

**Final Staff Assessment  
(Part 2 of 2)**

**CALIFORNIA  
ENERGY  
COMMISSION**

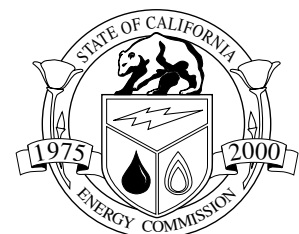
# **OTAY MESA GENERATING PROJECT**

**Application For Certification (99-AFC-5)  
San Diego County**

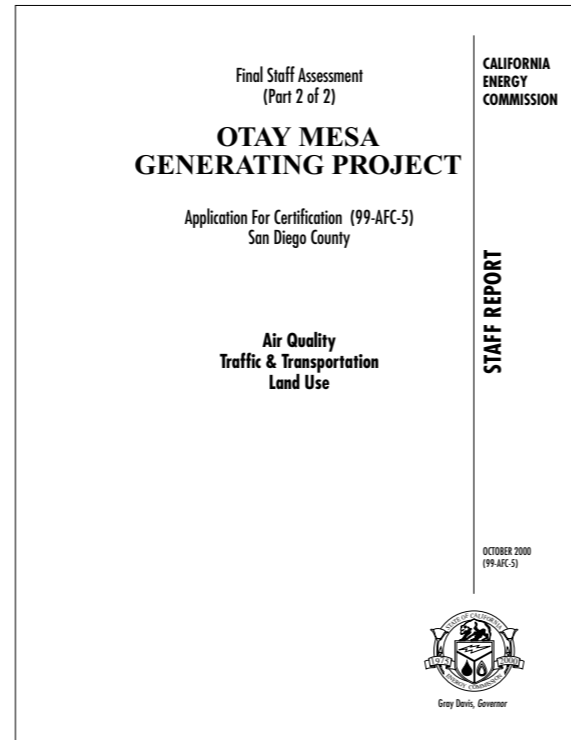
**Air Quality  
Traffic & Transportation  
Land Use**

**STAFF REPORT**

**OCTOBER 2000  
(99-AFC-5)**



*Gray Davis, Governor*



**CALIFORNIA  
ENERGY  
COMMISSION**

**SITING OFFICE**

Eileen Allen  
*Energy Commission Project Manger*

Roger E. Johnson,  
*Manager*

**ENERGY FACILITIES SITING &  
ENVIRONMENTAL PROTECTION DIVISION**

Robert L. Therikelsen  
*Deputy Director*

# EXECUTIVE SUMMARY

## INTRODUCTION

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This Final Staff Assessment (FSA) Part 2 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-5) for the Otay Mesa Generating Project (OMGP). The FSA Part 2 contains the staff's air quality, land use, and traffic and transportation analyses, and an errata for the visual resources analysis published in FSA Part 1 on October 13, 2000. 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 FSA 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 FSA contains analyses similar to those contained in an environmental impact reports required by the California Environmental Quality Act (CEQA). It is not a Committee document nor is the FSA a final or proposed decision on the proposal. The FSA presents staff's conclusions and proposed conditions that it recommends apply to the design, construction, operation, and closure of the proposed facility, if certified.

## BACKGROUND

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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 FSA are based upon information from: 1) the AFC; 2) a subsequent AFC supplement and a separate submittal of project clarifications and refinements; 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

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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 southeast 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 applicant is also seeking certification of an alternate pipeline route running from the proposed plant site to the U.S./Mexico border in order to allow for potential future connection to gas supplies in Mexico.

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, approximately 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. The applicant is also seeking certification of an alternate wastewater line that would run from Alta Road to a new extension of Lone Star Road. The Lone Star Road segment would then join the proposed route in Johnson Canyon.

OMGC plans to complete construction and start operation of the OMGP by the Fall of 2002 or the Winter of 2003. 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**

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Each technical area section of the FSA contains a discussion of impacts, and if warranted, mitigation measures and conditions of certification. The FSA 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 21 technical areas:

Air Quality	Noise*
Alternatives*	Public Health*
Biological Resources*	Reliability*
Cultural Resources*	Socioeconomics*
Efficiency*	Soil and Water Resources*
Facility Design*	Traffic and Transportation
General Conditions/Compliance*	Transmission Line Safety & Nuisance*
Geology and Paleontology*	Transmission System Engineering*
Growth Inducement*	Waste Management*
Hazardous Materials Handling*	Worker Safety & Fire Protection*
Land Use	

\* Analysis is contained in FSA Part 1.

## POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The air quality, and traffic and transportation technical areas could have potentially significant environmental impacts. Staff is considering the range of mitigation options that may reduce any potentially significant impacts to less than significant levels. Staff plans to discuss them at a public workshop that will be scheduled and noticed for November, 2000.

### ***AIR QUALITY***

Staff has reviewed the San Diego Air Pollution Control District's (District) Final Determination of Compliance (FDOC), which it received on September 18, 2000. Staff has been able to reach a conclusion on the FDOC, which is reflected in its analysis contained in this FSA Part 2. Staff has reviewed the applicant's particulate matter (PM10) mitigation proposal, which it received on October 10, 2000. Staff plans to discuss its FSA Part 2 conclusions regarding the PM10 mitigation proposal and related issues at a November, 2000 public workshop.

### ***TRAFFIC AND TRANSPORTATION***

Staff is continuing to work with the City of San Diego, San Diego County, and Caltrans District 11<sup>1</sup>, to address how to improve the skewed intersection of State Route 905 and Old Otay Mesa Road, or to find an alternative route that bypasses

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<sup>1</sup> Caltrans District 11 encompasses the San Diego County region.

the intersection. This intersection would be part of the construction work force's travel route to the project site. Staff will hold a public workshop in November, 2000 to discuss the applicant's expanded traffic study on intersections associated with the alternate route; and confirm the alternate route features and implementation steps with all three agencies, the applicant, and any interested parties.

## **STAFF RECOMMENDATION**

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Although our analysis is complete in 21 areas, resolution of the remaining air quality issues related to PM10, and confirmation of traffic and transportation features and steps related to an alternate construction travel route will be crucial to the Energy Commission's Decision on this project. Pending the out come of the November, 2000 workshop, staff is unable to recommend that the project be certified.

**OTAY MESA GENERATING PROJECT  
FINAL STAFF ASSESSMENT**

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# AIR QUALITY

Matt Layton

## INTRODUCTION

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This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the construction and operation of the proposed combined cycle units at the Otay Mesa Generating Project (OMGP). Criteria air pollutants are defined as those for which a state or federal ambient air quality standard has been established to protect public health. They include nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), volatile organic compounds (VOC) and particulate matter less than 10 microns in diameter (PM<sub>10</sub>).

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

- whether the combined cycle units at the Otay Mesa Generating Project are likely to conform with applicable Federal, State and San Diego County Air Pollution Control District air quality laws, ordinances, regulations and standards, as required by Title 20, California Code of Regulations, section 1742.5 (b);
- whether the combined cycle units at the Otay Mesa Generating Project are likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, as required by Title 20, California Code of Regulations, section 1742 (b); and
- whether the mitigation proposed for the combined cycle units at the Otay Mesa Generating Project are adequate to lessen the potential impacts to a level of insignificance, as required by Title 20, California Code of Regulations, section 1744 (b).

## LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

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### FEDERAL

Under the Federal Clean Air Act (40 CFR 52.21), there are two major components of air pollution law, New Source Review (NSR) and Prevention of Significant Deterioration (PSD). NSR is a regulatory process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a regulatory process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR and PSD analyses have been delegated by the United States Environmental Protection Agency (EPA) to the San Diego County Air Pollution Control District (District). The PSD requirements apply only to those projects (known as major sources) that exceed 100 tons per year for any pollutant.

## STATE

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

## LOCAL

The proposed project is subject to the San Diego County Air Pollution Control District (District) rules and regulations. The rules and regulations are discussed in the Preliminary Determination of Compliance (PDOC) issued June 22, 2000 (District 2000b). Rules that apply to the Project are summarized below. The rules and the project’s compliance with them are described more fully in the PDOC.

### ***RULE 20.1 AND 20.3 - NEW SOURCE REVIEW (MAJOR STATIONARY SOURCES AND PSD SOURCES):***

#### **RULE 20.3(D)(1) - BEST AVAILABLE CONTROL TECHNOLOGY/LOWEST ACHIEVABLE EMISSION RATE:**

This subsection of the rule requires that Best Available Control Technology (BACT) be installed on a pollutant specific basis if emissions exceed 10 lbs/day for each criteria pollutant (except for CO for which the PSD BACT threshold is 100 tons/yr). This subsection also requires that Lowest Achievable Emission Rate (LAER) be installed on a pollutant specific basis if the emissions exceed 50 tons/yr for NO<sub>x</sub> (oxides of nitrogen, which is the sum of NO<sub>2</sub> and nitrogen oxide [NO] emissions) or VOC emissions.

Because the District is in attainment status for the national ambient air quality standards for CO, SO<sub>x</sub> (SO<sub>2</sub> and sulfur compounds), and PM<sub>10</sub>, LAER does not apply to these particular pollutants (District Rule 20.3(d)(1)(v)). However, BACT does apply for NO<sub>x</sub>, VOC, SO<sub>x</sub>, and PM<sub>10</sub> since the District is in non-attainment for the state ambient air quality standards for ozone, for which NO<sub>x</sub> and VOC emissions are precursors, and PM<sub>10</sub> (District Rule 20.3(d)(1)(i)). Additionally BACT applies for CO and PM<sub>10</sub> if they trigger PSD major source thresholds of 100 tons/yr (District Rule 20.3(d)(1)(vi)).

Based on emission estimates for the OMGP, LAER is triggered for NO<sub>x</sub> and BACT is triggered for CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub>.

#### **RULE 20.3(D)(2) - AIR QUALITY IMPACT ANALYSIS (AQIA):**

This portion of the rule requires that an AQIA be performed for air contaminants, which exceed the trigger levels of Table 20.3-1 of the District’s Rules and Regulations. An AQIA is triggered for NO<sub>x</sub>, CO, and PM<sub>10</sub> for this project.

**RULE 20.3(D)(3) - PREVENTION OF SIGNIFICANT DETERIORATION (PSD):**

This portion of the rule requires that a PSD evaluation be performed for all contaminants, which exceed PSD major source trigger levels. PSD is triggered for NO<sub>2</sub>, CO, and PM<sub>10</sub> for the OMGP.

**RULE 20.3(D)(4) - PUBLIC NOTICE AND COMMENT:**

This portion of the rule requires the District to publish a notice of the proposed action in at least one newspaper of general circulation in San Diego County as well as send notices to the EPA and the California Air Resources Board (CARB). The District must allow at least 30 days for public comment and consider all comments submitted. The District must also make all information regarding the evaluation available for public inspection. The public notice and comment period was initiated on June 22, 2000 when the Preliminary Determination of Compliance (PDOC) was submitted to the CEC.

**RULE 20.3(D)(5) - EMISSION OFFSETS:**

This portion of the rule requires that emissions of any federal non-attainment criteria pollutant or its precursors, which exceed major source thresholds, be offset with actual emission reductions. Of the six criteria pollutants, ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, PM10, and lead, the District is a federal non-attainment area only for ozone. Therefore, offsets are potentially only required for NO<sub>x</sub> and VOC emissions, as ozone precursors. However, VOC emissions are expected to be below major source levels (50 tons/yr). Therefore, only offsets for NO<sub>x</sub> emissions are required for the OMGP per the District rules.

**RULE 20.5 - POWER PLANTS:**

This rule requires that the District submit Preliminary and Final Determination of Compliance reports to the California Energy Commission (CEC), which shall be equivalent to an evaluation for a District Authority to Construct.

**RULE 50 - VISIBLE EMISSIONS:**

This rule prohibits air contaminant emissions into the atmosphere darker than Ringlemann Number 1 (20% opacity) for more than an aggregate of three minutes in any consecutive sixty minute time period.

**RULE 51 - NUISANCE:**

This rule prohibits the discharge of air contaminants that cause or have a tendency to cause injury, nuisance, annoyance to people and/or the public or damage to any business or property.

**RULE 53 - SPECIFIC AIR CONTAMINANTS:**

This rule limits emissions of sulfur compounds (calculated as SO<sub>2</sub>) to less than or equal to 0.05%, by volume, on a dry basis. This rule also limits particulate matter emissions from gaseous fuel combustion to less than or equal to 0.1 grains per dry standard cubic foot of exhaust calculated at 12% CO<sub>2</sub>.

**RULE 68 - OXIDES OF NITROGEN FROM FUEL BURNING EQUIPMENT:**

This rule limits NO<sub>x</sub> emissions from any fuel burning equipment to less than 125 parts per million by volume (ppmv) calculated as NO<sub>2</sub> at 3% oxygen on a dry basis.

**RULE 69.3 - STATIONARY GAS TURBINES - REASONABLY AVAILABLE CONTROL TECHNOLOGY:**

This rule limits NO<sub>x</sub> emissions from gas turbines greater than 0.3 MW to 42 ppm at 15% oxygen when fired on natural gas. The rule also specifies monitoring and record keeping requirements. Startups, shutdowns, and fuel changes are defined by the rule and excluded from compliance with these limits.

**RULE 69.3.1 - STATIONARY GAS TURBINES - BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY:**

This rule limits NO<sub>x</sub> emissions from gas turbines greater than 10 MW to 15x(E/25) ppm when operating uncontrolled and 9x(E/25) ppm at 15% oxygen when operating with controls and averaged over a 1-hour period. E is the thermal efficiency of the unit. The rule also specifies monitoring and record keeping requirements. Startups, shutdowns, and fuel changes are defined by the rule and excluded from compliance with these limits.

**RULE 1200 - TOXIC AIR CONTAMINANTS, NEW SOURCE REVIEW:**

This rule requires that a Health Risk Assessment (HRA) be performed if the emissions of toxic air contaminants will increase. A detailed HRA is necessary if toxic emissions exceed District de minimus (minimum threshold) levels. Toxics Best Available Control Technology (TBACT) must be installed if the HRA shows a cancer risk greater than one in a million. At no time shall the cancer risk exceed ten in a million.

**ENVIRONMENTAL SETTING**

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**METEOROLOGICAL CONDITIONS**

The semi-permanent Pacific High over the eastern Pacific Ocean dominates the climate at the project site. San Diego County has a subtropical climate. The summers are typically cool and winters warm in comparison. Ambient temperatures are rarely below freezing or over 100°F. Peak temperatures increase as you move away from the coast. During the winter months, the Pacific High weakens and migrates to the south allowing Pacific storms into California. Most of the annual rainfall of 10.6 inches occurs between November and March (OMGP 1999).

Wind and sunlight affect dispersion of onsite air pollutant emissions and the transport of air pollution to and from the site. Quarterly wind roses can be found in the Application for Certification (OMGP 1999). Winds are generally from the northwest quadrant year round. This wind pattern and upper level transport are the dominant transport mechanism for air pollution from the South Coast (Los Angeles) air basin to the San Diego air basin. There are occasional easterly winds occurring

in the 4<sup>th</sup> and 1<sup>st</sup> quarters. Occasional southerly winds in the 1<sup>st</sup> quarter can transport air pollution from Mexico.

Along with the winds, another climatic factor is atmospheric stability and mixing height. Atmospheric stability is an indicator of the air turbulence and mixing. During the daylight hours of the summer when the earth is heated and air rises, there is more turbulence, more mixing and thus less stability. During these conditions there is more air pollutant dispersion and therefore usually fewer direct<sup>1</sup> air quality impacts from a single air pollution source like the OMGP. During the winter months between storms, very stable atmospheric conditions can occur, resulting in very little mixing. Under these conditions, little air pollutant dispersion occurs, and consequently higher air quality impacts can result from stationary and mobile source emissions. Mixing heights are generally lower during the winter, along with lower mean wind speeds and less vertical mixing.

## EXISTING AIR QUALITY

The Federal Clean Air Act and the California Air Resources Board (CARB) both required the establishment of allowable maximum ambient concentrations of air pollutants, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more protective) than the federal AAQS, which are established by the federal Environmental Protection Agency (USEPA). The state and federal air quality standards are listed in Air Quality Table 1. As indicated in Air Quality Table 1, the averaging times for the various air quality standards (the duration over which they are measured) range from one-hour to an annual average. The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per a volume of air, in milligrams or micrograms of pollutant in a cubic meter of air ( $\text{mg}/\text{m}^3$  and  $\mu\text{g}/\text{m}^3$ ).

