recommendation regarding certification of the OMGP. No Conditions of Certification are proposed.

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TRANSMISSION SYSTEM ENGINEERING

Linda Davis

INTRODUCTION

The Transmission System Engineering (TSE) analysis provides the basis for the findings in the California Energy Commission's (Commission) decision. This preliminary staff analysis (PSA) indicates whether or not the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations and standards (LORS) required for safe and reliable electric power transmission.

The Otay Mesa Generating Company, L.L.C. proposes to connect the Otay Mesa Generating Project (OMGP) to the San Diego Gas and Electric Company (SDG&E) transmission system. The California Independent System Operator (Cal-ISO) is responsible for ensuring electric system reliability for all participating transmission owning utilities and determines both the standards necessary to achieve reliability and whether a proposed project conforms with those standards. The Energy Commission will rely on the Cal-ISO's determinations to make its finding related to applicable reliability standards, the need for additional transmission facilities, and environmental review of the whole of the action. In this case, staff is primarily a facilitator, coordinating the Cal-ISO's process and results with the certification process and the Energy Commission decision. The Cal-ISO will provide testimony at the Energy Commission's Hearings.

Staff's analysis also evaluates outlet alternatives identified by the applicant and provides proposed conditions of certification to ensure that the project complies with applicable LORS during the design, construction, operation and potential closure of the project.

Public Resources Code Section 25523 requires the Energy Commission to "prepare a written decision…which includes: …findings regarding conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state, and federal standards, ordinances, and laws." Under the California Environmental Quality Act (CEQA) the Energy Commission must conduct an environmental review of the "whole of the action", which may include facilities ancillary to the project that are not licensed by the Energy Commission (Cal. Code Regs, tit. 14, §15378). Therefore, the Energy Commission makes reasonable attempts to identify and evaluate the environmental effect of construction and operation of any new or modified transmission facilities. This process includes facilities that are beyond the project's interconnection with the existing transmission system that are required as a result of the power plant addition to the California transmission system.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

- 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 a single transmission element out of service) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas during major disturbances (such as loss of all lines in a right of way). While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).
- North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions, however the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Reliability Criteria also provide policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid.

• Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied in the assessment of the system reliability implications of the Project. Also of major importance to the OMGP, and other privately funded projects which may sell through the California Power Exchange (Cal-PX) are the Cal-ISO Day/Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the creation of the Real Time Merit Order Stack (SP 11). The Congestion Management Scheduling Protocol provides that the operation of power plants 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 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 the effects on total transmission losses at each generating unit and scheduling point. Additional calculations are performed to the actual net power output required by the generating units to meet their scheduled obligations (Cal-ISO 1998b, Cal-ISO 1998c).

• The Cal-ISO Participating Generator Agreement consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the generating unit.

PROJECT DESCRIPTION

The OMGP is a 510 MW generation project and will be located on a 46-acre site that is approximately fifteen miles southeast of the city of San Diego, and approximately 1.5 miles north of the United States/Mexico border. The OMGP is comprised of two 275 MW combined cycle units and will provide a total nominal electrical output of 510 MW for sale into the California electricity market. (OMGP 1999, pages 1-1 and 3.6-1.) The project will connect to the San Diego Gas and Electric Company (SDG&E) network, shown in Figure 1, by utilizing the existing 230 kilovolt (kV) line between the Miguel and Tijuana substations, shown in Figure 2.

The OMGP will require construction of a new switchyard, which will be located on the site adjacent to the new power plant facility. The Project switchyard will interconnect to the SDG&E transmission system through building two short (about 0.1 mile) 230 kV double circuit lines, which will be connected, to the existing Miguel - Tijuana circuit, which is constructed as a double circuit line and operated as a single circuit at this time. If the Cal-ISO determines that reconductoring is required to accommodate the OMGP's power output, the reconductoring will occur on the OMGP power output will be accommodated by reconductoring[1] the existing Miguel - Tijuana line, from the project connection to Miguel substation (9.05 circuit miles). The reconductoring will use existing towers and new bundled conductor. If re-conductoring occurs, the circuit to Miguel

will be operated as a double circuit. The existing double circuit line from the proposed interconnection point to Tijuana is not to be reconductored, and will continue to be operated as a single circuit. (SDG&E 1999, pages 2-3.) See Figure 3.

Any new transmission outlet facilities, or downstream facilities[2], required for connection to the grid are considered part of the project and are subject to the full AFC review process. See Figure 4 for major interconnection and downstream project facilities that were identified by the System Impact Study performed by SDG&E, and which are required by the Cal-ISO to be subject of study in the Detailed Facilities Study. If, after review of the Detailed Facilities study, the Cal-ISO determines that downstream facilities are needed, these additional facilities will need to be added to the project description for evaluation in the Final Staff Analysis. The Cal-ISO has reviewed the System Impact Study for the OMGP and concurs that the listed facilities are the appropriate items to evaluate. (Cal-ISO 2000.}

EXISTING FACILITIES AND RELATED SYSTEMS

Transmission system engineering Figure 1 and Figure 2 depict existing transmission facilities in the project area, which is located in the SDG&E service area. Generating resources are generally located to the east, as far away as Arizona, and to the north of the load centers in San Diego that are served by SDG&E. Power generally flows from 230 kV substations to the east and north of the load center, such as Miguel and South Bay substations, to the load centers in the central SDG&E area.

Figure 2 shows the existing Miguel - Tijuana lines prior to modification to accommodate the Project. Existing facilities in the immediate project area are limited to the Miguel – Tijuana 230 kV transmission circuit. (OMGP 1999, page 3.11-13.)

ANALYSIS

INTERCONNECTION FACILITIES

New switchyard and interconnection facilities are proposed to provide a reliable connection to SDG&E's existing Miguel - Tijuana 230 kV lines. These outlet facilities consist of a new 230 kV switchyard and 0.1 miles of interconnecting transmission line. The interconnecting circuits comprise two new 230 kV double-circuit steel pole transmission lines between the switchyard and the existing SDG&E Miguel -Tijuana 230 kV lines (see Figure 3). The Project requires reconductoring of approximately 9.05 circuit miles of SDG&E's existing Miguel -Tijuana lines from the connection point to Miguel substation to complete the interconnection. (See Figures 2 and 3). The System Impact Study indicated system improvements might be required in addition to the reconductoring and outlet facilities. (Cal-ISO 2000.) These improvements are

discussed and listed in the System Reliability section of this Analysis.

SWITCHYARD

The OMGP switchyard is located at the project site. Power is generated by the facility at 13.8 and 18 kV and stepped up to 230 kV by two transformers in the power plant switchyard. Surge arrestors at the high-voltage bushings protect the transformers from surges in the 230 kV system resulting from lightning or system disturbances. (OMGP 1999, page 3-4-4 and Figures 3.4-4a and b). This preliminary switchyard configuration is acceptable. Details will be developed in the Detailed Facilities Study. (See Condition of Certification TSE-1.)