In general, an area is designated as attainment for a specific pollutant if the measured concentrations of that air contaminant do not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that standard is violated. Where not enough ambient data are available to support designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of a district is usually evaluated to determine the district's attainment status.

The OMGP is located in the southern portion of San Diego County near the border with Mexico and Tijuana. San Diego County is under the jurisdiction of the San Diego County Air Pollution Control District. The District collects ambient air quality data at monitoring sites throughout the air basin. The data is used to determine attainment status and define air quality trends. This area is designated attainment

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<sup>1</sup> Direct impacts refer to those impacts from air pollutants in the plume. Ozone is not directly emitted from a power plant.

for the state's CO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>4</sub> and lead standards, and attainment for the federal SO<sub>2</sub> standard, and unclassified/attainment for the federal PM<sub>10</sub> and CO standards (ARB 2000).

**Air Quality Table 1  
Federal and State Ambient Air Quality Standards**

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O <sub>3</sub> )	1 Hour	0.12 ppm (235 µg/m <sup>3</sup> )	0.09 ppm (180 µg/m <sup>3</sup> )
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )
	1 Hour	35 ppm (40 mg/m <sup>3</sup> )	20 ppm (23 mg/m <sup>3</sup> )
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Average	0.053 ppm (100 µg/m <sup>3</sup> )	---
	1 Hour	---	0.25 ppm (470 µg/m <sup>3</sup> )
Sulfur Dioxide (SO <sub>2</sub> )	Annual Average	80 µg/m <sup>3</sup> (0.03 ppm)	---
	24 Hour	365 µg/m <sup>3</sup> (0.14 ppm)	0.04 ppm (105 µg/m <sup>3</sup> )
	3 Hour	1300 µg/m <sup>3</sup> (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 µg/m <sup>3</sup> )
Respirable Particulate Matter (PM <sub>10</sub> )	Annual Geometric Mean	---	30 µg/m <sup>3</sup>
	24 Hour	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	Annual Arithmetic Mean	50 µg/m <sup>3</sup>	---
Sulfates (SO <sub>4</sub> )	24 Hour	---	25 µg/m <sup>3</sup>
Lead	30 Day Average	---	1.5 µg/m <sup>3</sup>
	Calendar Quarter	1.5 µg/m <sup>3</sup>	---
Hydrogen Sulfide (H <sub>2</sub> S)	1 Hour	---	0.03 ppm (42 µg/m <sup>3</sup> )
Vinyl Chloride (chloroethene)	24 Hour	---	0.010 ppm (26 µg/m <sup>3</sup> )
Visibility Reducing Particulates	1 Observation	---	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

### **AMBIENT OZONE**

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. Nitrogen oxides (NO<sub>x</sub>) and hydrocarbons (Volatile Organic Compounds [VOCs]) interact in the presence of sunlight to form ozone. The reaction can take several hours to occur, so ozone generally forms downwind and/or lags the timing of the emissions peaks, as shown by the data in Air Quality Table 2 for air monitoring stations at Alpine and El Cajon.

The San Diego area is non-attainment for the federal and state 1-hour ozone standards. As shown by the data in Air Quality Table 2, there are infrequent measurements above the federal standard of 0.12 ppm, but there are consistent measurements above the state standard of 0.09 ppm. The Chula Vista and San Diego air monitoring stations are to the west north west of the OMGP, 12 and 15 miles respectively. The Otay Mesa air monitoring station is approximately 1 mile to the south. The El Cajon air monitoring station is 15 miles north of the plant site. These monitoring stations should provide representative ambient air quality data (i.e., at or downwind of the plant site) for the plant site during the prevailing westerly winds and during the winter easterly wind shifts.

**Air Quality Table 2**  
**San Diego Air Basin State 1-hour Ozone Ambient Air Quality Data (ppm)**

Monitoring Station	1-hour Measurements	1995	1996	1997	1998	1999
Chula Vista	Max. concentration (ppm)	0.14	0.098	0.117	0.099	0.105
	# days exceed standard	7	1	10	2	4
Otay Mesa – Paseo International	Max. concentration (ppm)	0.162	0.111	0.122	0.094	0.101
	# days exceed standard	17	6	7	0	1
San Diego – 12 <sup>th</sup> Avenue	Max. concentration (ppm)	0.130	0.105	0.117	0.098	0.091
	# days exceed standard	3	1	5	1	0
Alpine – Victoria	Max. concentration (ppm)	0.146	0.138	0.136	0.164	0.124
	# days exceed standard	77	45	29	47	21
El Cajon – Redwood Ave	Max. concentration (ppm)	0.135	0.111	0.111	0.127	0.103
	# days exceed standard	17	8	7	14	3
California Ozone Ambient Air Quality Standard: 0.09 ppm (1-hour average)						

Source: CARB 2000

In the most recent CARB report on the contribution of various districts to ozone violations in other districts (CARB 1998), CARB found that the South Coast Air Basin and Mexico contribute measurably to ambient ozone levels in the San Diego Air Basin, a downwind district. The contribution of South Coast is overwhelming on some days, significant on some other days, and inconsequential on others. Therefore, some of the ozone violations in the District are due to transported air pollutants. This widespread contribution from one geographic area to another demonstrates the regional and temporal nature of the ozone problem and ozone formation.

In 1997, the US EPA proposed a new 8-hour ozone standard of 0.08 ppm, in addition to the federal 1-hour standard of 0.12 ppm. Legal challenges have placed the new standard in the federal courts. Pending appeals, the current federal 1-hour ozone standard remains in place and 8-hour ozone data is being collected and reported. Air Quality Table 3 shows some representative 8-hour ozone data for the

San Diego Air Basin. The San Diego region is non-attainment of the 1-hour standard, and will probably be non-attainment of the proposed 8-hour standard.

The US EPA remains convinced that there is not a disconnect between controls for the 1-hour standard and the more stringent 8-hour standard. Whatever progress is made now toward attaining, or maintaining, the 1-hour federal standard will only speed attainment of the potentially more protective 8-hour standard since planning for the 8-hour standard does not have to be completed until 2003 and attainment not reached until 2005 at the earliest.

**Air Quality Table 3**  
**San Diego Air Basin State 8-hour Ozone Ambient Air Quality Data (ppm)**

Monitoring Station	1-hour Measurements	1995	1996	1997	1998	1999
Chula Vista	Max. concentration (ppm)	0.098	0.080	0.099	0.079	0.080
	# days exceed standard	1	0	3	0	0
Otay Mesa – Paseo International	Max. concentration (ppm)	0.084	0.089	0.082	0.078	0.077
	# days exceed standard	0	1	0	0	0
San Diego – 12 <sup>th</sup> Avenue	Max. concentration (ppm)	0.075	0.084	0.084	0.073	0.068
	# days exceed standard	0	0	0	0	0
El Cajon – Redwood Ave	Max. concentration (ppm)	0.089	0.092	0.089	0.102	0.085
	# days exceed standard	3	5	1	5	1
Alpine-Victoria	Max. concentration (ppm)	0.122	0.117	0.112	0.141	0.100
	# days exceed standard	44	27	11	32	15
Proposed Federal Ozone Ambient Air Quality Standard: 0.08 ppm (8-hour average)						

Source: CARB 2000

## **AMBIENT NO<sub>2</sub>**

While the San Diego region is attainment of the state and federal 1-hour and annual NO<sub>2</sub> standards, NO<sub>2</sub> is still a concern for the region as a precursor pollutant of ozone and PM<sub>10</sub>. Air Quality Table 4 shows recent 1-hour NO<sub>2</sub> measurements compared to the state 1-hour standard. Annual NO<sub>2</sub> measurements have not exceeded 0.025 ppm since 1995, which is well below the federal annual NO<sub>2</sub> standard of 0.053 ppm. Ambient NO<sub>2</sub> is generally the result of fossil fuel combustion. A large combustion source or high vehicle traffic can create a localized spike of NO<sub>2</sub> levels compared to regional NO<sub>2</sub> levels, as can be seen by the high NO<sub>2</sub> values from the Otay Mesa air monitoring station located at the Paseo International border truck crossing.

Air Quality Table 4 also shows the effect of ozone scavenging of NO<sub>2</sub>. Ozone scavenging occurs as ambient ozone reacts with NO<sub>2</sub> in ambient air and emission plumes, achieving equilibrium. Both Alpine and El Cajon experience high levels of ozone due to the prevailing winds in the San Diego air basin and transport aloft of air pollutants from adjacent air basins, but generally have lower NO<sub>2</sub> measurements compared to the region. This is the same concept as the Ozone Limiting Method



(OLM) and Ambient Ratio Method (ARM) used by air dispersion modelers. These methods correct (lower) NO<sub>2</sub> impacts from an emissions source like a power plant for the effects of ambient ozone.

**Air Quality Table 4**  
**San Diego Air Basin State 1-hour NO<sub>2</sub> Ambient Air Quality (ppm <sup>a</sup>)**

Monitoring Station	Standard	1995	1996	1997	1998	1999	CAAQS <sup>b</sup>
Chula Vista	1-hour max.	0.098	0.079	0.109	0.104	0.100	0.25
Otay Mesa – Paseo International	1-hour max.	0.114	0.117	0.107	0.132	0.172	0.25
San Diego – 12 <sup>th</sup> Avenue	1-hour max.	0.140	0.112	0.142	0.094	0.122	0.25
El Cajon – Redwood Ave	1-hour max.	0.114	0.093	0.111	0.110	0.091	0.25
Alpine-Victoria	1-hour max.	0.108	0.095	0.059	0.071	0.079	0.25
a. To convert from NO <sub>2</sub> ppm to NO <sub>2</sub> µg/m <sup>3</sup> , multiply ppm by 1880. b. There were no measured violations of the NO <sub>2</sub> standards at the ambient air monitoring stations in San Diego.							

Source: ARB 2000

### ***AMBIENT CARBON MONOXIDE***

The San Diego region is attainment of the state and federal CO standards. Air Quality Table 5 shows recent 8-hour CO measurements compared to the state and federal 8-hour standard. Ambient CO is generally the result of fossil fuel combustion. A large combustion source or high vehicle traffic can create localized spikes of CO levels compared to regional CO levels. This can be seen by the high CO values from the Otay Mesa air monitoring station located at the Paseo International border truck crossing and the San Diego air monitoring stations located in vehicle-dense urban settings.

### ***AMBIENT PM<sub>10</sub>***

PM<sub>10</sub> can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NO<sub>x</sub>, SO<sub>x</sub> and VOC from turbines, and NH<sub>3</sub> from NO<sub>x</sub> control equipment can, given the right meteorological conditions, form particulate matter known as nitrates (NO<sub>3</sub>), sulfates (SO<sub>4</sub>), and organics. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere.

PM<sub>10</sub> ambient air quality data presented in Air Quality Table 6 shows that there have been violations of the state 24-hr standard. The basin has not recently experienced any violations of the state and federal annual and the federal 24-hour PM<sub>10</sub> ambient air quality standards. Therefore, the area is non-attainment of the state PM<sub>10</sub> 24-hour standard, and attainment of the state and federal annual, and the federal 24-hour PM<sub>10</sub> standards.

**Air Quality Table 5**  
**San Diego Air Basin State 8-hour CO Ambient Air Quality (ppm <sup>a</sup>)**

Monitoring Station	Standard	1995	1996	1997	1998	1999	AAQS <sup>b</sup>
Chula Vista	8-hour max.	3.84	3.43	3.76	2.73	3.04	9
Otay Mesa – Paseo International	8-hour max.	6.34	5.81	4.63	3.95	4.93	9
San Diego – 12 <sup>th</sup> Avenue	8-hour max.	5.85	5.44	5.39	4.74	4.64	9
San Diego – Union Street	8-hour max.	5.53	6.26	5.31	4.61	6.01	9
San Diego – Overland Ave	8-hour max.	3.53	3.25	2.96	2.76	1.60	9
El Cajon – Redwood Ave	8-hour max.	3.37	4.00	4.27	4.10	3.76	9
a. To convert from CO ppm to CO $\mu\text{g}/\text{m}^3$ , multiply ppm by 1150. b. There were no measured violations of the CO standards at the ambient air monitoring stations in San Diego. The state and federal 8-hour CO AAQS is 9 ppm.							

Source: ARB 2000

Both the Otay Mesa and El Cajon ambient air monitoring stations report higher numbers of violations of the state 24-hour PM<sub>10</sub> standards than the Chula Vista and San Diego ambient air monitoring stations. These stations are “downwind,” or inland, from the majority of the emissions for the San Diego region. As the mixture of ambient air and air pollutants move away from the coast, under prevailing winds, secondary PM<sub>10</sub> air pollutants are formed and additional directly emitted PM<sub>10</sub> can be added to the mixture, thereby increasing ambient PM<sub>10</sub> levels. This is also illustrated by the relatively clean coastal air quality as measured at Oceanside and the change in air quality as measured at Escondido to the east.

However, the magnitude and the frequency of the Otay Mesa PM<sub>10</sub> measurements, suggests that the Otay Mesa area has an ambient, or local, PM<sub>10</sub> problem. Discussions with the District suggest that the proximity of the Paseo International border crossing to the ambient air monitor is causing elevated readings. CO, PM<sub>10</sub> and NO<sub>2</sub> measurements at the Otay Mesa air monitoring station tend to support the contention that the border crossing has an effect on local air quality as measured by the monitor located in the parking lot of the border crossing. San Diego and Tijuana are expected to continue to grow, creating additional sources of PM<sub>10</sub> and precursor emissions. Area traffic volume is expected to increase and in the 10 to 15 year time frame as an additional border crossing will be built to the east of the existing Paseo border crossing.

## **AMBIENT SO<sub>2</sub>**

The San Diego region is attainment of the state and federal SO<sub>2</sub> standards. Air Quality Table 7 shows recent 24-hour SO<sub>2</sub> measurements compared to the state 24-hour standard. Ambient SO<sub>2</sub> is generally the result of combustion of fossil fuel, and, in particular, fuel oil. San Diego is a large port for the US Navy, which continues to use fuel oil and distillate in its ships. Additionally, the existing South

Bay and Encina power plants can use fuel oil during natural gas curtailments. Therefore, staff does not expect SO<sub>2</sub> levels to change significantly. Since SO<sub>2</sub> is a precursor to PM<sub>10</sub>, its relative contribution to PM<sub>10</sub> will continue.

**Air Quality Table 6**  
**San Diego Air Basin State 24-hour PM<sub>10</sub> Ambient Air Quality (µg/m<sup>3</sup>)**

Monitoring Station	Standard	1995	1996	1997	1998	1999	CAAQS
Chula Vista	24-hour max.	103	62	58	39	59	50
	# of days above <sup>a</sup>	5	2	2	0	2	---
Otay Mesa – Paseo International	24-hour max.	121	93	125	89	121	50
	# of days above <sup>a</sup>	20	15	21	18	21	---
San Diego – 12 <sup>th</sup> Avenue	24-hour max.	115	92	74	48	69	50
	# of days above <sup>a</sup>	9	1	3	0	4	---
El Cajon – Redwood Ave	24-hour max.	82	67	76	54	60	50
	# of days above <sup>a</sup>	6	2	1	1	4	---
Escondido – East Valley Parkway	24-hour max.	70	53	63	51	52	50
	# of days above <sup>a</sup>	5	2	3	1	1	---
Oceanside – Mission Ave	24-hour max.	80	63	50	36	---	50
	# of days above <sup>a</sup>	4	1	0	0	--	---
a. PM <sub>10</sub> measurements only occur every 6 days, so the actual number of days that violate the standard can be 6 times greater than the number shown here.							

Source: ARB 2000

**Air Quality Table 7**  
**San Diego Air Basin State 24-hour SO<sub>2</sub> Ambient Air Quality (ppm <sup>a</sup>)**

Monitoring Station <sup>c</sup>	Standard	1995	1996	1997	1998	1999	CAAQS <sup>c</sup>
Chula Vista	24-hour max.	0.021	0.024	0.021	0.020	0.017	0.04
Otay Mesa – Paseo International	24-hour max.	0.016	0.020	0.013	0.013	0.014	0.04
San Diego – 12 <sup>th</sup> Avenue	24-hour max.	0.018	0.012	0.014	0.011	0.008	0.04
a. To convert from SO <sub>2</sub> ppm to SO <sub>2</sub> µg/m <sup>3</sup> , multiply ppm by 2620.							
b. Only three stations in San Diego measure ambient SO <sub>2</sub> levels.							
c. There were no measured violations of the SO <sub>2</sub> standards at the ambient air monitoring stations in San Diego.							