TRANSMISSION LINE CONNECTION AND RECONDUCTORING

The two new 230 kV double circuit lines connecting the project switchyard to the existing SDG&E Miguel - Tijuana lines require approximately 0.1 miles of new 230 kV transmission line facilities. The new transmission circuits from the plant switchyard to the SDG&E Miguel - Tijuana lines are to be parallel single pole, double circuit structures between the tap point and the switchyard with single–circuit, double dead-end poles used to tap the existing lines. The tap will create new terminations for the Miguel -Tijuana line, resulting in the renaming of the circuit from the Miguel - Tijuana line to the Miguel - OMGP line, which may be reconductored with bundled conductor, and the Tijuana – OMGP line, which will continue to use existing conductor. (OMGP 1999, Appendix N, pages 2-3.) The OMGP interconnection will likely require modification of 230 kV termination facilities within the fence of the Miguel and Tijuana substations.

The new double circuit transmission line connecting the project to the tap point of the Miguel - OMGP line, and the reconductor of the Miguel - OMGP line will be bundled 900 kcmil aluminum conductor, steel supported (ACSS), also known as “Canary” and the circuits will be operated as a double circuit line. The bundled conductors are rated at 818 MVA per circuit, which is adequate to provide for the high temperature emergency operation that may be needed during transmission facility outages. (OMGP 1999, page 3.6-1.) The new double circuit connecting the project to the tap point of the Tijuana - OMGP line will require the same conductor that is currently in service on the existing lines, which is single 1033.5 kcmil aluminum conductor, steel reinforced (ACSR) known as “Ortolan”. The double circuit to Tijuana substation will continue to operate as a single circuit. (OMGP 1999, Appendix N page 15.) These

conductors are rated at 634 MVA, which is adequate to accommodate power flows on the circuit between the project and Tijuana substation.

ALTERNATIVES

The applicant considered no line route alternatives for interconnecting the OMGP to the existing SDG&E transmission system due to the practicality of using the existing Miguel - Tijuana 230 kV transmission line. Inspection reveals that there are no practical alternative line routes, voltages, or points of interconnection for a generating station located at the proposed site. A 500 kV interconnection would require new right of way for and construction of approximately nine miles of new 500 kV transmission line from the plant to Miguel substation. Nine miles of new 500 kV circuit would not be cost effective from the plant to Miguel because the Miguel -Tijuana 230 kV line is immediately adjacent to the plant and requires no new right of way to accommodate transmission of the plant output to Miguel. OMGP 1999, page 3.11-13.)

SYSTEM RELIABILITY

INTRODUCTION

A system reliability study, called a System Impact Study or a Preliminary Facilities Study, is performed to determine the effects of connecting a new power plant to the existing electric grid. The study identifies impacts of connecting a new plant to the grid and also identifies how negative impacts can be minimized or eliminated. Any new transmission outlet facilities, or downstream facilities[3], required for connection to the grid are considered part of the project and are subject to the full AFC review process. See Figure 3 for major interconnection and downstream project facilities that are identified by the System Impact Study preformed by SDG&E and which are required by the Cal-ISO to be subject of study in the Detailed Facilities Study. The Cal-ISO has reviewed the System Impact Study for the OMGP. It concurs with the scope of the study and study of the proposed interconnection and downstream facilities. (Cal-ISO 2000.)

The Detailed Facilities Study and the review by the Cal-ISO have not been completed. This review will determine the need for any downstream facilities, the curtailment of the project output to support system reliability accomplished by the use of a remedial action scheme (RAS), or the effect of the project on the Commission Federal de Electricidad (CFE) transmission system in Mexico. RAS decreases power output or trips one or more generating units to help support system reliability. Additional voltage support and other requirements such as RAS may be identified as a result of

additional studies to be conducted as part of a Detailed Facilities Study. Completion of the Detailed Facilities Study, the Commission's approval, and the issuance of the Cal-ISO's conclusions and findings regarding the study will assure conformance with NERC, WSCC, and Cal-ISO reliability criteria. (Cal-ISO 2000.) The Cal-ISO will provide testimony on the Preliminary and Detailed Facilities Studies and will provide preliminary conclusions and findings at Energy Commission hearings.

System Reliability Study

A system reliability evaluation determines whether the new project would cause thermal overloads, voltage violations (voltages too high or low), and/or electric system instability (excessive oscillations). In addition to the above analysis, studies may be performed to verify that sufficient reactive power (see Definition of Terms) is available. The reliability evaluation must be conducted for all credible "emergency" conditions. Emergency conditions could include the loss of a single or double circuit line, the loss of a transformer or generator, or a combined loss of these facilities. A Preliminary Facilities Study is conducted in advance of potential system changes, such as the addition of new generating stations to the system, in order to prevent criteria violations. The criteria used in this evaluation include the WSCC Planning Criteria, NERC Planning Standards and applicable Cal-ISO reliability criteria. The reliability implications of the OMGP and the need for additional facilities will be determined by the Cal-ISO based on the Detailed Facilities Study. A preliminary determination of compliance with applicable reliability criteria has been provided by the Cal-ISO (Cal-ISO 2000).

Scope of Reliability Studies

SDG&E performed power flow studies with and without the OMGP power flowing into the system to determine conformance with reliability criteria. The SDG&E study cases analyzed the OMGP under 2002 peak summer load conditions forecasted in 1998. The Cal-ISO has requested that a more updated load forecast be used for the Detailed Facilities Study. Also, the System Impact Studies were very limited and included only an analysis of power flow thermal limitations on transmission facilities within the SDG&E area. For the Detailed Facilities Study the Cal-ISO requires that additional technical analysis be conducted including post-transient and short circuit analysis. The load forecast and cases are considered acceptable by the Cal-ISO and CEC staff for the level of analysis required for the System Impact Study, however additional analysis will be required for the Detailed Facilities Study. (Cal-ISO 2000.)

Numerous power flow scenarios and contingencies were analyzed under the 2002 peak load scenario. The studies adequately assessed thermal overload impacts with reduced power imports between Arizona and SDG&E, and with unabated imports between Arizona and SDG&E. These factors were selected for study to place significant stress on the SDG&E transmission system to evaluate the effect of the project power flow into the existing system. The study assumptions were acceptable to the Cal-ISO and to CEC staff for purpose of the System Impact Study. (Cal-ISO 2000.)

POWER FLOW STUDY RESULTS

The study identified impacts of the new power flow on the existing power system under normal and contingency scenarios. By interconnecting to the SDG&E lines, the OMGP would have the most impact on the Miguel - OMGP 230 kV lines. Transmission reinforcements are identified which may be required between the Otay Mesa Plant and the SDG&E load centers to mitigate thermally overloaded transmission facilities and maintain import capability into the SDG&E system. Construction of identified transmission reinforcements versus use of generator tripping to relieve overloads (RAS) is to be addressed in the Detailed Facilities Study which will asses the need for the downstream facilities listed below. Using the SDG&E generator interconnection requirements listed in “Technical standards for Load and Non-SDG&E Owned Generator Interconnections” as basis for evaluation, the Cal-Cal-ISO concurs that the Power Flow Study identified the following facilities as appropriate study options for relieving overloads by the OMGP operation date. (OMGP 1999, Appendix N), shown also on Figure 4:

- Install a new 392 MVA 230/138 kV transformer bank within the fence at Miguel substation
- Build a new 138 kV line between Miguel and Proctor Valley substations
- Reconductor the existing 138 kV line between Miguel and Proctor Valley substations
- Reconductor the Los Coches – South Bay 138 kV line and loop the circuit in to Proctor Valley substation
- Reconductor the 69 kV line between Jamacha and Spring Valley substations
- Reconductor the 69 kV line between El Cajon and Los Coches substations

The Power Flow analysis also identified the need for several system reinforcements beyond the OMGP’s operational date. The Cal-ISO did not concur that these requirements

were part of the project interconnection and downstream facilities needed to accommodate the OMGP operational date, thus these are not listed as required facilities. These facilities involve reconductoring of three lines: the Mission – Main 138 kV line, the Friar – Mission 138 kV line, and the Station B – Kettner 69 kV line; and increasing the emergency rating of the existing 230/138 kV transformer banks at Miguel substation from 468 to 500 MVA. The Cal-ISO used the SDG&E generator interconnection requirements in determining concurrence with the System Impact Study conclusions. The SDG&E interconnection requirements do not state that reinforcements that are required after the new generators operational date should be included in the interconnection requirements. (Cal-ISO 2000)

SHORT CIRCUIT STUDY RESULTS

Short circuit analyses are conducted to assure that existing and proposed breaker ratings are sufficient to withstand high levels of current during a fault (such as when a line touches the ground). The addition of a generation unit to the grid can significantly increase the level of current that flows through circuit breakers. The acceptability of breaker ratings can also be determined during the compliance phase; it need not be done during the AFC process. A short circuit study will be performed as part of the Detailed Facilities Study for the Project. The Cal-ISO will make its final determination of whether breakers need to be replaced based on the Detailed Facilities Study that is expected to be received later (Cal-ISO 2000). Condition of certification TSE-1b is recommended to ensure that breaker ratings will be adequate to interrupt post-project fault currents.

STABILITY STUDY RESULTS

Stability studies were performed to ensure that the transmission system remains stable during normal and abnormal operating conditions with the Project connected to the system. The Cal-ISO requests that the stability studies be performed as part of the Detailed Facilities Study for the Project. (Cal-ISO 2000.)

CAL-ISO REVIEW

The Cal-ISO has reviewed the OMGP's System Impact Study and concurs with the report findings on facilities identified to be required except for those identified that are required after the new generator plant’s operational date. SDG&E identified some facilities that were required to address potential reliability problems beyond the projects operation date. The Cal-ISO used the SDG&E generator interconnection requirements in determining concurrence with the System Impact Study conclusions. The SDG&E interconnection requirements do not state that

reinforcements that are required after the new generators operational date should be included in the interconnection requirements. Based on the System Impact Study, the Cal-ISO concurred that a number of facilities may need to be reinforced in order for Project to be interconnected to Cal-ISO controlled grid owned by SDG&E. The identified facilities are needed to relieve congestion and maintain system reliability. (Cal-ISO 2000.) The criteria violations that may be mitigated by those facilities have been identified in the Cal-ISO's concurrence letter:

- To mitigate thermally overloaded transmission facilities and maintain import capability into the SDG&E system
- To relieve transmission facility overloads caused by numerous contingencies

The Cal-ISO also indicated that further investigation should be performed to study post-transient voltages and short circuit duties. Generator tripping should be evaluated in the Detailed Facilities Study. Findings are to be presented in the Detailed Facilities Study. Since the Cal-ISO does not have an approved generator interconnection policy, the Cal-ISO used the SDG&E interconnection requirements in determining concurrence with the Systems Impact Study. The criteria do not state that reinforcements required after the new generating plant's operation date should be included in the interconnection requirements. Using that criteria, facilities identified in the System Impact Study that are required after the 2002 operation were identified by SDG&E as required but the Cal-ISO did not concur. SDG&E will have to perform additional work in the Detailed Facilities Study prior to the Cal-ISO granting final interconnection approval to the Project. (Cal-ISO 2000.)

CUMULATIVE IMPACTS

There are no cumulative environmental impacts resulting from the project relative to this technical discipline.

FACILITY CLOSURE

INTRODUCTION

The parallel operation of generating stations is controlled, in part by CPUC Rule 21. This rule and standard utility practices for interconnecting a generating unit provide for the participating transmission owner (PTO) to have control of breakers and disconnect switches where the outlet line terminates (the OMGP switchyard) and general control over the interconnected generators. Prior to construction and interconnection of a generating unit, the PTO reviews and comments on the plans and specifications for the power plant and termination equipment that is important to safe and reliable parallel operation[4] and inspects the interconnection

facilities. Contractual provisions may be developed to provide backup or other power service and codify procedures to be followed during parallel operation. Before generating stations are permitted to bid into the Cal-PX and be dispatched by the Cal-ISO, generator standards must be met and the generating station must commit to comply with instructions of the Cal-ISO dispatchers. All participating generators must sign a Participating Generator Agreement (Cal-ISO 1998a, Cal-ISO 1998b). Procedures for planned, unexpected temporary closure and unexpected permanent closure must be developed or verified to facilitate effective communication and coordination between the generating station owner, PTO and the Cal-ISO to ensure safety and system reliability.

CPUC General Order 95, Rule 31.6 requires that "lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property." Condition of certification TSE-1c requires compliance with this rule.

The ability of the above LORS to reasonably assure safe and reliable conditions in the event of facility closure was evaluated for three scenarios:

PLANNED CLOSURE

This type of closure occurs in a planned and orderly manner such as at the end of its useful economic or mechanical life or due to gradual obsolescence. Under such circumstances the requirement for the owner to provide a closure plan 12 months prior to closure in conjunction with applicable LORS is considered sufficient to provide adequately for safety and reliability. For instance, a planned closure provides time for the owner to coordinate with the PTO[5] to assure (as one example) that the PTO's system will not be closed into the outlet thus energizing the power plant switchyard. Alternatively, the owner may coordinate with the PTO to maintain some power service via the outlet line to supply critical station service equipment or other loads[6.]

UNEXPECTED TEMPORARY CLOSURE

This unplanned closure occurs when the facility is closed suddenly and/or unexpectedly for a short term due to unforeseen circumstances such as a natural or other disaster or emergency. During such a closure the facility cannot insert power into the utility system. Closures of this sort can be accommodated by establishment of an on-site contingency plan (see General Conditions Including Compliance Monitoring and Closure Plan).

UNEXPECTED PERMANENT CLOSURE

This unplanned closure occurs when the project owner closes the facility suddenly and/or unexpectedly, or abandons the facility or a permanent basis. This includes unexpected closure where the

owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. An on-site contingency plan that is in place and approved by the CPM prior to the beginning of commercial operation of the facilities will be developed to assure safety and reliability (see General Conditions Including Compliance Monitoring and Closure Plan).

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff has reviewed the System Impact Study and the Cal-ISO has issued preliminary findings regarding the OMGP connection to the existing SDG&E 230 kV Miguel - Tijuana transmission line. The Cal-ISO does not have sufficient information to issue a preliminary approval with full identification of facilities necessary for the interconnection. However, the Cal-ISO concurs with the following interconnection requirements and the reconductoring and downstream facilities identified in the System Impact Study as requiring further study:

- The interconnection facilities comprising the proposed power plant switchyard configuration s, two 0.01 mile 230 kV double circuit outlet lines, and 9.05 miles of reconductored existing SDG&E 230 kV Miguel - Tijuana lines and termination facilities at the Miguel and Tijuana substations
- Install a new 392 MVA 230/138 kV transformer bank within the fence at Miguel substation
- Build a new 138 kV line between Miguel and Proctor Valley substations
- Reconductor the existing 138 kV line between Miguel and Proctor Valley substations
- Reconductor the Los Coches – South Bay 138 kV line and loop the circuit in to Proctor Valley substation
- Reconductor the 69 kV line between Jamacha and Spring Valley substations
- Reconductor the 69 kV line between El Cajon and Los Coches substations,

Staff will provide a recommendation on conformance after review of the studies now underway, and will include the conclusions and recommendations resulting from the review in the Final Staff Assessment. The Final Staff Assessment will provide conclusions regarding compliance of the project with applicable LORS and good engineering practices subject to implementation of the recommended Conditions of Certification.

RECOMMENDATIONS

Staff proposes the following conditions of certification to insure system reliability and conformance with LORS.

CONDITIONS OF CERTIFICATION

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

a) Breakers and bus in the power plant switchyard and other switchyards or substations where applicable shall be sized to comply with a short circuit analysis.

b) The transmission facilities shall meet or exceed the requirements of CPUC General Order 95.

c) Approximately 9.05 circuit miles of the existing SDG&E Miguel – Tijuana 230 kV lines from the OMGP to Miguel substation may be reconductored.

d) Termination facilities shall comply with applicable Cal-ISO and SDG&E interconnection standards (SDG&E Technical Standards for Load and Non-SDG&E Owned Generator Interconnections and CPUC Rule 21).

e) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner/operator no later than 30 days prior to planned construction and comply with the owner's standards

f) The new outlet transmission facilities shall use double circuit steel pole construction.

g) The applicant shall provide a Detailed Facilities Study including a description of downstream facility requirements, RAS sequencing and timing, if required, and an executed Facility Interconnection Agreement for the OMGP transmission interconnection with SDG&E. The Detailed Facilities Study shall include the analysis recommended by the Cal-ISO (Cal-ISO 2000) and shall evaluate reactive margin for the SDG&E and adjacent service areas. The Detailed Facilities Study and Interconnection Agreement shall be coordinated with the Cal-ISO and shall comply with the Cal-ISO's tariffs.

Verification: At least 60 days prior to start of construction or modification of transmission facilities or switchyards, the project owner shall submit for approval to the CPM, electrical one-line diagrams signed and sealed by a registered professional electrical engineer in responsible charge, a route map, the Detailed Facilities Study and the Final Interconnection Agreement, and an engineering description of equipment and the configurations covered by requirements 1a through 1g above. Substitution of equipment and line or substation configurations shall be identified and justified by the project owner for CPM approval.

TSE-2 The project owner shall inform the CPM of any impending changes, which may not conform to the requirements 1a through 1g of TSE-1, and have not received CPM approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed

equipment; transmission facilities or switchyard configurations shall not begin without prior written approval of the changes by the CPM.
Verification: At least 60 days prior to construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements of **TSE-1** and request approval to implement such changes.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction and any subsequent CPM approved changes thereto, to ensure conformance with CPUC GO-95, SDG&E Interconnection Handbook**,** Cal-ISO tariffs and CPUC Rule No. 21 and these conditions. In case of non-conformance, the project owner shall inform the CPM in writing within 10 days of discovering such non-conformance and describe the corrective actions to be taken.
Verification: Within 60 days after synchronization of the project, the project owner shall transmit to the CPM an engineering description(s), and one-line drawings of the "as-built" facilities signed and sealed by a registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95, SDG&E Interconnection Handbook, Cal-ISO tariffs, CPUC Rule No. 21 and these conditions shall be concurrently provided.

REFERENCES

Cal-ISO (California Independent System Operator). 1998a. Cal-ISO Tariff Scheduling Protocol, Posted April 1998, Amends 1,4,5,6,7 incorporated.

Cal-ISO (California Independent System Operator). 1998b. Cal-ISO Dispatch Protocol, Posted April 1998.

Cal-ISO (California Independent System Operator). 2000. California Independent System Operator's concurrence with preliminary findings regarding Otay Mesa Generating Projects' System Impact Study (OMGP 1999, Appendix N.) Letter from Jeffery C. Miller (Cal-ISO) to Dave Korinek (SDG&E) dated Feb. 8, 2000.

NERC (North American Electric Reliability Council). 1998. NERC Planning Standards, September 1997.

San Diego Gas and Electric Company (SDG&E). 1999. Technical Standards for Load and non-SDG&E Generator Interconnections", Nov. 1, 1999.

OMGP (OTAY Mesa Generating Project). 1999. Otay Mesa Generating Project Application for Certification (99-AFC-3). Submitted to the California Energy Commission, August 1999.

WSCC (Western Systems Coordinating Council). 1997. Reliability Criteria, August 1998.

DEFINITION OF TERMS

AASS	Aluminum cable steel supported. A composite conductor made up of aluminum wire with a steel core, which supports the conductor.
ACSR	Aluminum cable steel reinforced. A composite conductor made up aluminum wire with a steel core, which reinforces the conductor.
Ampacity	Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.
Ampere	The unit of current flowing in a conductor.
Bundled	Two wires 18 inches apart.
Bus	Conductors that serve as a common connection for two or more circuits.
Conductor	The part of the transmission line (the wire) which carries the current.
Congestion Management	Congestion management is a scheduling protocol, which provides that dispatched generation, and transmission loading (imports) will not violate criteria.
Emergency Overload	See Single Contingency. This is also called an L-1.
Kcmil or kcm	Thousand circular mil. A unit of the conductor's cross sectional area; when divided by 1,273, the area in square inches is obtained.
Kilovolt	KV. A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.
L-1	The outage of a single circuit.
Loop	An electrical cul de sac. A transmission configuration, which interrupts an existing circuit, diverts it to another connection and returns a different circuit forming a loop or cul de sac.
Megavar	One megavolt ampere reactive.
Megavars	Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature

	of motor loads that must be fed by generation units in the system.
Megavolt ampere	MVA. A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.
Megawatt	MW. A unit of power equivalent to 1,341 horsepower.
Normal Operation/ Normal Overload	When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.
N-1 Condition	See Single Contingency. Also called an L-1.
Outlet	Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.
Power Flow Analysis	A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.
Reactive Power	Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.
Remedial Action Scheme (RAS)	A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.
SF6	Sulfur hexafluoride is an insulating medium.
Single Contingency	Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.
Solid dielectric cable	Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.
Thermal rating	See ampacity.
TSE	Transmission System Engineering.
Undercrossing	A transmission configuration where a transmission line crosses below the conductors of another transmission line – generally at

90 degrees.

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

ALTERNATIVES

Eileen Allen

PURPOSE OF THE ALTERNATIVES ANALYSIS

The purpose of staff's alternatives analysis is to provide the Energy Commission with an analysis of a reasonable range of alternatives that could avoid or substantially lessen any potentially significant adverse impacts of the proposed project. (Cal. Code Regs., tit. 14, §15126(d)) (Cal. Code Regs., tit. 20, § 1765) This analysis identifies the potential significant environmental impacts of the proposed project, and discusses technology and site alternatives and their ability to reduce or avoid potential significant impacts of the proposed project.