Source: ARB 2000

Recent concerns about electricity and natural gas supplies in the San Diego area have raised the likelihood of either the Encina or South Bay power plants switching to fuel oil for limited intervals. The switch would be temporary to ease immediate shortages of either electricity or natural gas in the region. The increased sulfur

emissions would not cause the region to exceed the SO<sub>2</sub> standards, but would contribute to PM<sub>10</sub> levels in the region.

## **FUTURE AIR QUALITY**

San Diego and Tijuana are expected to continue to grow, creating additional sources of criteria air pollutant emissions in the region. Federal, state and local regulations are designed to reduce emission rates and total emissions in order to achieve and maintain attainment of federal and state ambient air quality standards. However, the exact timing of attainment can be affected by the actual efficacy of the control measures, meteorology, air pollution transport, and unexpected shifts in growth or economic patterns. Other changes such as natural gas curtailments and the deregulation of the electricity industry can also affect air emissions.

The San Diego region has been making progress in reducing ozone and PM<sub>10</sub> violations, despite growth in population and vehicle miles traveled (ARB 1999). While staff expects these trends to continue, staff is concerned about the unforeseen air emissions implications in the power generation sector due to potential natural gas curtailments and new plants. Such curtailments could require the use of residual fuel oil at the Encina and South Bay power plants. While likely to be short in duration, residual fuel oil firing can significantly increase the emission rates of some criteria air pollutants. Additionally, potential electricity shortages have encouraged new generation in the region, as exemplified by two new peaker projects in Chula Vista and Escondido.

### ***AIR EMISSIONS IMPLICATIONS OF RULE 69 AND POTENTIAL NATURAL GAS CURTAILMENTS IN SAN DIEGO***

The San Diego region, from an electricity and natural gas perspective, can be considered an island with a limited number of connections to the greater Western States supply networks. Therefore, the region's natural gas and electricity supplies are sensitive to regional or local supply upsets and high local demand. The District and the San Diego Gas & Electric (SDG&E) company acknowledged this tenuous situation by negotiating air regulations (District 2000b, Rule 69) that allow the use of residual fuel oil for continued local electricity generation during local natural gas curtailments. This is in spite of significantly higher air pollutant emissions (NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>) during residual fuel oil firing compared to natural gas firing.

The discussion below, while containing reasonable emissions estimates, is based on emission factors from AP-42 for natural gas and No. 6 residual fuel oil for a boiler unit. The NO<sub>x</sub> emission factors are limited by Rule 69. The residual fuel oil sulfur levels are limited by Rule 62. The VOC and PM<sub>10</sub> emissions are based on AP42. Specific unit fuel analyses and unit source test data would refine these emissions estimates. Based on AP-42, VOC emission rates are relatively constant during natural gas or residual fuel oil firing.

The SDG&E generation units have been sold but District air rules still apply to the Encina and South Bay generating facilities and the new owners. District Rule 69(d)7 states that NO<sub>x</sub> emissions of oxides of nitrogen from any existing electrical generating steam boiler shall not exceed 0.15 pounds per megawatt-hour when

burning exclusively natural gas, 0.40 pounds megawatt-hour when burning exclusively residual fuel oil, and a prorated emissions limit when burning a combination of natural gas and residual fuel oil. A switch from natural gas to residual fuel oil would almost triple the NOx emission rate from an Encina or South Bay unit compared to the NOx emission rate during natural gas firing.

However, the units are currently operating under a variance (District 1999) that provides relief from the January 1, 2001 implementation date for the emission limits. The new owners are working to install SCR or other NOx control equipment by July 1, 2003 to comply with Rule 69. Until such time, the units are operating at higher NOx emission rates and above the projected Rule 69 annual NOx emissions cap. Under the variance, a switch from natural gas to residual fuel oil would again increase the NOx emission rate from an Encina or South Bay unit compared to the NOx emission rate during natural gas firing.

Sulfur emissions are a function of the sulfur content of the fuel. The emissions are generally calculated as sulfur dioxide since on average more than 95% of the fuel sulfur is converted to SO<sub>2</sub>. 1 to 5 percent is converted to SO<sub>3</sub>, and 1 to 3 percent is emitted as sulfate particulate (US EPA 2000, AP-42, Section 1.3). Fuel sulfur is limited to 0.75 grains per 100 cubic feet of natural gas or 0.5% S by weight for residual fuel oil (District 2000b, Rule 62). If all nine units at South Bay and Encina are operating at full load on natural gas only they could emit up to 36 pounds per hour of SO<sub>2</sub>. If all nine units switch to 0.5% S residual fuel oil (District 2000b, Rule 62), the cumulative SO<sub>2</sub> emissions from the nine units could jump up to approximately 9,200 pounds per hour.

PM<sub>10</sub> emissions are higher during fuel oil firing due to the presence of some ash in residual fuel oil compared to almost no non-combustibles in natural gas. If all nine boilers fire natural gas, PM<sub>10</sub> emissions are approximately 131 pounds per hour (US EPA 2000, AP-42 Table 1.4-2). If all nine units switch to 0.5% sulfur residual fuel oil (No. 6 Residual Fuel Oil), the cumulative PM<sub>10</sub> emissions from all nine units jump almost 5 times, up to approximately 643 pounds per hour (US EPA 2000, AP-42 Table 1.3-4, No. 6 Residual Fuel Oil).

The huge increases in NOx, SO<sub>2</sub> and PM<sub>10</sub> during residual fuel oil firing relative to natural gas firing may have adverse effects on the air quality in the region. The increases in NOx may affect ambient NO<sub>2</sub> levels, and, as a precursor pollutant, may affect ozone and PM<sub>10</sub> levels. The increases in SO<sub>2</sub> emissions may affect ambient SO<sub>2</sub> levels, and, as a precursor pollutant, may affect ambient PM<sub>10</sub> levels. PM<sub>10</sub> emission increases during residual fuel oil firing may affect ambient PM<sub>10</sub> levels.

The exact emission increases and the nature of the air quality impacts depend on several factors, including the time of year and the duration of the natural gas curtailments. If the curtailment occurs in the summer, the electricity demand would be at its highest levels, potentially requiring full load operation of the units. Wintertime curtailments might result in less significant emission changes since the units may not be operating at full load due to lower regional electricity demand. Additionally, the air quality effects of emission changes during a natural gas

curtailment are tied to the meteorological conditions. Increases of ozone precursors (NOx) during hot summer afternoons can increase ambient ozone levels. Increases of PM10 and PM10 precursors (NOx and SO2) during humid conditions can increase ambient PM10 levels.

**AIR EMISSIONS IMPLICATIONS OF NEW GENERATION**

PG&E Dispersed Generating Company has been issued two Authorities to Construct by the District for two new peaker power plants in the San Diego region. The potential emissions from these projects, shown in Air Quality Table 8, are based on approximately 15.75 hours of operation in any one day and 4900 hours of operation per year. While Best Available Control Technology (BACT) levels are triggered for NOx, PM10, SO2 and VOC, offsets for these air pollutant emissions increases are not triggered nor required. These two projects can contribute up to 0.25 tons per day, or 70 tons per year of new ozone precursor (NOx) emissions. The 1998 Triennial Regional Air Quality Strategy Revision (District 1998) specified a 0.41 tons per day decrease from the generation sector in the 2001 to 2005 time frame. The 0.25 tons per day potential increase of NOx, as in any other changes in a sector’s emissions that were not predicted in past Plans and updates, should be addressed in the next update cycle in order to continue progress towards attainment.

**Air Quality Table 8  
New San Diego Generation Criteria Air Pollutant Emissions**

		NOx	VOC	CO	PM10	SO2
Chula Vista PG&E Disp Gen. Project	Lbs/day	244	109	546	90	28
	Tons/year	35	16	7	13	4
Escondido PG&E Disp Gen. Project	Lbs/day	244	109	546	90	28
	Tons/year	35	16	7	13	4

Source: District 2000d

**PROJECT DESCRIPTION AND EMISSIONS**

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The Otay Mesa Generating Company (OMGC) proposed Otay Mesa Generating Project (OMGP) consists of two combined cycle combustion turbine generator sets generating 510 MW total. The combustion turbines exhaust to two un-fired heat recovery steam generators, which generate steam for two steam turbines. The steam turbines exhaust to an air-cooled condenser. The applicant is still considering up to three (3) different combustion turbine manufacturers. If ABB or Siemens/Westinghouse combustion turbines are used at the facility, the applicant is proposing to inject steam into the combustor cans for power augmentation for up to 1800 hours per year. Both combustion turbines will have inlet air evaporative coolers installed. The project configuration includes a diesel fire pump and two diesel emergency engines.

From an air pollutant emissions perspective, the OMGP will be one of the cleanest fossil-fueled power plants in the world. The project’s use of the SCONox catalyst or Selective Catalytic Reduction/Oxidation Catalyst systems will control NOx emissions to 2 ppm, while also controlling CO and VOC emissions to 6 ppm and 2 ppm, respectively. OMGC will demonstrate the feasibility of SCONox operation at

levels as low as 1 ppm NO<sub>x</sub>. The project's use of a direct air-cooled condenser avoids PM<sub>10</sub> emissions common to wet cooling towers.

## **CONSTRUCTION**

The construction of the new combustion turbine combined cycle power plant will include the following ancillary facilities and activities, either in series or parallel with the construction activities associated with the combustion turbines:

- Preparation of construction laydown and parking areas,
- Construction of a natural gas, water, and sewer pipelines,
- Construction of a short access road, and
- Construction of transmission lines.

## ***PROJECT SITE***

The combustion turbine combined cycle power plants will take approximately two years to construct. The power plant project construction itself consists of three major areas of activity: 1) the civil/structural construction 2) the mechanical construction, and 3) the electrical construction. The largest air emissions are generated during the civil/structural activity, where work such as grading, site preparation, foundations, underground utility installation and building erection will occur. These types of activities require the use of large earth moving equipment, which generate considerable combustion emissions themselves, along with creating fugitive dust emissions. The mechanical construction includes the installation of the heavy equipment, such as the combustion and steam turbines, the heat recovery steam generators, condenser, pumps, piping and valves.

Although not a large fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more emissions than other construction equipment onsite. Finally, the electrical equipment installation occurs, involving such items as transformers, switching gear, instrumentation and wiring, and are relatively small emissions generating activities in comparison to the early construction activities. Not surprisingly, the largest level of construction emissions for the project will occur from the project site activity, most of it due to earth moving and grading activities and large crane operations. The construction of facilities will generate air emissions, primarily fugitive dust from earth moving activities and combustion emissions generated from the construction equipment and vehicles.

The projected highest hourly emissions over the 25-month construction activity are shown in Air Quality Table 9. The construction of the pipelines includes activities such as clearing and grading, trenching, stringing the pipes and fittings, lining and connecting, and backfill and cleanup. The exhaust emissions generated by equipment during these activities are included in the emissions in Air Quality Table 10. SO<sub>2</sub> and VOC are not included in the estimates since VOCs do not have an ambient air quality standard and SO<sub>2</sub> emissions are not likely to cause a violation of the SO<sub>2</sub> standards.

Note that AFC Section 3.8 describes a 4 X 10 work schedule (OMGC 1999a), while the air quality analysis in AFC Section 5.2.3.1.1 was done assuming an 8-hour construction day. The difference in length of the construction day does not have an effect on the hourly emissions or the grams per second used in the modeling.

**Air Quality Table 9**  
**Maximum Daily Construction Emissions**

	NOx	VOC	CO	PM10	SO2
Project Construction (lbs/hour) <sup>a b</sup>	27.8	---	135.1	3.1	---
a. All emissions based on an 8-hour workday b. Maximum hourly emissions are worst case of site construction and pipeline/linear activities.					

Source: OMGC 1999a

## OPERATIONAL PHASE

### *EQUIPMENT DESCRIPTION*

The major components of the OMGP consists of the following:

- Two combustion turbine generators (CTG) equipped with evaporative inlet air coolers;
- Two unfired heat recovery steam generators (HRSG) and ancillary equipment;
- A diesel fire pump;
- Two diesel emergency engines;
- Two steam turbines with air cooled condensers; and
- Auxiliary cooling water heat exchangers to reject heat from equipment

### *EQUIPMENT OPERATION*

The new CTGs will burn only natural gas, and there are no provisions for an alternative back-up fuel.

The applicant analyzed the project with one turbine in start-up and one turbine at low load, both operating concurrently with the testing of the diesel fire pump for the maximum 1-hr NO<sub>2</sub> and CO impacts. Other operating configurations and ambient temperatures were analyzed to determine the maximum 3-hour, 8-hour, 24-hour and annual scenarios. The worst-case emissions profiles for modeling purposes included emissions from the testing and operation of the diesel emergency engines.

There are various durations of start-up of the CTGs, depending on length of time that the turbine has been shutdown and the temperatures and pressures on the steam turbine side of the power generation block. Because of the thermal efficiency of the project, it is highly likely that the combustion turbines will operate extensively, therefore extended shutdowns are not likely to occur. The applicant based their emissions estimates on 10 cold and 40 warm start-up per turbines (OMGC 1999a).



The expected capacity factors of the combustion turbine units will be close to 100 percent.

The usual practice is to define start-ups as either a hot start, a warm start or a cold start, with the start-up period being defined as the length of time until the gas turbine is fully loaded, that is, producing baseload electrical power. A hot start would occur after an overnight turbine shutdown. The duration of a hot start is relatively short, approximately half an hour. A warm start-up is also approximately 30 to 60 minutes in duration, although the steam turbine ramping up period would be longer than a hot start. A warm start-up would occur after a typical weekend shutdown (approximately 60 to 72 hours). A cold start takes considerably longer, on the order of two hours. However, this type of start-up would be very rare, occurring only after the turbines have been under extended shutdown, such as the annual maintenance inspection that the manufacturer may require (OMGC 1999a and Kehlhofer 1999).

### **EMISSION CONTROLS**

The exclusive use of an inherently clean fuel, natural gas, will limit the formation of SO<sub>2</sub> and PM<sub>10</sub> emissions. Natural gas contains very small amounts of a sulfur compound known as mercaptan, which when combusted, results in sulfur compound emissions in the flue gas. However, in comparison to other fuels used in power plants, such as fuel oil or coal, the sulfur dioxide emissions from the combustion of natural gas are very low. A sulfur content of 0.75 grains of sulfur per 100 standard cubic feet of natural gas was assumed for the SO<sub>2</sub> emission calculations. Although the sulfur content of natural gas in the San Diego area is usually about 0.20 grains, the regulatory limit is 0.75 grains. Like SO<sub>2</sub>, the emissions of PM<sub>10</sub> from natural gas combustion are very low compared to the combustion of fuel oil or coal. Natural gas contains very little noncombustible gas or solid residue, and therefore it is a relatively clean-burning fuel.

To minimize NO<sub>x</sub>, CO and VOC emissions during the combustion process, the turbine is equipped with the latest dry low-NO<sub>x</sub> combustors. A more detailed discussion of this combustion technology is presented in the Mitigation section of this analysis. After combustion, the flue gases pass through the heat recovery steam generator (HRSG), where catalyst systems are placed to further reduce NO<sub>x</sub>, CO and VOC emissions. OMGP is proposing to use a SCONO<sub>x</sub> adsorption and oxidation system to reduce NO<sub>x</sub>, CO and VOC emissions, or Selective Catalytic Reduction (SCR) to reduce NO<sub>x</sub> and a CO oxidation catalyst to reduce CO and VOC. A more complete discussion of these catalyst technologies is included in the Mitigation section.

### **PROJECT OPERATING EMISSIONS**

A single CTG's representative criteria air pollutant 1-hour emissions are shown in Air Quality Table 10. Emissions rates will vary with ambient temperatures and fuel use. The higher emissions shown in Table 10 are from the combustion turbine during startup compared to emissions during steady state, full load operation. Most notable, emissions of NO<sub>x</sub>, VOC and CO are significantly higher during startup.

These higher emissions occur because the turbine combustor technology is designed for maximum efficiency during full load steady state operation, not start-up.

Emission rates also increase during power augmentation. Steam or water is injected into the combustor cans. The steam or water reduce the temperature in the combustor cans and increase the mass of hot gases expanding through the power turbine. Because of the quenching action, additional fuel can be fired, increasing the mass flow of air pollutants. The OMGP will power augment up to 1800 hours per year.

During startup and shutdown, combustion temperatures and pressures are rapidly changing, which results in less efficient combustion and higher emissions. Also, the flue gas controls, such as the catalyst discussed above, operate most efficiently when the turbine operates near or at full load, at which the catalysts are at or near design temperatures. Those flue gas controls are not as effective during the transitory temperature changes that occur during startup and shutdown.

**Air Quality Table 10**  
**CTG Emissions at 70 °F (pounds per hour [lbs/hr])**

Operational Profile	NOx	SO2	PM10	VOC	CO
CTG Start-up cold start (1 <sup>st</sup> hour)	44	---	---	49	887
CTG Start-up cold start (2 <sup>nd</sup> hour)	28	---	---	23	298
CTG Start-up warm start (0.75 hour)	44	---	---	39	600
CTG Start-up hot start (0.75 hour)	21	---	---	15	150
CTG Steady State @ 100% load	12.8	3.5	18	2.8	23.4
CTG Steady State w/power augmentation	14.0	4.5	19.1	3.3	24.4

Source: District 2000a and District 2000c

The worst-case hourly and daily emissions from the project (both turbines) are shown in Air Quality Table 11. The table includes start-ups and different operating scenarios, and the resultant emissions. The hourly and daily emissions do not include potential emissions from the testing of the diesel fire pump and emergency generators.

Annual emissions are also summarized in the Air Quality Table 11. OMGP has requested that the project be limited to 100 tons per year of NOx. Initial commissioning air emissions, which not surprisingly, can be significant in comparison to the likely commercial operation annual emissions, are to be included in the annual emissions caps. Actual commissioning emissions will be reported as part of the commissioning activities at the OMGP.

**Air Quality Table 11**  
**Worst Case Project Emissions (hourly, daily and annual)**

Operational Profile	NOx	SO2	PM10	VOC	CO
Hourly : 1 turbine start-up and 1 turbine steady state operation (lbs/hour)	58	9	38.2	52.3	911.4
Daily: 1 turbine start-up and 1 turbine steady state operation (lbs/day)	716	216	916.8	223.8	2,307.4
Annual: Start-up and steady state operation (tons per year)	100 <sup>a</sup>	39.4	159.6	27.2	235.2
a. The applicant is willing to take an enforceable limit of 100 tons per year.					

Source: District 2000a and District 2000c

### ***INITIAL COMMISSIONING PHASE OPERATION AND EMISSIONS***

A temporary HRSG boilout chemical cleaning boiler will be used prior to the first firing of the combustion turbines. The combustion turbines will then undergo the initial firing and commissioning phase of the project schedule. Over the 120 day commissioning phase for each turbine, each OMGP combustion turbine will be limited to no more than 30 days of operation without the SCONox system installed and operational. Additionally, NOx emissions will be monitored with a Continuous Emission Monitoring (CEM) system (either the permanent or a temporary CEM system) and included in the annual emissions.

It should be noted that it is in the owner's best interest to minimize this initial commissioning phase in order for the project to be declared ready for commercial operation and thus able to generate revenues. Therefore, it is expected that this initial commissioning phase will, to the extent feasible, be as short as possible and thus minimize the higher than normal operations emissions that are inevitable during the necessary testing.

OMGC faces several issues during the commissioning of the OMGP. First and foremost, the OMGP is using a new NOx control system unproven at this scale. This project also uses an air-cooled condenser, which to date, is a relatively new component of power plants and has caused some commissioning delays at other power plants (Tater 2000). Commissioning of a modern combined cycle power plant is already a significant undertaking, as the commercial operation of the plant requires the complex integration of multiple systems. The inclusion of two new systems will complicate the process.

The District and OMGC have discussed the commissioning of the OMGP. The proposed PDOC conditions of certification outline a schedule and emission limits for the project during commissioning. After no more 120 day of commissioning activities, the project will enter a 180 day optimization period during which the applicant will undertake all reasonable efforts to achieve a NOx emission level of 1.0 ppm, at 15 O2 over a 3-hour rolling average.

## **FACILITY CLOSURE**

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Eventually the OMGP will close, either as a result of the end of its useful life (which is expected to be 30 years), or through some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, then all sources of air emissions would cease and thus all impacts associated with those emissions would no longer occur. If OMGC were to decide to dismantle the project, there would likely be fugitive dust emissions associated with this dismantling effort. The Facility Closure Plan to be submitted to the Energy Commission Compliance Project Manager should include the specific details regarding how OMGC plans to demonstrate compliance with District rules and fugitive dust and construction emission control measures.

## **PROJECT INCREMENTAL IMPACTS**

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### **MODELING APPROACH**

The applicant performed an air dispersion modeling analysis to evaluate the project's potential impacts on the existing ambient air pollutant levels, both during construction and operation. An air dispersion modeling analysis usually starts with a conservative screening level analysis. Screening models use very conservative assumptions, such as the meteorological conditions, which may or may not actually occur in the area. The impacts calculated by screening models, therefore, can be double or more than the actual or expected impacts. If the screening level impacts are significant, refined modeling analysis is performed. A major difference in the refined modeling is that hour-by-hour meteorological data collected in the vicinity of the project site is used. Two models were used. The Industrial Source Complex Short-Term model, Version 3, known as the ISCST3 model was used for the screening and refined modeling. AERMOD was used for refined PM10 and NO2 modeling.

### **CONSTRUCTION IMPACTS**

OMGC performed air dispersion modeling analyses of the potential construction impacts at the project site. The analyses included fugitive dust generated from the project site construction activity (modeled as an area source) and combustion emissions from the equipment (modeled as an area source). The emissions used in the analysis were the highest emissions of a particular pollutant during a one-month period, converted to a gram per second emission rate for the model. The results of this modeling effort are shown in Air Quality Table 12, added to the representative background data from the Chula Vista ambient air quality monitoring data. They show that the construction activities would worsen existing violations of the state and federal 24-hour PM10 standard, the 1-hour NO2 standard, and the 8-hour CO standard.

These predicted impacts are of such a high magnitude for a number of reasons. First, the model itself calculates impacts that are very conservative, usually exceeding actual impact levels by a considerable margin. Second, some of the sources of combustion emissions (the bulldozers and trucks) are mobile sources,

not stationary sources as input into the model. Therefore, as mobile sources, the air quality impacts would not always be at the same locations, so the model results are overstated. Fourth, it was assumed that all the equipment identified for the modeling evaluation would be running simultaneously. It is doubtful that all the major equipment would all be operating at one time, and thus the impacts are overstated.

**Air Quality Table 12**  
**Maximum Project Site Construction Impacts**

Pollutant	Averaging Time	Impact ( $\mu\text{g}/\text{m}^3$ )	Background ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	Total Impact ( $\mu\text{g}/\text{m}^3$ )	Limiting Std ( $\mu\text{g}/\text{m}^3$ )	Percent of Standard
NO <sub>2</sub> <sup>a</sup>	1-hour	611.5	205	8,16.5	470	174
CO	8-hour	6221.7	4,413	10,634	10,000	106
PM <sub>10</sub>	24-hour	110.0	103	213	50	426
a. Ozone limiting method applied to the one-hour impacts. b. From the Chula Vista Monitoring station.						

Source: OMGC 1999a

Finally, the emissions inputs to the model were from the highest monthly emissions assumed during the 25-month construction period. The levels of emissions used reflect a period of activity of approximately one year, not the entire construction period. During the other months of construction work, considerably fewer emissions-generating equipment will be used and thus the impacts will be lower.

Although construction of the OMGP and ancillary facilities will result in unavoidable short-term impacts, it is doubtful that the general public would be exposed to the construction impacts associated with the project. This is because of the project's rather isolated location, away from any population centers and in a heavily industrial area. Nevertheless, staff believes that the impact from the construction of the project could have a significant and unavoidable impact on the CO, PM<sub>10</sub> and NO<sub>2</sub> ambient air quality standards, and should be avoided or mitigated, to the extent feasible.

## PROJECT OPERATION IMPACTS

The air quality impacts of project operation are shown in the following sections for combustion turbine steady-state operations, and the transitory conditions during turbine start-up and the special meteorological conditions associated with fumigation. The modeling analysis not only includes the combustion turbines, but also includes the diesel fire pump and the two diesel emergency lube oil pumps.

OMGC provided a refined modeling analysis, using the ISCST3 and AERMOD models to quantify the potential impacts of the project during normal steady state operation and conditions. The analysis assumes worst-case ambient temperatures during steady state operation to predict the highest impacts possible.

OMGC also provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during start-up conditions. The start-up emissions for NO<sub>x</sub> and CO are generally higher since the combustion turbine and downstream components, including the SCONO<sub>x</sub>, are not at design (elevated) temperatures. This results in less complete combustion (i.e., increased CO emissions) and relatively uncontrolled NO<sub>x</sub> emissions. The modeling assumes these higher emission rates with stack parameters for turbine operation at 60 percent load. The low load conditions can cause higher impacts since the flue gas temperature and velocity are relatively low, resulting in less plume rise away from the facility.

The results of these two modeling analyses are included in Air Quality Table 13. The maximum impacts for NO<sub>2</sub> and CO are due to start-up emissions, which are relatively high during start-up. The maximum PM<sub>10</sub> impacts are from steady state operation.

### **FUMIGATION MODELING**

During the early morning hours before sunrise, the air is usually very stable. During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air will also be vertically mixed, bringing some of those emissions down to ground level. Later in the day, as the sun continues to heat the ground, this vertical mixing layer becomes higher and higher, and the emissions plume becomes better dispersed. The early morning air pollution event, called fumigation, usually lasts approximately 30 to 90 minutes. Because of the short duration of fumigation events, only 1-hour impacts are calculated. The modeling results for are shown in Air Quality 13.

**Air Quality Table 13  
Summary of Refined Modeling Maximum Impacts**

Pollutant	Averaging Time	Maximum Modeled Concentrations (µg/m <sup>3</sup> )	
		Normal operation and start-ups	Fumigation
NO <sub>2</sub>	1-hour	130 <sup>a</sup>	6.9
	Annual	0.8 <sup>b</sup>	---
CO	1-hour	2,342	127.1
	8-hour	643	---
PM <sub>10</sub>	24-hour	4.6 <sup>c</sup>	---
	Annual	0.8	---

a. Using the ozone limiting method.  
b. Using ARM default value of 0.75.  
c. AERMOD refined modeling result.

Source: OMGC 2000a and OMGC 2000b

## PROJECT IMPACTS

OMGC provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during normal steady state operation and during start-up and fumigation conditions. The results of these modeling analyses were summarized in Air Quality Table 14. Using the highest impacts from Air Quality Table 13 and the highest measured ambient air quality levels (Air Quality Tables 2, 4, 5 and 6), the predicted the worst-case impacts for the various operating scenarios for the project are calculated and shown in Air Quality Table 14.

The project's PM10 impacts could contribute to existing violations of the state 24-hour and annual PM10 standards. The highest 24-hour PM10 impacts ( $4.6 \mu\text{g}/\text{m}^3$ ) are relatively large, about 1/10 the state standard itself. These impacts from OMGP directly emitted PM10 emissions could be significant if left unmitigated.

Start-up circumstances can be troublesome for significant air quality impacts for the following reasons. First, emissions (particularly of NOx and CO) can be high and often uncontrolled because emission control equipment is not operating at optimum temperature ranges. Second, low volumetric flow rates and exhaust gas temperatures can result in low exhaust plume rise and consequently higher ground level impacts, as found in the total 1-hour impacts for NO2 and CO in Air Quality Table 14. For this reason, the two combustion turbines will not be started simultaneously, but sequentially. This modeling analysis reflected the use of the Ozone Limiting Method (OLM) and Ambient Ratio Method (ARM) to provide a more refined estimate of NO2 impacts.

**Air Quality Table 14**  
**Combustion Turbine Refined Modeling Maximum Impacts**

Pollutant	Averaging Time	Impact ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	Back-Ground ( $\mu\text{g}/\text{m}^3$ ) <sup>d</sup>	Total Impact ( $\mu\text{g}/\text{m}^3$ )	Limiting Standard ( $\mu\text{g}/\text{m}^3$ )	Percent of Standard
NO2	1-hour	130 <sup>b</sup>	205	335	470	71
	Annual	0.8 <sup>e</sup>	37.6	38.4	100	38
CO	8-hour	643.2	4,413	5056	10,000	51
PM10	24-hour	4.6	103	107.6	50	215
	Annual <sup>c</sup>	0.8	29.2	30.0	30	100

a. The worst-case impacts from Air Quality Table 12.

b. Using the ozone limiting method.

c. Annual Arithmetic mean.

d. Background PM10, NO2, and CO data was collected between 1994 and 1999 at the Chula Vista ambient air monitoring station.

e. Using the ARM default value of 0.75.

Source: OMGC 2000a and OMGC 1999a

## SECONDARY POLLUTANT IMPACTS

The project's emissions of gaseous emissions, primarily NOx, SO2 and VOC, can contribute to the formation of secondary pollutants, namely ozone and PM10,

particularly ammonium nitrate PM10 and sulfate. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the OMGP do have the potential (if left unmitigated) to contribute in some unquantified way to higher ozone levels in the region.

Concerning secondary PM10 (primarily ammonium nitrate) formation, the process of gas-to-particulate conversion is complex and depends on many factors, including local humidity and the presence of other compounds. Currently, there is not an agency (EPA or CARB) recommended model or procedure for estimating nitrate or sulfate formation.

Staff believes that the emissions of NOx, SOx and VOC from OMGP do have the potential (if left unmitigated) to contribute, to higher secondary PM10 (particularly of ammonium nitrate) levels in the region.

**COMMISSIONING MODELING**

OMGC provided a refined modeling analysis using the AERMOD model to quantify the maximum emissions during the commissioning periods. The analysis used the ambient air quality data from the Chula Vista monitoring station and the 1-hour NO2 standard (470 µg/m<sup>3</sup>) and the 1-hour CO standard (23,000 µg/m<sup>3</sup>) to back-calculate the worst-case emissions rates allowable during the commissioning periods. Air pollutant emissions can be higher during these periods as the post-combustion catalysts are initially not installed while the combustion turbine is first optimized. The results of this modeling analysis are summarized in Air Quality Table 15. .

**Air Quality Table 15  
Commissioning/Optimization Period Maximum NO2 and CO Emissions**

Pollutant	Rate	Commissioning/ Maximum Allowable Emissions			
		Without SCONox installed		With SCONox installed	
		Two Turbines	One Turbine	Two Turbines	One Turbine
NO2	Lbs/hour	1,649	1,133	412	283
CO	Lbs/hour	2000	N/A	N/A	N/A

Source: OMGC 2000a, OMGC 2000b, and District 2000a

**CUMULATIVE IMPACTS**

To evaluate reasonably foreseeable future impacts as part of the project impacts analysis, the applicant performed a cumulative modeling analysis. The cumulative analysis included potential and/or permitted projects located up to nine miles from the proposed facility site, which is greater than the six mile radius generally specified by staff. The applicant worked with the District to identify potential and/or



permitted projects. None were identified, so additional analysis and cumulative modeling were not conducted.

## PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The PSD modeled impacts of the OMGC project were below allowable District and federal increments, as shown in Air Table 16. The impacts were significantly below allowable increments.

**Air Quality Table 16  
PSD Increments and Modeled Project Impacts**

Pollutant	Averaging Time	Class II Impact ( $\mu\text{g}/\text{m}^3$ )	Agua Tibia Maximum Modeled Impact ( $\mu\text{g}/\text{m}^3$ )	Class I Increment ( $\mu\text{g}/\text{m}^3$ )	Class II Increment ( $\mu\text{g}/\text{m}^3$ )
NO <sub>2</sub>	24-hour	N/A	0.04	N/A	N/A
NO <sub>2</sub>	Annual	0.8	0.0006	2.5	25
PM <sub>10</sub>	24-hour	4.6	0.064	8	30
PM <sub>10</sub>	Annual	0.8	0.0021	4	17

Source: District 2000a

## VISIBILITY IMPACTS

A visibility analysis of the project's gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The analysis addresses the contributions of gaseous emissions (primarily NO<sub>x</sub>) and particulate (PM<sub>10</sub>) emissions to visibility impairment on the nearest Class 1 PSD areas, which are national parks and national wildlife refuges. The nearest Class 1 area to the OMGP is the Agua Tibia National Wilderness Area. OMGC used the EPA approved model VISCREEN to assess the project's visibility impacts. The results from the VISCREEN modeling analysis indicated that the project's visibility impacts would be below the significance criteria for contrast and perception (OMGC 1999a and District 2000a). Therefore the project's visibility impacts on Class 1 areas are considered insignificant.