LEGAL GUIDANCE FOR ALTERNATIVES ANALYSIS

The "Guidelines for Implementation of the California Environmental Quality Act" (CEQA), Title 14, California Code of Regulations Section 15126(d), provide direction by requiring an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project objectives." In addition, the analysis must address the "no project" alternative (Cal. Code Regs., tit. 14, э15126(d)).

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not have to consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15125(d)(5)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (*City of Santee v. County of San Diego* (4th Dist. 1989) 214 Cal.App. 3d 1438).

ALTERNATIVES ANALYSIS METHODOLOGY

To prepare this alternatives analysis, the staff used the methodology summarized below:

- Describe the project objectives.
- Identify any potential significant environmental impacts of the project.
- Evaluate the environmental impacts of not constructing the project to determine whether the "no project" alternative is superior to the project as proposed.
- Evaluate alternative technologies.
- Determine which, if any, of the potential significant impacts could potentially be avoided by use of an alternative site.
- Develop screening criteria for feasibility of alternative sites.
- Select a reasonable range of alternative sites that:
- Meet most of the basic objectives of the project.
- Avoid or substantially lessen one or more of the potential significant effects of the project.
- Satisfy the feasibility screening criteria.

- If any alternative sites are deemed infeasible, explain why.
- Evaluate the environmental impacts of each feasible alternative site.
- Compare the environmental impacts of the alternative sites with the proposed project to determine whether the environmental impacts of the alternative are the same, better, or worse than the proposed project.

IMPLEMENTATION OF STAFF'S ALTERNATIVES ANALYSIS

PROJECT OBJECTIVES

The Application states that the project has the following objectives:

- To construct and operate a merchant power plant in southwest San Diego County to be able to sell power into the California Power Exchange; provide reliability to the San Diego grid; provide ancillary services; and sell power on a bilateral basis.
- To locate the facility on land that is zoned for industrial use and in close proximity to existing key infrastructure, such as a natural gas fuel supply, an electric transmission line, water supply and sewer lines.
- To minimize project environmental and socioeconomic impacts.
- To use proven technology, while taking advantage of recent developments in emission control equipment and water conservation technology.
- To minimize project capital and operating costs and to maximize project revenues to allow project financing on reasonable terms.

POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The visual and biological resources technical areas may have potentially significant environmental impacts. The significance level of these potential impacts is currently very uncertain. Therefore, staff has not examined alternative sites in addition to those considered by the applicant.

VISUAL RESOURCES

Staff has identified a potentially significant impact from one of the view areas in the the site vicinity. However, it is staff's opinion that the mitigation measures staff has proposed and others that it is considering for the visual resources area, when combined with those proposed by San Diego County's staff, will likely reduce any potential significant impacts to less than significant levels. Staff's **VISUAL RESOURCES** analysis discusses this item in detail.

BIOLOGICAL RESOURCES

With respect to biological resources, the impact of the project's NOx emissions, if any, on the endangered quino checkerspot butterfly remains to be determined. Staff's **BIOLOGICAL RESOURCES** analysis discusses this unresolved item, which is being researched by the applicant

and the United States Fish & Wildlife Service. The FSA will present a conclusion to this unresolved issue.

SMALLER SIZE PROJECT ALTERNATIVE

A facility smaller than 500 MW at the same site, would be consistent with at least some of the project goals identified above. However, even a 100 MW facility with its linear facilities, would be create similar biological resource impacts.

THE “NO PROJECT” ALTERNATIVE

CEQA Guidelines and Energy Commission regulations require consideration of the "no project" alternative. This alternative assumes that the project is not built. It is compared to the proposed project and determined to be superior, equivalent, or inferior to it.

In the AFC (OMGP 1999a, pp.3.11-16 through 3.11-17) the applicant stated that the California Independent System Operator (Cal-ISO) has determined that San Diego has an existing and future capacity shortage. The applicant further stated that its project helps to fill the gap between the required generation and the existing assets, and that the “no project” alternative does not help to solve the state’s need for new efficient generation.

Not constructing and operating the proposed OMGP would avoid all environmental impacts that the project would create. The avoidance of the potential air quality, water quality, biological resources, and cultural resources impacts may make the “no project” alternative environmentally superior to the proposed project. Other merchant power plant developers have discussed possibilities for at least 14 large (i.e., 300 MW or greater) projects with the Energy Commission staff. Therefore if the OMGP is not built, there is no shortage of alternatives for providing electricity and system reliability, from the statewide perspective.

The Cal-ISO and San Diego Gas & Electric (SDG&E) indicated on September 9, 2000 that the San Diego area needed more power during the next five to ten years in order to meet load growth and maintain reliability. Both entities discussed the possibility of meeting this expected demand through transmission projects running to the north or east of the San Diego region. Staff believes that transmission projects are a reasonable alternative to generation in this case. However, we agree with the Cal-ISO and SDG&E’s conclusions that transmission projects often have a longer lead time than generation projects, particularly if more than one local jurisdiction is involved. Furthermore, transmission projects generally involve at least as many environmental impacts as generation projects.

The Otay Mesa region has the largest concentration of industrially zoned land in San Diego County. Given this land availability and the Cal-ISO and SDG&E statements on the need for more power in the San Diego area, staff believes that during the next five to ten years there is a strong possibility of at least one power plant being proposed for the area. If the OMGP is not built, another power plant project is likely to be proposed in the area that would have similar impacts. Therefore the conclusion that the “no project” alternative would be environmentally superior to the proposed project is tentative and based on a short-term outlook for this project.

TECHNOLOGY ALTERNATIVES

DEMAND SIDE MANAGEMENT

One alternative to a power generation project could be programs to reduce energy consumption. These programs are typically called "energy efficiency," "conservation," or "demand side management" programs. One goal of these programs is to reduce overall electricity use; some programs also attempt to shift such energy use to off-peak periods.

The Energy Commission is responsible for several such programs, the most notable of which are energy efficiency standards for new buildings and for major appliances. The California Public Utilities Commission supervises various demand side management programs administered by the regulated electric utilities, and many municipal electric utilities have their own demand side management programs. The combination of these programs constitutes the most ambitious overall approach to reducing electricity demand administered by any state in the nation.

The Energy Commission is also responsible for determining what the state’s energy needs are in the future, using 5 and 12 year forecasts of both energy supply and demand. The Commission calculates the energy use reduction measures discussed above into these forecasts when determining what future electricity needs are, and how much additional generation will be necessary to satisfy the state's needs.

Having considered all of the demand side management that is "reasonably expected to occur" in its forecasts, the agency then determines how much electricity is needed. The most recent estimation of electricity needs is found in the 1996 Electricity Report.

The Warren-Alquist Act prohibits the agency, in its alternatives analysis, from considering such conservation programs to be alternatives to a proposed generation

project. (Pub. Resources Code, Section 25305(c).) This is because the approximate effect of such programs has already been accounted for in the agency's "integrated assessment of need," and the programs would not in themselves be sufficient to substitute for the additional generation calculated to be needed.