## MEXICO IMPACTS

The applicant analyzed whether there would be any significant air quality impacts in Mexico. The modeling found the maximum impacts from the project would occur on the terrain to the east of the project. Project impacts in Mexico were generally one-half to one-tenth of the maximums on the San Diego County side of the border, and are not considered significant.

## **MITIGATION**

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### **APPLICANT'S PROPOSED MITIGATION**

#### ***CONSTRUCTION MITIGATION***

OMGC is proposing a number of control measures to limit fugitive dust during the construction phase of a project (OMGC 1999a). These include the use of chemical stabilizing agents and dust suppressants or gravel areas on site, and the wetting or covering of stored earth materials on site. These proposed measures also require that the transporting of borrow fill dirt material be wetted, covered, or that sufficient freeboard be allowed. They also require the use of paved access aprons, gravel strips, wheel washing or other means to limit mud or dirt carryout onto paved public roads.

To minimize combustion emissions such as NO<sub>x</sub>, CO and PM<sub>10</sub>, OMGC is proposing to require that contractors properly maintain vehicle/equipment engines to control exhaust emissions.

#### ***OPERATIONS MITIGATION***

The OMGP air pollutant emissions impacts will be reduced by using emission control equipment on the project and by providing emission offsets. To reduce NO<sub>x</sub> emissions, OMGC proposes to use dry-low NO<sub>x</sub> combustors in the CTGs. In addition, each combustion turbine will use a SCONO<sub>x</sub> oxidation/adsorption catalyst system or an SCR/oxidation catalyst system to achieve a NO<sub>x</sub> concentration of 2.0 ppm, corrected to 15 percent excess oxygen averaged over a 3-hour period. The District and the applicant will develop a plan to reduce NO<sub>x</sub> emissions from the OMGP to as low as 1 ppm.

To reduce CO and VOC emissions, OMGC proposes to use good combustion and maintenance practices and the SCONO<sub>x</sub> system. PM<sub>10</sub> emissions will be limited by the use of a clean burning fuel (natural gas) and the efficient combustion process of the CTGs. The use of natural gas as the only fuel will limit SO<sub>2</sub> emissions.

#### **DRY LO-NO<sub>x</sub> COMBUSTORS**

Over the last 20 years, combustion turbine manufacturers have focused their attention on limiting the NO<sub>x</sub> formed during combustion. Because of the expense and efficiency losses due to steam or water injection into the combustor cans to reduce combustion temperatures and the formation of NO<sub>x</sub>, CTG manufacturers are presently choosing to limit NO<sub>x</sub> formation through the use of dry low-NO<sub>x</sub> technologies. In this process, firing temperatures remain somewhat low, thus minimizing NO<sub>x</sub> formation, while thermal efficiencies remain high. At steady state CTG loads greater than 40 percent load, NO<sub>x</sub> concentrations entering the HRSG are 25 ppm corrected to 15 percent O<sub>2</sub>. CO concentrations are more variable, with concentrations greater than 100 ppm at 50 percent load, dropping to 5 ppm at 100 percent load.

## FLUE GAS CONTROLS

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, a catalyst system will be installed in the HRSGs. OMGC is proposing the SCONOx system to reduce NOx, VOC, and CO emissions. SCONOx refers to a proprietary system developed by Goal Line Environmental Technologies and currently being marketed by ABB Alstom, under license, for large combustion turbine projects. It is an oxidation/absorption catalyst system that controls NOx, CO and VOC emissions in combustion flue gases.

OMGC proposes to use the SCONOx system in combination with the dry low-NOx combustors and a NOx concentration of 2.0 ppm. The District and the applicant will develop a plan to demonstrate the ability of SCONOx reduce NOx emissions from the OMGP to as low as 1 ppm.

Several reactions occur in the SCONOx catalyst banks. A proprietary catalyst absorbs sulfur compounds to prevent masking and degradation of oxidation/absorption catalysts, which oxidize NO to NO<sub>2</sub>, CO to CO<sub>2</sub>, and VOCs. NO<sub>2</sub> is then adsorbed by the catalyst while CO<sub>2</sub> and oxidized VOC compounds are emitted out the stack. Prior to saturation with NO<sub>2</sub>, catalyst regenerated is required. The catalysts are sealed off from the exhaust stream by a pair of mechanical louver doors and subjected to a hydrogen rich/oxygen lean mixture of natural gas and steam. This regeneration removes the captured NO<sub>2</sub> and produces elemental nitrogen, water, and the sulfur compounds, which are emitted through the stack.

The catalysts in each module must be removed and put through a cleaning process to maintain reactivity. It is anticipated that this would occur annually, but the NOx control levels desired and the levels of contaminants in the fuel and ambient air may dictate a different washing frequency. There is some concern that this washing solution may be an additional hazardous waste stream from the project, however, it can be disposed of properly under Title 22 of the California Code of Regulations. The time required for the washing process is likely to be 1-2 weeks.

The SCONOx system differs from the selective catalytic reduction (SCR) systems generally used to control NOx emissions for large combustion turbine projects. SCR catalysts generally operate between 600 to 750°F (ARB 1992), and are normally placed in the middle of the HRSG to achieve this optimum temperature window. SCONOx catalysts are believed to have a wider temperature window, allowing more design flexibility. However, for the OMGP, the SCONOx system will be placed where an SCR system normally would be located to allow the use of SCR on the OMGP if the SCONOx system does not achieve the level of NOx control required by the permit.

Additionally, SCONOx does not require the use of ammonia and an ammonia injection system. Therefore, SCONOx projects will not have ammonia slip, which is the result of un-reacted ammonia in an SCR system. However, the SCONOx system does require a system to produce the hydrogen rich/oxygen lean mixture of natural gas and steam. Depending on the operating temperature of the catalyst,

this regeneration system could include a steam reformer to increase the free hydrogen in the regeneration gas mixture.

SCR systems are generally ineffective during turbine start-up or when catalyst temperatures are lower than 600°F. The SCONOX system, with its wider temperature window and absorption mechanism, promises to be effective for NOx control during start-ups and process upsets. This is contingent on the system being designed with a sufficient capacity to adsorb NOx emissions spikes until such time that the regeneration cycle can be increased to or keep up with NOx emissions.

If the SCONOX system does not perform as required, the applicant has agreed to install a selective catalytic reduction and oxidization catalyst system to control NOx, VOC and CO.

## ***EMISSION OFFSETS***

District Rule 20.1 requires that OMGC provide emission offsets, in the form of emission reductions or banked Emission Reduction Credits (ERC), for the project's emissions increases of NOx. Other air pollutant emissions (such as VOC, SO2 and PM10) do not trigger offset requirements per District rules. The NOx offsets must be federally enforceable (i.e., meet federal requirements for offsets), provided on a tons per year basis, and from San Diego County. Additionally, if the NOx offsets are provided as an interpollutant trade, the trade must be federally enforceable (i.e., meet federal requirements for offsets). Offsets for NOx increases with VOC are to be provided at a ratio of 2 lbs. VOC to 1 lb. NOx (District 2000b).

The total potential annual NOx air emissions for the OMGP at 2.0 ppm could be as high as 125.6 tons per year (District 2000a). However, OMGC is requesting a permit limit of 100 tons per year of NOx, which will include commissioning emissions, start-up emissions and shutdown emissions, and emissions from testing or operation of the diesel fire pump and lube oil pumps. It is anticipated that OMGC can operate below the permit level through over-control of NOx emissions with the SCONOX or SCR system and/or curtailed operation.

OMGC is required to provide NOx offsets for the project's 100 tons per year NOx liability at the offset ratio of 1.2 to 1. VOC offsets will be provided at the offset ratio of 2.4 to 1 (an interpollutant trading ratio of 2:1 and an offset ratio of 1.2:1) (District 2000a). OMGC has carried out a herculean effort to secure NOx offsets in the San Diego area. The offset market is very limited and prices are high. OMGC has negotiated contracts and option agreements with numerous ERCs holders. The NOx offsets will be a combination of traditional emission reduction credits (ERC) and relatively untried mobile emission reduction credits (MERC), as shown in Air Quality Table 17.

OMGC has proposed to use emission reduction credits generated from the mobile sector. One set of MERCs will be a replacement of marine diesel engines in a fleet of harbor excursion boats and vessel assist boats. The difference in the NOx emissions from the existing diesel engines and the new clean diesel engines, multiplied by use factors, will be the amount of NOx reductions banked. Since the

new engines are not certified by CARB or EPA to a PM10 or VOC performance standard, OMGC is not proposing to formally bank the reductions of these pollutants. Staff and the applicant are interested in using the reductions as mitigation for project PM10 and PM10 precursor emissions.

The second set of MERCs consists of the conversion of a diesel truck fleet to natural gas engines. The difference in the NOx emissions from the existing diesel engines and the new, natural gas engines, multiplied by use factors, will be the amount of NOx reductions banked. Again, since the natural gas engines are not certified by CARB or EPA to a PM10 or VOC performance standard, OMGC is not proposing to formally bank the reductions of these pollutants. However, staff and the applicant are interested in securing the reductions as mitigation for project PM10 and PM10 precursor emissions.

Both sets of MERCs are being banked under the District's Rule 27, Banking of Mobile Source Emission Reduction Credits. The applicant, the District, CARB, and the EPA have worked diligently to craft the framework necessary to bank the OMGC MERCs under the rule. The District prepared and issued an EIR on the framework for public comment. The EIR and MERC framework have been reviewed and approved by the District, the USEPA and CARB. The District's MERC framework should provide viable NOx offsets for the OMGP.

**Air Quality Table 17  
OMGP NOx and VOC Offsets (tons per year)**

Offset source	NOx	VOC
<b>ERCs</b>		
US Foam		30.2
US Foam	1.3	
National Offset	4.4	
Alcoa	1.21	
Napp Systems		17.05
Solar Turbines		25
Designz Unlimited		10.3
American Fashion	0.7	
City of San Diego	2.71	
<b>MERCs</b>		
San Diego Harbor Excursion: diesel to diesel	29.96	
Western Maritime: diesel to diesel conversion	8.37	
Waste Management, Inc. fleet conversion: diesel to natural gas engines	35.25	
<b>ERCs: NOx and VOC</b>	83.90	82.55
@ Interpollutant Trading Ratio 2 VOC <sub>ERC</sub> to 1 NOx <sub>ERC</sub> <sup>a</sup>		41.28
<b>TOTAL ERCs: NOx and NOx equivalent</b>	<b>125.18</b>	
a. Per District rules.		

Sources: District 2000a and OMGC 2000a

## **ADEQUACY OF PROPOSED MITIGATION**

### ***CONSTRUCTION MITIGATION***

OMGC will be required to comply with the proposed control measures for limiting fugitive dust emissions during construction. In addition, OMGC has proposed that they will require contractors to maintain their vehicles and equipment to limit exhaust emissions. Staff believes that additional measures are necessary to mitigate potential construction impacts (refer to staff proposed mitigation below).

### ***OPERATIONS MITIGATION***

#### **EMISSION CONTROLS**

OMGC has proposed to limit NO<sub>x</sub> emissions from the combustion turbines to 2.0 ppm at 15 percent O<sub>2</sub> over a 3-hour rolling average, resulting from the use of either a SCONox system or SCR and oxidation catalyst system. This complies with the ARB Power Plant Siting Guidelines and other projects being certified by the Energy Commission.

OMGC proposes VOC concentrations of less than 2.0 ppm at 15 percent O<sub>2</sub> over a 1-hour rolling average, and CO concentrations of less than 6.0 ppm at 15 percent O<sub>2</sub> over a 3-hour rolling average. Again, these emission rates result from the use of either a SCONox system or a SCR/ oxidation catalyst system. The emission rates for NO<sub>x</sub>, CO and VOC agree with the recommendations provided in the ARB Guidance Document on Power Plant Siting.

#### **OFFSETS**

OMGC has identified a complete offset package that, on an annual basis, does offset the potential NO<sub>x</sub> air emissions increases and complies with District rules (District 2000c and OMGC 2000c).

The proposed emission offsets for NO<sub>x</sub> do not adequately mitigate the project's potential emissions of VOC (as precursor to O<sub>3</sub> and secondary PM<sub>10</sub>), SO<sub>2</sub> (as precursor to secondary PM<sub>10</sub>) and directly emitted PM<sub>10</sub>. Staff, as discussed in the impacts section, believes that those emissions of VOC, SO<sub>2</sub> and PM<sub>10</sub> constitute a significant, unmitigated impact.

## **STAFF PROPOSED MITIGATION**

### ***CONSTRUCTION MITIGATION***

The modeling assessment for the combined cycle project shows that the construction activities and the PM<sub>10</sub> from combustion sources used for heavy construction have the potential for causing significant PM<sub>10</sub> and NO<sub>2</sub> air quality impacts. The most feasible mitigation measure to limit these emissions is to have fugitive dust measures in place. As stated above, OMGC has proposed a number of control measures that will minimize fugitive dust emissions. Staff proposes that prior to the commencement of construction, that OMGC provide a fugitive dust

maintenance plan that specifically spells out the mitigation measures that OMGC will employ to limit fugitive dust during construction. It is anticipated that the fugitive dust measures be implemented for all construction activities at the project site and associated linear facilities such as transmission lines and gas pipelines.

In order to address the PM10 and NO2 emissions in equipment exhaust, OMGC has proposed that they will require contractors to maintain their vehicles and equipment to limit exhaust emissions. Staff is recommending the diesel fuel be limited to no greater than 50 ppm sulfur to achieve further reductions in PM10 and PM10 precursors from construction equipment exhaust. Staff proposes that prior to the commencement of construction, that OMGC provide a construction equipment maintenance plan that specifically spells out the mitigation measures that OMGC will employ to limit construction equipment emissions. It is anticipated that the equipment exhaust mitigation measures be implemented for all construction activities at the project site and associated linears.

The current California standard for diesel fuel limits sulfur to 500 ppm. California on-road diesel averages 130 ppm sulfur, with some fuel distribution terminals selling 50 ppm or less sulfur diesel fuel. The ARB predicted as much as a 25 percent reduction of directly emitted PM10 and an 80 percent reduction of SO2, a PM10 precursor, with the implementation of the 500 ppm sulfur diesel standard ( ARB 1988). Staff believes that the use of 50 ppm sulfur diesel instead of 130 ppm diesel will reduce SO2 emissions by as much as 60 percent, and reduce PM10 between 5 percent (Clean 2000) and 10 percent. Reducing sulfur in diesel fuel helps extend engine life by reducing corrosive wear. Additionally, lower sulfur diesel ensures a greater compatibility with post-combustion catalysts and soot filters, where they are appropriate (ARB 1998).

The oxidizing soot filter is a device that replaces the muffler of the construction equipment. It reduces CO and hydrocarbon (VOC) emissions by approximately 80-90% and PM10 emissions by approximately 90-99%. The Conditions of Certification will be written to give the on-site engineer the latitude to remove the oxidizing soot filters when it is determined that they are not appropriate for the specific construction activity or equipment application.

## ***OPERATIONS MITIGATION***

### **PROJECT PM10 LIABILITY**

Staff is concerned that the project's PM10 and PM10 precursor emissions of 160 tpy PM10, 39 tpy SO2, and 27 tpy VOC (District 2000c) would contribute to existing violations of the state 24-hour and annual PM10 standards. The level of mitigation required by staff is approximately 226 tons per year (tpy) of PM10 or PM10 precursors. PM10 precursors of SOx, NOx and VOC can be interpollutant traded for PM10 at a ratio of 1.0 to 1.0.

The applicant is surrendering 125.18 tpy of NOx reductions consisting of NOx and VOC emission reductions credits. For staff's CEQA mitigation purposes, only 100 tons of the NOx reductions are needed to mitigate the permitted 100 ton NOx

increase. The remaining 25 tons of NOx or NOx equivalent reductions can be applied as PM10 mitigation. Since some of the NOx offsets are provided in the form of VOC ERCs, interpollutant traded at 2 VOC for 1 NOx, the 25 tons of excess NOx or NOx equivalent is actually 50 tons of VOC reductions. VOC can be interpollutant traded for PM10 at 1:1. Additionally, the applicant is creating approximately 5 tons of diesel PM10 reductions during the creation of the NOx MERCs.<sup>2</sup> Therefore, only 171 tons of PM10 and PM10 precursor emissions reductions are needed as CEQA mitigation.

Staff worked with the applicant and intervenors to investigate appropriate CEQA PM10 mitigation measures. The applicant provided a proposed PM10 mitigation package consisting of road paving and diesel particulate reductions from buses, waste removal trucks and marine vessels (OMGC 2000d). The proposed package included almost 200 tons of fugitive dust reductions from paving 5.2 miles of dirt and gravel road near the border, \$75,000 to fund bus retrofit or replacement, and approximately 5 tons of PM10 reductions that occur during the NOx MERC (truck and marine vessels) program. The applicant considered alternative PM10 mitigation approaches of purchase of PM10 ERCs on the open market, tree planting, public transit incentives, inter-basin ERC transfers, leaf blower and mower replacements, and enhanced ambient air quality monitoring in the Otay Mesa area. These alternatives were found to be infeasible by the applicant.

While staff was willing to consider road paving as a part of a PM10 reduction package, staff and the intervenors believe that the proposed PM10 package is overly dependent on road paving. Road paving does reduce PM10 in the vicinity of the project. However, it does not adequately mitigate the fact that the project's PM10 emissions are almost entirely combustion by-products, generally PM2.5 or less. Additionally, questions of permanence and enforceability arise due to uncertainties regarding road cleaning and repair, as well as whether the paving is surplus because most dirt and gravel roads, especially in urban areas, are eventually paved.

### **STAFF'S PM10 MITIGATION**

If the Energy Commission were licensing the OMGP for most other regions of the state, it would require the applicant to provide 171 tons of PM10/PM10 precursor emissions mitigation in addition to the NOx ERC/MERCs proposed. However, the applicant could not identify 171 tons of feasible PM10 mitigation. Staff concurs with the applicant that offsets and air quality mitigation are difficult to procure in the San Diego region. While PM10 ERCs are potentially available from the ERC bank, the potential ERC costs could be punitive. Additionally, the San Diego PM10 ERCs are dominated by fugitive dust emissions reductions instead of combustion by-product PM10 (i.e., <PM2.5) emissions reductions.

Staff investigated additional emission reductions in the San Diego region. There are limited sources of combustion by-product PM10 emissions, and therefore limited

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<sup>2</sup> The applicant's PM10 mitigation proposal included 6.5 tons of diesel PM10 reduced during the creation of the NOx MERCs. The value was based on preliminary data. The actual tonnage of PM10 potentially reduced will be closer to 5 tons per year.



emission reduction opportunities, except in the mobile source sector. The relative emissions inventories for San Diego are shown in Air Quality Table 18. The mobile sector dominates the NOx and VOC inventories while area sources dominate the PM10 emissions for the basin. In this summary PM10 area sources are made up of fugitive dust sources, including paved and unpaved roads and construction and demolition activities. These fugitive dust sources are often intermittent or seasonal, and therefore difficult to secure as emission reductions and mitigation. Table 18 also shows some of the emissions trends for the region.

**Air Quality Table 18**  
**San Diego Sector Inventory Trends 1985 – 1995 (ton/day, annual average)**

		1985	1990	1995
NOx	Stationary	16	16	16
	Area	5	5	5
	Mobile	218	248	217
VOC	Stationary	45	47	52
	Area	42	45	49
	Mobile	263	231	177
PM10	Stationary	6	7	7
	Area	64	78	85
	Mobile	9	9	7

Source: ARB 2000e

In order to mitigate the project's potential PM10 and PM10 precursor emission impacts, staff is proposing that the applicant fund one of the State's or the District's emission reduction programs in the San Diego Basin to provide emission reductions above and beyond what is currently expected from each program. The programs might include the Carl Moyer Program<sup>3</sup>, the Lower-Emission School Bus Program,<sup>4</sup> or other emission reduction programs administered by the District. The two CARB/District programs focus on emission reductions from the mobile sector diesel fleet, and reductions of ultra fine PM10 (PM2.5) and ozone and PM10 precursor emissions. The use of an existing CARB or District program provides the administrative overhead and targets emissions inventories that are of concern to the State and District.

<sup>3</sup> The Governor's Budget allocated a one-time appropriation of \$50 million dollars to fund the Carl Moyer program through the 2000/2001 fiscal year. Of this amount, the California Energy Commission will receive \$5 million dollars to fund the Advanced Technology and the Infrastructure Demonstrations portions of the Program. Previously, \$25 million in ARB's 1998-99 fiscal year budget and \$19 million in ARB's 1999-2000 fiscal year budget were allotted for Carl Moyer Program incentive grants, as a means to reduce emissions from heavy-duty engines. The incentives are grants that would cover the incremental cost of cleaner on-road, off-road, marine, locomotive and stationary agricultural pump engines, as well as forklifts and airport ground support equipment.

<sup>4</sup> Lower-Emission School Bus Program: The Air Resources Board's (ARB) budget for fiscal year 2000/2001 includes \$50 million for replacement and retrofit of older diesel school buses. The primary goal of the program is to reduce the exposure of school children to both cancer-causing and smog-forming pollution. The focus is on reduction of particulate matter (PM) emissions through replacement and retrofit of high-polluting, older school buses.

In order to determine the PM10 and PM10 precursor emission mitigation fee that would be appropriate, staff looked at statewide PM10 and PM10 precursor ERC costs from 1993 through 1999. The average prices paid for NOx, hydrocarbon (HC), PM10 and SOx are shown in Air Quality Table 19. The average prices have been fairly constant over the 7 years that ARB has been reporting ERC transactions.

**Air Quality Table 19**  
**Statewide Average ERC Price Paid 1993 – 1999 (\$/ton)**

	NOx	HC	PM10	SOx
1999	\$13,884	\$6,579	\$10,400	\$4,864
1998	\$11,705	\$7,680	\$9,475	\$7,927
1997	\$11,257	\$6,047	\$11,571	\$5,200
1996	\$10,999	\$9,734	\$9,612	\$3,707
1995	\$14,274	\$8,158	\$8,856	\$5,200
1994	\$13,432	\$11,516	\$14,907	\$6,000
1993	\$16,539	\$12,742	\$17,654	\$5,010
7 year avg.	\$13,156	\$8,922	\$11,782	\$5,415
Average price paid for PM10/PM10 precursor ERC for 1993 – 1999: <b>\$9,819<sup>a</sup></b>				
a. If you assume an interpollutant trading ratio of 1.0:1.0 for any PM10 precursor for PM10.				

Source: ARB 2000e

The average costs to procure the mitigation as emission reductions, or ERCs, are shown in Air Quality Table 20. The low case would result from the applicant using SOx ERCs exclusively, while the high case results from the applicant using NOx ERCs exclusively. Most project developers would pursue the cheapest ERC package, or a mixture of PM10 and PM10 precursor ERCs (i.e., the Average Case). The table uses average prices, but to bracket the potential costs for ERCs in San Diego, staff included in Table 20 the 1999 average price for San Diego only ERCs. The potential cost to the applicant using San Diego only ERC prices is substantially higher than using any other statewide or average ERC price.

**Air Quality Table 20**  
**Potential PM10 Mitigation Costs Average ERC Price '93 – '99**

	Tons per year	Avg. Price '93 – '99	Project Cost
Low case, SOx	171	\$5,415 <sup>a</sup>	\$925,965
High case, NOx	171	\$13,156 <sup>b</sup>	\$2,249,676
PM10 case	171	\$11,782 <sup>c</sup>	\$2,014,722
San Diego Case	171	\$20,000 <sup>d</sup>	\$3,420,000
Average Case	171	\$9,819 <sup>e</sup>	\$1,679,049
a. Table 19, 7-year average price of SOx ERC. b. Table 19, 7-year average price of NOx ERC c. Table 19, 7-year average price of PM10 ERC d. 1999 average price for San Diego ERCs. e. Table 19, 7-year average combined price of SOx, NOx, PM10 and HC ERCs.			

Staff believes that the applicant would pursue the minimum-cost ERCs, if available. Therefore, staff is proposing a one-time mitigation fee of \$1.7 million, based on the statewide average ERC price even though in the severely constrained San Diego ERC market, a PM10 mitigation package would tend to be the most expensive package. The fee is to be provided to the District. Staff and intervenors would prefer that the mitigation fee be earmarked for the Lower-Emission School Bus Program, and specifically, the retrofit component of that program. However, staff believes it is important to provide the District with some flexibility to ensure that the emission reductions occur quickly and where the implementation is deemed to be most cost effective and beneficial to local air quality.

### **STAFF'S PM10 MITIGATION EFFECTIVENESS**

Staff has had discussions with CARB and District staff regarding the Low Emission School Bus and the Moyer programs. CARB staff believes that the San Diego allocation will be \$2 million dollars for retrofits, and \$2.1 to 2.5 million for replacements.<sup>5</sup> The retrofit program pays for the entire cost of the engine modification or add-on, and provides a one-time \$500 fuel subsidy. If each retrofit cost approximately \$7,400 (i.e., the worst case), the state's \$2 million would only retrofit 270 buses. There are approximately 3000 buses in the San Diego region. Both District and CARB staff assured staff that any additional mitigation funds provided by OMGC would be put toward additional bus retrofits and would not reduce the allocation of the funds from the state (Dunn 2000 and Spagnola 2000). This would appear to address the issue of surplus.

Discussions with the San Diego Unified School District were similarly encouraging (Hansen 2000). The school district operates about 1/6 of the San Diego County school bus fleet (525 out of 3,000 school buses). They currently have 10 buses with catalyzed diesel particulate filters and are very encouraged by the operating results to date. Mr. Hansen felt additional retrofit funds would be taken advantage of, if available. The school bus program's diesel retrofits will most likely be catalyzed diesel particulate filters, which can reduce PM10 up to 99%. Other technologies include the Ceryx catalyst, which can reduce PM10, VOC, CO, and NOx.

The actual tonnage of PM10 the \$1.7 million dollar mitigation fee will effectively reduce will be relatively small, approximately 8 tons per year. However, staff believes that there are significant air quality benefits. Diesel particulates are known carcinogens.<sup>6</sup> The retrofit program will reduce these carcinogen and ultra-fine PM10

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<sup>5</sup> In the replacement program, the school district must provide at least \$25,000 toward a new bus. Many school districts cannot afford this, and will probably take advantage of the retrofit program, which does not require matching funds.

<sup>6</sup> In 1998, following an exhaustive 10-year scientific assessment process, the Air Resources Board (ARB or Board) identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). On a statewide basis, the average potential cancer risk associated with these emissions is over 500 potential cases per million. In the South Coast Air Basin, the potential risk associated with diesel PM emissions is estimated to be 1,000 per million people. Compared to other air toxics the Board has identified and controlled, diesel PM emissions are estimated to be responsible for about

(<PM2.5) emissions at street level and reduce direct exposure to children. Staff also believes there are significant benefits to encouraging early adoption of the “clean diesel” technologies (much of CARB Risk Reduction Plan will not be implemented until 2007).

Staff is also encouraged by the strong likelihood that the funds will be used, resulting in real contemporaneous emission reductions throughout San Diego. Given this, in conjunction with the applicant’s proposed NOx and VOC emissions reductions, will reduce the project’s NOx, VOC, SOx, and PM10 emissions impacts to the extent feasible.

## **COMPLIANCE WITH LORS**

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### **FEDERAL**

The District’s NSR permit process, which generated the PDOC (District 2000a), and FDOC (District 2000c) includes a Prevention of Significant Deterioration (PSD) permit process. The District is not doing a separate PSD permit review. Based on recent conversations with District and EPA staff, we are still uncertain how the timing of the biological assessment and opinion regarding endangered species will correlate to the Final Determination of Compliance/PSD permit. However, we do not believe at this time that the biological portion of the PSD permit will affect project emissions or the air quality conditions of certification. The District will also issue a Title V permit for the facility upon operation of the project.

### **STATE**

The project, with the Final Determination of Compliance issued by the San Diego County APCD, complies with Section 41700 of the California State Health and Safety Code.

### **LOCAL**

The District issued a Final Determination of Compliance (District 2000c) September 18, 2000. The District resolved all comments and issues. The FDOC include conditions of certification, which are included below.

## **CONCLUSIONS AND RECOMMENDATIONS**

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The Otay Mesa Generating project’s air quality impacts from directly emitted PM10 and of the ozone precursor emissions of NOx and VOC and PM10 precursors of NOx, VOC and SO2 could be significant if left unmitigated. OMGC will reduce operational emissions to the extent feasible, operate the facility under annual and quarterly emissions caps, and will provide emission offsets for NOx emissions increases, reducing any potential NOx impacts to a level of insignificance. The

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70 percent of the total ambient air toxics risk. In addition to these general risks, diesel PM can also present elevated localized or near-source exposures. Depending on the activity and nearness to receptors, these potential risks can range from small to 1,500 per million or more.

project owner will provide PM10 and PM10 precursor mitigation, in the form of a one-time fee to the District of \$1.7 million and VOC and PM10 emission reductions, to provide mitigation of PM10 and PM10 precursor emissions in the air basin. The emission reductions and implementation of the emission controls funded by the mitigation fee will mitigate the project's operational PM10 impacts to the extent feasible.

Based on the District's Final Determination of Compliance, staff concludes that the project will comply with the District's Rules and Regulations. Staff recommends certification of the OMGC project with the adoption of the District's FDOC and staff proposed conditions of certification. Staff proposed conditions of certification reduce potential CO, NOx and PM10 impacts from on-site construction activity to the extent feasible.

## **CONDITIONS OF CERTIFICATION**

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### **DETERMINATION OF COMPLIANCE CONDITIONS**

#### ***GENERAL CONDITIONS***

**AQ1** Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

**Verification:** The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

**AQ2** This equipment shall be properly maintained and kept in good operating condition at all times.

**Verification:** The project owner shall make the site and records available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

**AQ3** The project owner shall provide access, facilities, utilities, and any necessary safety equipment for source testing and inspection upon request of the Air Pollution Control District.

**Verification:** The project owner shall make the site and records available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

**AQ4** The owner operator shall obtain any necessary District permits for all ancillary combustion equipment, including emergency engines, prior to on-site delivery of the equipment.

**Verification:** The project owner shall provide copies of the design details of the ancillary equipment to be installed, including emergency engines to the CPM and the District at least 90 days prior to the delivery of the equipment to the project site.

## **CONSTRUCTION (AT OR PRIOR TO INITIAL FIRING) CONDITIONS**

**AQ5**At least 90 days prior to the start of rough grading, the project owner shall submit to the District the final selection and design details of the gas turbines and associated equipment to be installed, including all proposed post-combustion control systems (SCONOx or SCR). Such information may be submitted to the District under Trade Secret and confidential provisions pursuant to District Rules 175 and 176.

**Verification:** The project owner shall provide copies of design details of the gas turbines and associated equipment to be installed, including all proposed post-combustion control systems (SCONOx or SCR) to the CPM and the District at least 90 days prior to the start of rough grading.

**AQ6**The exhaust stacks for each turbine power station shall be at least 131 feet (39.9 meters) in height and shall be positioned no more than one stack diameter away from each other.

**Verification:** The project owner shall provide copies of the design details of the gas turbines and associated equipment to be installed, including all proposed post-combustion control systems (SCONOx and SCR) to the CPM and the District at least 90 days prior to the start of rough grading.

**AQ7**The exhaust stacks for each turbine power station shall be equipped with source test ports and platforms to allow for the measurement and collection of stack gas samples consistent with all approved test protocols. The ports and platforms shall be constructed in accordance with District Method 3A, Appendix Figure 2.

**Verification:** The project owner shall provide copies of the design details of the gas turbines and associated equipment to be installed, including all proposed post-combustion control systems (SCONOx and SCR) to the CPM and the District at least 90 days prior to the start of rough grading.