The Warren-Alquist Act was amended in 1999 to delete the necessity of a Commission finding of "need" in power plant licensing cases. Nevertheless, the Commission's most recent need determination, adopted in 1997, makes it abundantly clear that conservation programs alone cannot displace the need for power generation for California's growing economy.

RENEWABLE RESOURCES

Staff examined the principal electricity generation technologies that could serve as alternatives to the proposed project and do not burn fossil fuels. These technologies are geothermal, solar, hydroelectric, wind, and biomass. Each of these technologies can be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions, and the related lack of contribution to global climate change.

In response to public comment regarding solar photovoltaic cells and fuel cells (Claycomb, 1999) staff evaluated renewable distributed generation options, and the Energy Commission’s program to encourage development of these renewable resources. The Energy Commission's Emerging Renewables Buy-Down Program provides funding for residences and small businesses to pay partial costs of certain grid-connected renewable energy systems. Specifically, the Energy Commission is offering cash rebates of up to $3,000 per kilowatt, or 50 percent off a renewable-energy system's purchase price (whichever is less), making renewable energy electric generating systems more affordable for consumers. The following generating systems are eligible for funding:

1) Photovoltaics (PV) -- solar cells that convert sunlight directly to electricity.

2) Small Wind Turbines -- wind turbines with an output of 10 kilowatts (kW) or less.

3) Fuel Cells -- devices that use a chemical process to convert renewable fuels into electricity.

4) Solar Thermal Systems -- systems that use solar heat to generate electricity.

PHOTOVOLTAICS

To date, all renewable energy systems financed through this program in the SDG&E service area have been PV systems. Of the nine PV systems installed so far, all but one have been installed on residential roofs. These residential systems range in size from one to five kW. The one commercial-sized (22 kW) system was installed by PowerLight Corporation at the U.S. Naval Air Station. The total installed cost for all nine installed PV systems was $311,000, of which $98,000 was provided from the "Emerging Account." The average installed cost for PV, therefore, has been approximately $8,400 per kW. This cost for PV generation compares with the cost for a natural gas fired, combined cycle power plant such as the Otay Mesa project, $600-700 per kW.

An additional 14 PV systems have been approved for installation in the SDG&E service area under this program. Most will be residential applications, except one 9 kW system will be installed on a commercial building (Carpenters' Hall). Of the $346,000 total costs, $99,000 will be rebated to PV buyers from "Emerging Account" funds.

In summary, a total of 23 PV systems in the San Diego region have been approved or completed through the Energy Commission's Renewable Program. The total installed generating capacity for these systems will be 70 kW, at a total installed cost of $657,000. The average installed cost for these systems is, therefore, approximately $9,400 per kW.

Fuel Cells

The Energy Commission has co-funded seven fuel cell research projects through its Public Interest Energy Research Program (CEC 1999j). Two of these projects are located in San Diego at the Marine Corps Air Station Miramar. They involve demonstrating the performance and reliability of molten carbonate fuel cell electric generating units with capacities of 75 and 250 KW. The Commission has also co-funded a solid oxide fuel cell/microturbine generation hybrid project. Since these projects are in the initial development stages, there is no information

regarding their generation costs. Overall research by the Energy Commission's Energy Technology Development staff indicates that fuel cells cost about $2,000-4,000 per KW.

Fuel cells are still a young, emerging technology at the research and development stage, and they are not yet a commercial option for generating electricity. In order to encourage more research that will bring fuel cells into the "commercially available" category, the Energy Commission has also provided co-funding for the National Fuel Cell Research Center at the University of California, Irvine. The Center was established with the goal of developing advanced power generation strategies that are both very energy efficient and environmentally sensitive.

Staff also considered renewable resource options from the centralized facility perspective. Both the distributed and the centralized options have strengths and weaknesses, which are discussed below.

CENTRALIZED FACILITIES

Solar, wind, and hydroelectric resources require large land areas in order to generate 510 megawatts of electricity. Specifically, centralized solar projects using the parabolic trough technology require approximately 5 acres per megawatt. This 500 MW plant would require approximately 2,500 acres. Centralized photovoltaic arrays require similar acreage per megawatt. Centralized wind generation areas generally require 40-50 acres per megawatt, with 510 megawatts requiring 20,000 - 25,000 acres. Large hydroelectric facilities generating 510 megawatts would inundate at least 30,000 acres with water. These technologies have the potential to cause significant land use, biological, cultural resource, and visual impacts. In summary, staff does not believe that these alternatives would be environmentally preferable to the proposed project.

Severe resource constraints also exist for most of the centralized renewable technologies. Geothermal resources sufficient to generate substantial amounts of electricity are not available in the San Diego County area. Opportunities for new solar,

hydroelectric, wind, or biomass generation are very limited.

Staff also considered the alternative of a biomass facility. However, biomass facilities are generally in the 3 to 10 MW range, must overcome significant fuel source reliability issues, have difficulty being economically competitive, and are typically worse from an air quality perspective than natural gas. For these reasons such a project would not be a feasible alternative, nor would it be likely to sufficiently satisfy project goals.

ALTERNATIVE SITE SCREENING ANALYSIS

ALTERNATIVE SITE SCREENING CRITERIA

Staff has considered the following five screening criteria in identifying alternative sites:

- Site suitability. Approximately 15 acres are required for the site.
- Availability of infrastructure. The site should be within a reasonable distance of the electric transmission system, natural gas supply, and water supply.
- Availability of the site.
- General Plan and zoning consistency.
- Not located adjacent to moderate or high-density residential areas or to sensitive receptors (such as schools and hospitals) or to recreation areas.

ALTERNATIVE SITE SCREENING ANALYSIS

Alternative sites were identified through a review of the AFC's alternatives discussion, and a review of the San Diego Region Employment Land Inventory & Market Analysis (San Diego Association of Governments, 1999). Staff contacted San Diego County regarding any alternative sites or siting regions that would be considered more suitable than the Otay Mesa region (Caldwell, 1999). The County staff did not suggest any, but referred Energy Commission staff to the above Employment Land Inventory and Market Analysis. It states that three planning areas (i.e. Otay Mesa, Otay, and Chula Vista) contain fifty percent of the County's vacant land considered suitable for industrial/office development.

This land area comprises approximately 6,000 acres, with 103 parcels in the 10-50 acre size range. The land available in Chula Vista was eliminated from consideration when compared with the Otay Mesa region, because two of the areas were close to developed residential areas. The third Chula Vista area is part of the planned Otay Ranch project,

which will be a new town combining residential, commercial, institutional, and industrial uses.

Given the very minimal level of potential significant impacts identified for the proposed project and its site, staff has concluded that the Otay Mesa region, which includes SANDAG's Otay Mesa and Otay planning areas, is a reasonable area for siting an electric power plant. Staff concurs with the applicant's conclusions that the Otay Mesa region contains some site possibilities. To date, no public comments or suggestions have been received on alternative sites or siting regions. Therefore, staff has not identified any alternative sites beyond those discussed in the AFC (see **ALTERNATIVES Figure 1**).

OMGC identified site screening factors specific to the Otay Mesa region:

- Compatibility with the Brown Field Municipal Air Field and the Tijuana International Airport;
- Avoidance of biologically sensitive areas; and
- Site availability.