**AQ8**This equipment shall be fired on natural gas only. The sulfur content of the natural gas used shall not exceed 0.75 grains per 100 standard cubic feet of natural gas. The project owner shall maintain quarterly records of fuel sulfur content (grains of sulfur compounds per 100 scf of natural gas) and higher heating value (Btu/scf) and shall make these records available to District personnel upon request. Specifications, including sulfur content and higher heating value, of all natural gas, other than Public Utility Commission (PUC)-regulated natural gas, shall be submitted to the District for written approval prior to use.

**Verification:** These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District,

California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ9**In the event the applicant elects to install the SCONOx system, the applicant shall undertake all reasonable efforts to achieve continuous NOx emissions below current BACT/LAER standards. The applicant shall submit to the District a protocol for achieving optimum operation of the SCONOx system and a NOx emission concentration of 1.0 ppmvd (at 15% oxygen, 3-hour average) for each turbine. This protocol shall include, at a minimum, the following:

- a. The initial values for the regeneration cycle times.
- b. The amount of natural gas or other source of hydrogen for the regeneration cycle (expressed as a concentration or percentage of total regeneration gas).
- c. The testing scheme to vary the cycle times and the monitoring that will be done to determine the effectiveness of the changes on emission rates of NOx and CO.
- d. The testing scheme to vary the concentrations of natural gas or other source of hydrogen for the regeneration.
- e. Additional contingency measures to be taken to address possible failure modes.

**Verification:** The project owner shall provide copies of the protocol for achieving optimum operation of the SCONOx system to the District and to the CPM at least 30 days prior to initial firing.

**AQ10**Prior to initial firing of each turbine, a Continuous Emission Monitoring System (CEMS) shall be installed and calibrated to measure the concentrations of oxides of nitrogen (NOx), carbon monoxide (CO), and oxygen (O<sub>2</sub>) in the exhaust gas on a dry basis, corrected to 15% oxygen. Upon initial firing and prior to final approval of the permanent CEMS system, a portable CEMS, which has been properly certified and calibrated, shall be operational. At least 60 days prior to the operation of both the portable and permanent CEMS, the project owner shall submit an operating protocol to the District for written approval. The portable CEMS shall remain in full operation at all times when the turbine is in operation until the permanent CEMS, which has been properly installed and certified, is in full operation at all times when the turbine is in operation.

**Verification:** The project owner shall provide copies of the operating protocol for the CEMS system to the District, for written approval, and to the CPM at least 60 days prior to operation of the CEMS system.

**AQ11** At least 60 days prior to initial firing of the gas turbines, the project owner shall submit a protocol to the District, for written approval, that shows how both the portable and permanent CEMS will be able to meet all District monitoring requirements and measure NO<sub>x</sub> emissions at a level of 1.0 ppmv plus or minus 10%. In the event that CEMS technology to measure NO<sub>x</sub> emissions at a level of 1.0 ppmv is not commercially available 60 days prior to initial startup, the project owner shall submit a report to the District regarding the status of the development of such technology. If the principal impediment to meeting the 10% relative accuracy requirement is the test method, the applicant shall propose an alternative measurement technique, for District and US EPA approval. If the CEMS installed by the applicant is unable to meet the 10% relative accuracy requirement, the applicant shall include in the annual relative accuracy report to the District, a reassessment for the commercial availability status for the technology. If the technology for the CEMS to meet the required accuracy becomes commercially available, the applicant shall retrofit the CEMS with such technology within 1 year of becoming available.

**Verification:** The project owner shall provide copies of the operating protocol for the CEMS system or a CEMS development status to the District, for written approval, and the CPM at least 60 days prior to the initial startup. If the principal impediment to meeting the 10% relative accuracy requirement is the test method, the applicant shall propose an alternative measurement technique, for District and US EPA approval. If the CEMS installed by the applicant is unable to meet the 10% relative accuracy requirement, the applicant shall include in the annual relative accuracy report to the District, a reassessment for the commercial availability status for the technology. If the technology for the CEMS to meet the required accuracy becomes commercially available, the applicant shall retrofit the CEMS with such technology within 1 year of becoming available.

**AQ12** At least 60 days prior to initial firing of the gas turbines, the project owner shall submit a protocol to the District for approval which shall specify a method for determining the CO/VOC surrogate relationship that shall be used to demonstrate compliance with all VOC emission limits.

**Verification:** The project owner shall provide copies of the operating protocol for the CO/VOC surrogate relationship used to demonstrate compliance with all VOC limits to the District, for written approval, and the CPM at least 60 days prior to the initial firing of the gas turbines.

**AQ13** Prior to initial firing, each turbine shall be equipped with continuous monitors to measure or calculate and record the following operational characteristics of each unit:

- natural gas flow rate (scfh),
- heat input rate (MMBtu/hr),
- exhaust gas flow rate (dscfm),
- exhaust gas temperature (°F), and
- power output (MW).



The monitors shall be installed, calibrated, and maintained in accordance with an approved protocol. This protocol, which shall include calculation methodology, shall be submitted to the District for written approval at least 60 days prior to initial firing of the gas turbines. The monitors shall be in full operation at all times when each turbine is in operation.

**Verification:** The project owner shall provide copies of the operating protocol, including the calculation methodology for the CEMS system or a CEMS development status to the District, for written approval, and the CPM at least 60 days prior to initial firing of the gas turbines.

**AQ14**All CEMS shall be certified, calibrated, maintained, and operated for the monitoring of NO<sub>x</sub> and CO in accordance with applicable regulations including the requirements of Sections 60.7(c), 60.7(d), and 60.13 of Title 40 Code of Federal Regulations Part 60 (40 CFR 60), Performance Standards of Appendix B of 40 CFR 60, Quality Assurance Procedures of Appendix F of 40 CFR 60 and 40 CFR 75, and a protocol approved in writing by the District.

**Verification:** These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ15**The District shall be notified in writing at least two (2) weeks prior to any proposed changes to be made in any Continuous Emission Monitor (CEM) software which affects the value of data displayed on the CEM monitors with respect to the parameters measured by their respective sensing devices.

**Verification:** The project owner shall provide notices of any proposed changes made to the CEM software, which affects the value of data displayed on the CEM monitors with respect to the parameters measured by their respective sensing devices, to the District and the CPM at least two (2) weeks prior to the changes.

**AQ16**No later than 90 days after each unit commences commercial operation, a Relative Accuracy Test Audit (RATA) shall be performed on the permanent CEMS in accordance with 40 CFR Part 75 Appendix A Specifications and Test Procedures. At least 45 days prior to the test date, the project owner shall submit a test protocol to the District for approval. Additionally, the District shall be notified a minimum of 45 days prior to the test so that observers may be present. Within 30 days of completion of this test, a written test report shall be submitted to the District for approval.

**Verification:** The project owner shall provide copies of the CEMS RATA test to the District and the CPM no later than 90 days after each unit commences commercial operation. The project owner shall provide notice of the CEMS RATA test date and provide a CEMS RATA test protocol to the District and the CPM at least 45 days prior to the tests. The project owner shall provide a written CEMS RATA test report to the District, for approval, and the CPM within 30 days of the test.

**AQ17**The total aggregate annual emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide, from all emission units at the stationary source shall not exceed 100 tons per each consecutive 12-calendar month period. The NOx emissions shall begin accruing at the initial firing of each turbine. Compliance with this limit shall be verified using the CEMS system on each gas turbine (Application Nos. 973880 and 973881) as well as EPA- or ARB-certified NOx emissions factors, testing results, or other representative emissions information for all other combustion equipment, including emergency engines.

**Verification:** The project owner shall maintain records, at least on a calendar monthly basis, of total aggregate mass emissions of NOx, in tons per year, from all equipment, excluding exempt equipment, at this stationary source for the previous 12-month period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ18**The project owner shall maintain records, at least on a calendar monthly basis, of total aggregate mass emissions of NOx, in tons per year, from all equipment, including emergency equipment, at this stationary source for the previous 12-month period. These records shall be maintained on site for a minimum of five years and made available to District personnel upon request.

**Verification:** The project owner shall maintain records, at least on a calendar monthly basis, of total aggregate mass emissions of NOx, in tons per year, from all equipment, excluding exempt equipment, at this stationary source for the previous 12-month period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ19**To ensure compliance with District Rule 69.3.1 and except during any period of time for which a variance from Rule 69.3.1 has been granted by the Air Pollution Control District Hearing Board, when operating without any post-combustion air pollution control equipment, the emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide, from each turbine shall not exceed 19.8 parts per million by volume on a dry basis (ppmvd) calculated over a 1-hour averaging period and corrected to 15% oxygen, excluding startups and shutdowns as defined in District Rule 69.3.1.

**Verification:** The project owner shall maintain records of the NOx emission concentrations of each gas turbine when operating without any post-combustion air pollution control equipment. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The

information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ20**To ensure compliance with District Rule 69.3.1 and except during any period of time for which a variance from Rule 69.3.1 has been granted by the Air Pollution Control District Hearing Board, when operating with post-combustion air pollution control equipment, emissions of oxides of nitrogen (NO<sub>x</sub>), calculated as nitrogen dioxide, shall not exceed 11.8 parts per million by volume on a dry basis (ppmv) calculated over a 1-hour averaging period and corrected to 15% oxygen, excluding startups and shutdowns as defined in District Rule 69.3.1.

**Verification:** The project owner shall maintain records of the NO<sub>x</sub> emission concentrations of each gas turbine when operating with post-combustion air pollution control equipment. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ21**When operating without any post-combustion air pollution control equipment, the total emissions from both turbines combined shall not exceed 1649 pounds per hour of oxides of nitrogen (NO<sub>x</sub>), calculated as nitrogen dioxide. Additionally, when operating without any post-combustion air pollution control equipment, the total emissions when only one turbine is in operation shall not exceed 1133 pounds per hour of NO<sub>x</sub>. These emissions limits shall apply during startups and shutdowns.

**Verification:** The project owner shall maintain records of the NO<sub>x</sub> mass emissions of each gas turbine when operating without any post-combustion air pollution control equipment. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ22**When operating with post-combustion air pollution control equipment, the total emissions from both turbines combined shall not exceed 412 pounds per hour of oxides of nitrogen (NO<sub>x</sub>), calculated as nitrogen dioxide. Additionally, when operating with post-combustion air pollution control equipment, the total emissions when only one turbine is in operation shall not exceed 283 pounds per hour of NO<sub>x</sub>. These emissions limits shall apply during startups and shutdowns.

**Verification:** The project owner shall maintain records of the NO<sub>x</sub> emission concentrations of each gas turbine when operating with post-combustion air pollution control equipment. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The

information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ23** When operating at less than 40% load, the emissions of carbon monoxide (CO) shall not exceed 2500 ppm averaged over a 1-hour period nor exceed 1000 ppm averaged over an 8-hour period. When operating at 40% load or greater, the emissions of carbon monoxide shall not exceed 1000 ppm averaged over a 1-hour period nor exceed 500 ppm averaged over an 8-hour period. All concentration limits shall be corrected to 15% oxygen. These limits shall apply during startups and shutdowns.

**Verification:** The project owner shall maintain records of the CO emission concentrations of each gas turbine when operating, including startup and shutdowns. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

## **COMMISSIONING PERIOD CONDITIONS**

**AQ24** Beginning at initial firing of each turbine, a "Commissioning Period" for each turbine shall commence. This Commissioning Period shall end 120 days after initial firing or immediately after written acceptance of clear custody and control of the equipment is turned over to the project owner, whichever comes first. During this Commissioning Period, only the emission limits specified in Condition Nos. 17, 18, 19, 20, 21, 22, 23, and 25 shall apply.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the commissioning period. These records shall be included in the Commissioning Period Progress Report required in AQ-24, and maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

**AQ25** Within 30 days after initial firing of each turbine, the project owner shall install post-combustion air pollution control equipment to minimize emissions from this equipment. The applicant may request an extension, not to exceed an additional 30 days, in writing for District approval. This request shall include all technical reasons as to why the extension is needed. Such an extension will only be granted if the applicant can demonstrate that such extension:

- a. is not the result of neglect or disregard of any air pollution control requirement;
- b. is not intentional or the result of negligence, as defined in District Rule 98;
- c. is not the result of improper maintenance;
- d. will not cause a nuisance;
- e. is not likely to create an immediate threat or hazard to public health or safety;

- f. will not interfere with the attainment or maintenance of any National or California Ambient Air Quality Standard; and
- g. good cause is shown for the extension.

Once installed, the post-combustion air pollution control equipment shall be maintained in good condition and shall be in full operation at all times when the turbine is in operation.

**Verification:** The project owner shall install post-combustion air pollution control equipment to minimize emissions from this equipment within 30 days after the initial firing of the gas turbines, unless the project owner requests an extension, not to exceed an additional 30 days, in writing for District approval.

**AQ26** Within 10 days after the end of the Commissioning Period for each turbine, the project owner shall submit a written progress report to the District. This report shall include, at a minimum, the date that the Commissioning Period ended, the periods of startup, the emissions of NO<sub>x</sub> and CO during startup, and the emissions of NO<sub>x</sub> and CO during steady state operation with and without power augmentation. Emissions shall be in both ppmv and lbs/hr. This report shall also detail any turbine or emission control equipment malfunction, upsets, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the Commissioning Period. The report shall also describe all planned actions and tests to be conducted during the Optimization Period.

**Verification:** The project owner shall submit a Commissioning Period Progress Report for each gas turbine to the District and the CPM within 10 days after the end of each gas turbine commissioning period.

## ***OPTIMIZATION PERIOD CONDITIONS***

**AQ27** In the event that the project owner elects to install the SCONO<sub>x</sub> system, immediately upon the end of the Commissioning Period, the "Optimization Period" for each turbine shall commence. For the purposes of the District's Determination of Compliance and Authority to Construct, the Optimization Period shall be defined as a 6-calendar month period in which the facility shall undertake all reasonable efforts to achieve a NO<sub>x</sub> emission level of 1.0 ppmvd at 15% oxygen averaged over a three hour period. In the event that the project owner elects to install an SCR system, the facility shall comply with the conditions for on-going operations.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the optimization period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ28** The emissions during the Optimization Period shall not exceed any of the following concentration limits, corrected to 15% oxygen on a dry basis, as

determined by the Continuous Emissions Monitoring System (CEMS) and the District approved CO/VOC surrogate relationship, as well as the limits specified in Condition Nos. 17, 18, 19, 20, 21, 22, and 23:

<u>Pollutant</u>	<u>Emission Limit, ppmvd</u>
Oxides of Nitrogen, NO <sub>x</sub> (calculated as NO <sub>2</sub> )	2.0 (24-hr. average)
Carbon Monoxide, CO	10.0 (3-hr. average)
Volatile Organic Compounds, VOC	2.0 (3-hr. average)

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the optimization period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ29**If the equipment is unable to meet the emission requirements of the Optimization Period, (with the exception of the 1.0 ppmvd target emission limit for NO<sub>x</sub>), the District or the project owner may end the Optimization Period, in writing. In such case, the project owner shall replace the SCONO<sub>x</sub> system with a selective catalytic reduction (SCR) system combined with an oxidation catalyst system, as approved by the District, and enter into the Replacement Period. A District decision to end the Optimization Period may be appealed to the District Hearing Board.

**Verification:** The project owner shall written notice the District and the CEC CPM of termination of the Optimization Period and the intent to replace the SCONO<sub>x</sub> system with SCR/oxidation catalyst systems.

**AQ30**During the Optimization Period, the project owner shall submit a written 60-calendar day and 120-calendar day progress report to the District. This report shall include, at a minimum, the emissions of NO<sub>x</sub> and CO during startup and continuous steady-state operation with and without power augmentation. These reports shall also detail any turbine or emission control equipment malfunction, upsets, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the Optimization Period. These reports shall also describe all planned actions and tests to be conducted during the Optimization Period. Each report shall be submitted to the District, in writing, within 10 calendar days after the end of the 60-day and 120-day periods. In the event that the equipment cannot meet the requirements for on-going operations at the end of the Optimization Period, a final written report shall be submitted to the District within 10 calendar days after the end of the Optimization Period. This report shall include, at a minimum, the lowest sustainable NO<sub>x</sub> and CO concentrations observed during the Optimization Period and the reasons that the equipment could not meet the requirements for on-going operations.