ALTERNATIVES Figure 1
Alternative Sites

SITE ALTERNATIVES

The applicant considered three site possibilities, Alternative Sites A, B, and C. Alternative Site C became the applicant's proposed site. Each is within the East Otay Mesa region of San Diego County. Given the minimal level of potential significant impacts and the absence of public comments on the proposed site, staff has not identified additional alternative sites.

OMGP ALTERNATIVE SITE A

SITE DESCRIPTION

- Site A is a 40-acre parcel located at or near the boundary between the City of San Diego and San Diego County.
- Surrounding land uses include the Otay International Center and a truck inspection facility operated by the California Highway Patrol.
- The site has rolling topography. It was previously cultivated and currently supports a non-native grassland plant community.

ADVANTAGES

- Site A is closer than the proposed site to the gas interconnection point, and the alternative gas interconnection point.
- Site A is owned by a willing seller.

DISADVANTAGES

- Site A is located approximately 0.75-mile from a residential development in Tijuana, Mexico.
- This alternative site requires the longest transmission line interconnection, a distance of approximately one-mile.
- Site A is closer than the proposed site to small scale, commercial/ light industrial uses within the City of San Diego. The applicant considered these uses to be less compatible with a power plant than other large scale, heavy industrial uses, which may eventually be built on the eastern edge of the Otay Mesa region.
- The applicant considered the sewer system interconnection options poor when compared to the proposed site.

OMGP ALTERNATIVE SITE B

SITE DESCRIPTION

- Site B is a 40-acre parcel that is part of a larger 160-acre parcel.
- This alternative site is surrounded by other undeveloped parcels.
- Similar to Site A, Site B has rolling topography, was previously cultivated and currently supports a non-native grassland community.

Disadvantages

- Site B is owned by a party who is unwilling to sell the parcel.
- Like Site A, Site B is located approximately 0.75-mile from a residential development in Tijuana, Mexico.
- This alternative site requires a longer transmission interconnection than that of the proposed site. The required line would be approximately 0.75-mile in length.
- Similar to Site A, Alternative Site B is closer to small scale, commercial/industrial uses than the proposed site.
- The applicant considered the sewer system interconnections poor when compared with the proposed site.

OMGP Alternative Site C (Applicant's Proposed Site)

Site Description

- Alternative Site C is a 46-acre parcel that is part of a larger 72-acre parcel.
- The site is fairly level and contains a non-native grassland community.
- This alternative site is immediately surrounded by other undeveloped parcels. A metal fabricating business at the former Kuebler Ranch is located approximately 0.5-miles to the north, an auto auction facility is located approximately 0.6-mile to the southwest. The R.J. Donovan State Prison is located approximately one mile northwest of the site, and the George F. Bailey County Correctional Facility is located approximately one-mile northeast of the site.

Disadvantages

- Alternative Site C is further than Alternative Sites A and B from both the proposed gas interconnection point and the alternative gas interconnection point.

Advantages

- Alternative Site C has a willing seller.
- This alternative site has the shortest transmission interconnection, with a distance of 0.1-mile.
- The parcel is located at the eastern edge of San Diego County's East Otay Mesa development area, which is as far away as possible from the small scale, commercial/light industrial development within the City of San Diego. When this alternative site is compared to Alternative Sites A and B, it is the most

appropriate from the land use compatibility perspective.

- Alternative Site C is approximately 1.5-miles away from the residential community in Tijuana, Mexico, which is twice the distance of Alternative Sites A and B.
- This alternative site has the best sewer interconnection options.

CONCLUSION

CEQA requires the project alternatives analysis to focus on reasonable alternatives to the project or to the site that would avoid or substantially lessen a project's significant impacts. Staff identified potential significant impacts in the visual resources area related to travelers on Alta Road, and future hikers on a trail planned for Johnson Canyon. However, staff believes that mitigation options such as vegetative screening are likely to be effective in reducing these potential impacts to less than significant levels. Staff also identified a potentially significant impact in the biological resources area related to the impact, if any, of NOx emissions on the endangered quino checkerspot butterfly. Staff is evaluating the effectiveness of potential mitigation measures in conjunction with the United States Fish and Wildlife Service. Staff's final conclusions will be presented in the Final Staff Assessment but will require the applicant to provide a complete analysis for unresolved issues identified in this report. Given the overall environmental mitigation that OMGC has proposed or already agreed to, staff has identified no other impacts that are potentially significant.

Of the project alternatives considered, the environmentally preferable alternative would be the smaller combined cycle power plant. However, a smaller project would be less likely to meet project objectives and offers no environmental benefits when compared to the proposed project with mitigation. The environmental benefits associated with a smaller project would have impacts that would need to be mitigated similarly to the proposed project.

The "no project" alternative could be considered preferred, but only on a short-term basis. This is because staff believes that if the OMGP is not built, another power plant project would be proposed in the Otay Mesa region within the next five to ten years.

Alternative distributed generation options such as rooftop photovoltaics and fuel cells are attractive from the environmental perspective, but they will not account for 510 MW during the next five to ten years. Both rooftop photovoltaics and fuel cells are in the research and development stage, with significant state/federal research funding focused on development to reduce costs such that these options would be economically competitive.

Regarding Alternative Sites A and B, each of them does nothing to reduce the potential for impacts to a lower level than that of the proposed project. Both are closer than the proposed project to commercial/light industrial development in San Diego, and to a residential community in Tijuana, Mexico. Both require a longer transmission interconnection, which could increase the potential for biological resource impacts.

After analyzing various alternatives for the OMGP, staff concludes that none of the alternatives is preferable to the proposed project at the proposed site, with additional mitigation as recommended by staff.

REFERENCES

California Independent System Operator staff (various), and San Diego Gas & Electric staff (various). Remarks at “Meeting San Diego’s Power Needs” conference. San Diego. September 9,1999.

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Claycomb, William. Personal conversations with Eileen Allen. November 15, and December 8,1999.

PG&E (Pacific Gas & Electric/De Rosa) 1999a. Application For Certification for Otay Mesa Generating Project (99-AFC-5). August 2, 1999.

San Diego Association of Governments. San Diego Region Employment Land Inventory & Market Analysis. 1999.

GROWTH INDUCEMENT

Eileen Allen

In general, power plants do not, in and of themselves, induce growth in the area where they are built. This is because the electricity generated by a power plant is usually sold and dispersed into a broad regional market consisting of numerous states and parts of Canada and Mexico. Thus, the additional generation usually has no effect on local electricity supply. However, the OMGP does have the potential to create growth-inducing impacts because the wastewater pipeline may facilitate growth in Otay Mesa.

Under CEQA, staff need not analyze the growth-inducing effects of a project if that project is already analyzed in local planning documents, and if those documents also discuss growth targets and limits. City of Carmel-by-the-Sea v. U.S. Dept. of Transportation 123 F.3d 1142 (9th Cir. 1997). Staff did not conduct a separate analysis of the growth-inducing impacts of the wastewater pipeline because such impacts have already been analyzed in the East Otay Mesa Specific Plan and the Final Environmental Impact Report for the Specific Plan. The wastewater pipeline proposed by applicant had been planned for and included in the East Otay Mesa Specific Plan , section 2.5.2, page 68. The growth-inducing effects of such infrastructure was also discussed in the East Otay Mesa Specific Plan Final Environmental Impact Report, page 6-1. Since the local planning documents in this case analyzed the wastewater pipeline and set forth growth targets and limits, Energy Commission staff did not conduct a separate analysis.

As for the project as a whole, it is consistent with the East Otay Mesa Specific Plan (Specific Plan), for which a Final Environmental Impact Report (FEIR) has been certified by San Diego County. The FEIR analyzes the growth in population, jobs and housing that would be attributable to a build-out of the East Otay Mesa area. (East Otay Mesa Specific Plan section 4.12). The Specific Plan proposes, and the FEIR analyzes, 2,359 acres dedicated to industrial use. Since OMGP would be an industrial use within the plan area and conforms to the Specific Plan, any growth-inducing impacts associated with OMGP as part of the industrial build-out have been analyzed by the Specific Plan. Staff does not foresee any growth-inducing impacts specifically from OMGP that go beyond what has already been discussed in the Specific Plan or FEIR.

COMPLIANCE MONITORING PLAN INCLUDING THE GENERAL CONDITIONS AND THE CLOSURE PLAN

Jeri Zene Scott

INTRODUCTION

The Compliance Monitoring Plan (Compliance Plan) has been established as required by Public Resources Code section 25532. The plan provides a means for ensuring that the Otay Mesa Generating Project is constructed and operated in compliance with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of the following elements:

1. General conditions that:

a. set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

b. set forth the requirement for handling confidential records and maintaining the compliance record;

c. state procedures for settling disputes and making post-certification changes; a

d. state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions; and

e. establish requirements for facility closure plans.

2. Specific conditions` of certification:

Specific conditions of certification that follow each technical area contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of verifying that the condition has been satisfied.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

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

5. ensuring that the compliance files are maintained and accessible.

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

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

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

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

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

ENERGY COMMISSION RECORD

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

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

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

ACCESS

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

COMPLIANCE RECORD

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

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

COMPLIANCE VERIFICATIONS

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

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

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

2. appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audit of project records; and/or
4. Energy Commission staff inspection of mitigation and/or other evidence of mitigation.
5. Verification lead times (e.g., 90,60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

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

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

All submittals shall be addressed as follows:

Compliance Project Manager
Otay Mesa Generating Project (99-AFC-5C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

COMPLIANCE REPORTING

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project

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

Compliance Matrix

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

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

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

Pre-Construction Matrix

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

Start of Construction

Construction shall not commence until this matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing the start of construction. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification if the required

lead-time extends beyond the day anticipated for the start of construction. It is important that the project owner understand that pre-construction activities are performed at their own risk. Failure to allow appropriate lead-time may cause delays in start of construction.

Monthly Compliance Report

The first Monthly Compliance Report is due the month following the Energy Commission business meeting date that the project was approved, unless the otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

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

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to conditions of certification;
7. a listing of any filings with, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance conditions of certification;
9. a listing of the month's additions to the on-site compliance file; and
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file.
11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Annual Compliance Report

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

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;

8. a listing of the year's additions to the on-site compliance file, and

9. an evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].

10. a listing of complaints, notices of violation, official warnings, and citations received during the year; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

CONFIDENTIAL INFORMATION

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

DEPARTMENT OF FISH AND GAME FILING FEE

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars ($850). The payment instrument shall be provided to the Commission's Project Manager at the time of project certification and shall be made payable to the California Department of Fish and Game. The Commission's Project Manager will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering, with date and time stamp recording. The telephone number shall be posted at the project site and easily visible to passersby during construction and operation.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded

on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the Complaint Form, which follows:

COMPLAINT REPORT/RESOLUTION FORM

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

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

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are

protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made which provide the flexibility to deal with the specific situation and project setting which will exist at the time of closure. LORS pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

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

PLANNED CLOSURE

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

UNEXPECTED TEMPORARY CLOSURE

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

UNEXPECTED PERMANENT CLOSURE

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order that a planned facility closure does not create adverse impacts, a closure process, that will provide for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

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

2. Identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

3. Identify all facilities or equipment that will a) be immediately removed from the site after closure (e.g. hazardous materials); b) temporarily remain on the site after closure (e.g., until the item is sold or scrapped); and c) permanently remain on site after closure. The plan must explain both why the item cannot be removed and why it does not present a risk of harm to the environment and the public health and safety to remain *insitus* for in indefinite period.

4. Address conformance of the plan with all-applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Also, in the event that there are significant issues associated with the proposed facility closure plan'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 or the environment, but shall not commence any other closure activities, until Commission approval of the facility closure plan is obtained.

UNEXPECTED TEMPORARY CLOSURE

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

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

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require

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

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

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

In the event of an unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, 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 circumstances and expected duration of the closure.

If it is determined that a temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the determination. The CPM and the project owner may agree to a period of time other than 90 days.

UNEXPECTED PERMANENT CLOSURE

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

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

In the event of an unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, 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.

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

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described

in current State law and regulations, are described below. They shall be followed unless superseded by current law or regulations.

INFORMAL DISPUTE RESOLUTION PROCEDURE

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

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

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

REQUEST FOR INFORMAL INVESTIGATION

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

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

provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

REQUEST FOR INFORMAL MEETING

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

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

FORMAL DISPUTE RESOLUTION PROCEDURE-COMPLAINTS AND INVESTIGATIONS

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

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

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

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.
The criteria that determine which type of change process applies are explained below.

AMENDMENT

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

INSIGNIFICANT PROJECT CHANGE

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

VERIFICATION CHANGE

Pursuant to Title 20, California Code of Regulations, section 1770 (d), the staff may modify the verification provisions as necessary to enforce the conditions of certification without requesting an amendment to the decision.

This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the unlikely event that verification language contains technical requirements, the proposed change must be processed as an amendment.

KEY EVENT LIST

PROJECT _____ DATE ENTERED

DOCKET # _____ PROJECT MANAGER

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

PREPARATION TEAM

Executive Summary……Eileen Allen

Introduction ……Eileen Allen

Project Description ……Eileen Allen

Growth Inducement Eileen Allen

Air Quality Matt Layton

Public Health Obed Odoemelam

Worker Safety and Fire Protection Terri Wallace

Transmission Line Safety and Nuisance Obed Odoemelam

Hazardous Materials Rick Tyler

Waste Management Obed Odoemelam

Land Use Eric Knight

Traffic and Transportation Jim Adams

Noise Kisabuli

Visual Resources David Flores

Cultural Resources Gary Walker/Dorothy Torres

Socioeconomics Amanda Stennick

Biology Rick York

Water and Soils Lorraine White

Paleontological Resources Robert Anderson

Facility Design Steve Baker/Al McCuen/M. Kisabuli

Reliability Steve Baker

Efficiency Steve Baker

Transmission System Engineering Linda Davis

Alternatives Eileen Allen

Compliance Monitoring Plan and General Conditions Jeri Zene Scott

Glossary of Terms and Acronyms Bert Fegg

Project Secretary Luz Angelica Manriquez

Support Staff…….. Nancy Baker