**Verification:** The project owner shall submit an Optimization Period Progress Report for each gas turbine to the District and the CPM no later than 10 days after

calendar day 60 and calendar day 120 of the optimization period of each gas turbine.

## **REPLACEMENT PERIOD CONDITIONS**

**AQ31**In the event that the equipment cannot meet the requirements for on-going operations, the Replacement Period shall begin immediately upon the end of the Optimization Period and shall end upon completion of the installation of the selective catalytic reduction (SCR) system and the oxidation catalyst. The Replacement Period shall not exceed 90 days.

**Verification:** The project owner shall notify the District and the CPM that the SCONOx system cannot meet permit limits no later than 10 days after calendar day 120 of the optimization period. The project owner shall install a fully operational selective catalytic reduction (SCR) system within 90 days of the notification.

**AQ32**During the Replacement Period, the concentrations of oxides of nitrogen (NOx), calculated as nitrogen dioxide, the concentrations of carbon monoxide (CO), and the concentrations of volatile organic compounds (VOCs) shall not exceed the lowest sustainable concentrations observed during the Optimization Period, as determined by the District. Additionally, the emission limits specified in Condition Nos. AQ-17, -18, -19, -20, -21, -22, -23, -42, -43, -44, -45, -46, -47, and -48 shall apply.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the replacement period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ33**Before operating an SCR system, continuous monitors shall be installed on each turbine to monitor or calculate and record the following:

- ammonia stack concentration (ppmvd, corrected to 15% oxygen), and
- ammonia injection rate (lbs/hr).

The monitors shall be installed, calibrated, and maintained in accordance with an approved protocol. This protocol, which shall include calculation methodology, shall be submitted to the District for written approval at least 60 days prior to initial firing of the gas turbines with the SCR system. The monitors shall be in full operation at all times when the turbine is in operation.

**Verification:** The project owner shall provide copies of the CEMS installation, calibration and maintenance protocol, including the calculation methodology, to the District, for written approval, and the CPM at least 60 days prior to initial firing of the gas turbines with the SCR system.

**AQ34**If an SCR system is used for emission control, the emissions of ammonia (slippage) from each gas turbine exhaust stack, if controlled with an SCR

system, shall not exceed 10.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

## **CONDITIONS FOR ON-GOING OPERATIONS**

**AQ35** For the purposes of the District's Determination of Compliance and Authority to Construct, the period described as "on-going" operation of the turbines shall commence immediately following the end of the Optimization Period, or Replacement Period if required, or immediately upon the end of the Commissioning Period if the applicant elects to install an SCR system. Condition Nos. AQ-17, -18, -19, -20, -21, -22 and -23 shall continue to apply during on-going operations.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ36** The emissions of oxides of nitrogen (NO<sub>x</sub>) from each turbine, calculated as nitrogen dioxide, shall not exceed 2.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen. Compliance with this limit shall be based on CEMS data for each unit and averaged over each continuous 3-hour period, excluding hours when the equipment is operated under startup conditions. Compliance with this limit shall also be verified through an initial source test and annual source testing thereafter.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

### **Verification:**

**AQ37** The emissions of carbon monoxide (CO) from each turbine shall not exceed 6.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen. Compliance with these limits shall be based on CEMS data for each unit and averaged over each continuous 3-hour period, excluding hours when the equipment is operated under startup conditions. Compliance with this limit shall also be verified through an initial source test and annual source testing thereafter.



**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ38**The emissions of volatile organic compounds (VOC) from each turbine, calculated as nitrogen dioxide, shall not exceed 2.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen. Compliance with the CO emission limits and the District approved CO/VOC surrogate relationship shall be deemed compliance with the VOC emission limits.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ39**When operated without power augmentation, the emissions from each turbine shall not exceed the following emission limits, except during startup conditions, as determined by the Continuous Emissions Monitoring System (CEMS) and continuous monitors and/or District approved emission source testing. Compliance with the NOx and CO limits shall be based on a rolling continuous 3-hour averaging period and compliance with the VOC limit shall be based on a rolling continuous 1-hour averaging period:

<u>Pollutant</u>	<u>Emission Limit, lbs/hr</u>
Oxides of Nitrogen, NOx (calculated as NO2)	14.0
Carbon Monoxide, CO	29.4
Volatile Organic Compounds, VOC	3.1

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating without power augmentation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ40**When operated with power augmentation, the emissions from this equipment shall not exceed the following emission limits, except during startup conditions, as determined by the Continuous Emissions Monitoring System (CEMS), the District approved CO/VOC surrogate relationship, and continuous monitors and/or District approved emission source testing. Compliance with the NOx and CO limits shall be based on a rolling continuous 3-hour averaging period and compliance with the VOC limit shall be based on a rolling continuous 1-hour averaging period.:

<u>Pollutant</u>	<u>Emission Limit, lbs/hr</u>
Oxides of Nitrogen, NO <sub>x</sub> (calculated as NO <sub>2</sub> )	14.9
Carbon Monoxide, CO	27.1
Volatile Organic Compounds, VOC	3.3

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating with power augmentation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ41** This equipment shall not operate with power augmentation for more than 1800 hrs per turbine per rolling 365-day period. The project owner shall maintain a log that contains, at a minimum, the dates and time when one or both turbines are operated with power augmentation. This log shall be maintained on site for a minimum of five years and made available to District personnel upon request.

**Verification:** The project owner shall maintain records of the operation of the gas turbine with power augmentation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ42** When operated under hot/warm startup conditions, the emissions from each turbine shall not exceed the following emission limits, averaged over each rolling continuous 1-hour period, as determined by the Continuous Emissions Monitoring System (CEMS), the District approved CO/VOC surrogate relationship, and continuous monitors and/or District approved emission source testing:

<u>Pollutant</u>	<u>Emission Limit, lbs/hr</u>
Oxides of Nitrogen, NO <sub>x</sub> (calculated as NO <sub>2</sub> )	44.0
Carbon Monoxide, CO	600
Volatile Organic Compounds, VOC	39.0

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the replacement period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ43** When operated under cold startup conditions, the emissions from each turbine shall not exceed the following emission limits, averaged over each rolling continuous 1-hour period, as determined by the Continuous Emissions Monitoring System (CEMS), the District approved CO/VOC surrogate relationship, and continuous monitors:

<u>Pollutant</u>	<u>Emission Limit (first hour), lbs/hr</u>
Oxides of Nitrogen, NO <sub>x</sub> (calculated as NO <sub>2</sub> )	44.0
Carbon Monoxide, CO	887
Volatile Organic Compounds, VOC	49.0

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating during the replacement period. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ44** Hot/warm startup shall be defined as the time necessary to meet the emission limits specified in Conditions 36 and 37, not to exceed 0.75 hours, after an initial firing following a shutdown period of less than 48 hours. The total time operating under hot/warm startup conditions shall not exceed 30 hours per calendar year for each turbine.

**Verification:** The project owner shall maintain records of the duration of hot/warm startups and shutdowns of each gas turbine. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ45** Cold startup shall be defined as the time necessary to meet the emission limits specified in Conditions 36 and 37, not to exceed 2.0 hours, after an initial firing following a shutdown period of greater than or equal to 48 hours. The total time operating under cold start conditions shall not exceed 20 hours per calendar year for each turbine.

**Verification:** The project owner shall maintain records of the duration of cold startups of each gas turbine. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ46** Both gas turbines shall not be operated simultaneously in cold startup mode.

**Verification:** The project owner shall maintain records of the duration of cold startups of each gas turbine. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ47** The project owner shall maintain a log of all startups. The log shall contain, at a minimum, the type of startup, the dates and times of each startup, and the

duration of each startup. This log shall be maintained on site for a minimum of five years and made available to District personnel upon request.

**Verification:** The project owner shall maintain records of the duration of all startups of each gas turbine. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ48**The emissions of particulate matter less than 10 microns (PM<sub>10</sub>) shall not exceed 19.1 lbs/hr. Compliance with this limit shall be based on an initial compliance test and annual source testing thereafter.

**Verification:** The project owner shall provide copies of the initial compliance and annual source test reports to the District and the CEC CPM within 60 days after completion of the compliance or source tests.

**AQ49**Within 30 days after completion of the Optimization Period or Replacement Period (if needed) if the project owner elects to install a SCONox system or within 30 days after completion of the Commissioning Period if the project owner elected to install an SCR system, an initial source test shall be conducted by an independent, ARB approved tester at the project owner's expense to show compliance with all applicable emission limits. A source test protocol shall be submitted to the District for written approval at least 60 days prior to source testing. The source test protocol shall comply with the following requirements:

- a. Measurements of oxides of nitrogen (NOx), carbon monoxide (CO), and stack gas oxygen content shall be conducted in accordance with the San Diego Air Pollution Control District Method 100, as approved by the U.S. Environmental Protection Agency (EPA).
- b. Measurements of particulate matter less than 10 microns shall be conducted in accordance with the U.S. Environmental Protection Agency (EPA) Methods 201A and 202.
- c. Measurements of volatile organic compounds (VOC) shall be conducted in accordance with San Diego Air Pollution Control District Methods 18 and 25A.
- d. Source testing shall be performed at no less than 80% of the turbine rating without power augmentation.
- e. The following additional operating characteristics shall also be measured or calculated and recorded:
  - natural gas flow rate (scfh),
  - fuel higher heating value (Btu/scf),
  - heat input rate (MMBtu/hr),
  - exhaust gas flow rate (dscfm),
  - exhaust gas temperature (°F),
  - power output (MW),

**Verification:** The project owner shall provide copies of the source test protocol to the District, written approval, and the CPM at least 60 days prior to source testing.

**AQ50** Within 30 days after completion of the Optimization Period or Replacement Period (if needed) if the project owner elects to install a SCONox system or within 30 days after completion of the Commissioning Period if the project owner elected to install an SCR system, an initial source test shall be conducted by an independent, ARB approved tester at the project owner's expense to determine the emissions of toxic air contaminants and federal hazardous air pollutants (HAPs). A source test protocol shall be submitted to the District for written approval at least 60 days prior to source testing. The source test shall demonstrate compliance with the following limits (for each turbine):

<u>Pollutant</u>	<u>Emission Limit, lbs/hr</u>
Acetaldehyde	0.08
Acrolein	0.03
Benzene	0.015
Ethyl Benzene	0.02
Formaldehyde	2.33
Naphthalene	0.0019
Polyaromatic Hydrocarbons (PAHs)	0.0017
Toluene	0.08
Xylene	0.03

**Verification:** The project owner shall provide copies of the source test protocol to the District, for written approval, and the CPM at least 60 days prior to source testing.

**AQ51** Within 60 days after completion of the initial source tests, a final test report shall be submitted to the District for review and approval. The testing contractor shall include, as part of the test report, a certification that to the best of his knowledge the report is a true and accurate representation of the test conducted and the results.

**Verification:** The project owner shall provide copies of the final source test report to the District, for review and written approval, and the CPM within 60 days after the completion of the initial compliance test testing.

**AQ52** The final test report for the initial source tests shall also include a method for establishing a VOC/HAP surrogate relationship. This relationship, in conjunction with the CO/VOC surrogate relationship, shall be used to show continued compliance with all HAPs emission limits.

**Verification:** The project owner shall provide copies of the of the final source test report with a method to establish a VOC/HAP surrogate relationship to the District, for review and written approval, and the CPM within 60 days after the completion of the initial compliance test testing.

**AQ53** This equipment shall be source tested on an annual basis to show continued compliance with all applicable emission limits, unless otherwise directed in writing by the District. If this testing will be performed by someone other than the District, a source test protocol shall be submitted to the District for written approval at least 60 days prior to source testing. The source test protocol shall comply with the following requirements:

- a. Measurements of oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), and stack gas oxygen content shall be conducted in accordance with the San Diego Air Pollution Control District Method 100, or equivalent, as approved by the U.S. Environmental Protection Agency (EPA).
- b. Measurements of particulate matter less than 10 microns shall be conducted in accordance with the U.S. Environmental Protection Agency (EPA) Methods 201A and 202.
- c. Measurements of volatile organic compounds (VOC) shall be conducted in accordance with San Diego Air Pollution Control District Methods 18 and 25A.
- d. Source testing shall be performed at no less than 80% of the turbine rating without power augmentation.
- e. The following additional operating characteristics shall also be measured or calculated and recorded:
  - natural gas flow rate (scfh),
  - fuel higher heating value (Btu/scf),
  - heat input rate (MMBtu/hr),
  - exhaust gas flow rate (dscfm),
  - exhaust gas temperature (°F),
  - power output (gross MW).

**Verification:** This project owner provide copies of the annual source test reports to the District for review and written approval, and the CPM within 60 days after the completion of the initial compliance testing.

**AQ54** The emissions of any single federal hazardous air pollutant, and the aggregate of all federal hazardous air pollutants, shall not equal or exceed 10 tons or 25 tons, respectively, in any continuous 12 calendar month period. If emissions exceed these limits, the permittee shall apply to amend these limits and conduct a case-by case Maximum Achievable Control Technology (MACT) analysis in accordance with applicable federal EPA regulations.

**Verification:** The project owner shall maintain records of the mass emissions of the hazardous air pollutants of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

## ***EMISSION OFFSET CONDITIONS***

**AQ55** Prior to the initial firing of this equipment, the project owner shall surrender to the District the Class A Emission Reduction Credits (ERCs) or Mobile Emission Reduction Credits (MERCs) specified in the table below. The amount should be equivalent to 120 tons per year of NO<sub>x</sub> to offset the maximum permitted NO<sub>x</sub> emissions from this facility.

### Project Emission Reduction Credits

Offset source		NOx	VOC
ERCs	US Foam		30.2
	US Foam	1.3	
	National Offset	4.4	
	Alcoa	1.21	
	Napp Systems		17.05
	Solar Turbines		25
	Designz Unlimited		10.3
	American Fashion	0.7	
	City of San Diego	2.71	
MERCs	San Diego Harbor Excursion: diesel to diesel	29.96	
	Western Maritime: diesel to diesel conversion	8.37	
	WMI: diesel to natural gas engines	35.25	
<b>ERCs: Nox and VOC</b>		<b>83.90</b>	<b>82.55</b>

**Verification:** The project owner shall provide copies of the ERC or MERC certificates shown in the table to the District and the CPM 30 days prior to the combustion of fuel in the gas turbines.

**AQ56** Beginning with the start of the ongoing emission reduction monitoring period as defined in “Alternative Mobile Source Emission Reduction Program for Replacing Heavy and Medium Heavy-Duty Diesel Powered Vehicles and Repowering of Marine Vessels Under Rule 27 (c)(1)(vi)” as approved on September 8, 2000 (herein referred to as the Alternative MERC Program), the owner or operator shall, on or before the last day of the second calendar month following the end of each ongoing emission reduction monitoring year:

- a. For each ongoing emission reduction monitoring year, based on the quarterly activity levels submitted by the mobile source owners and the applicable calculation method specified in the Alternative MERC Programs, perform a calculation of the annual average and annual aggregate ongoing emission reductions and the ongoing emission reduction deficit, if any, for the MERCs surrendered to offset the facility's emissions;
- b. Provide an annual report to the District that summarizes the annual average ongoing emission reductions for each MERC, aggregate ongoing emission reductions, and the ongoing emission reduction deficit, if any, and provides supporting calculations and documentation; and
- c. If the calculated annual ongoing emission reduction deficit is positive, notify the District, provide a compliance schedule to correct the ongoing emission reduction deficit, and correct the ongoing emission reduction deficit in accordance with Subsection (h)(4) of the Alternative MERC Program.



**Verification:** The project owner shall submit an annual MERC report to the District and the CPM on or before the last day of the second calendar month following the end of each ongoing emission reduction monitoring year.

**AQ57** Beginning with the second calendar year following the calendar year that the facility commences operations, the owner or operator shall, on or before March 1 of each calendar year:

- a. Based on information supplied by the mobile source owners for each MERC surrendered to the District, notify the District if the MERC fractional employment is less than 0.8;
- b. Based on information supplied by the mobile source owners for each MERC surrendered to the District, notify the District if the MERC fractional employment in primary service is less than 0.8; and
- c. If one or more MERCs fractional employment or fractional employment in primary service is less than 0.8, provide a compliance schedule to correct any MERC shortfall and correct any MERC shortfall in accordance with Subsection (j)(4) of the Alternative MERC Program.

**Verification:** The project owner shall submit a report on MERC monitoring to the District and the CPM on or before March 1 of each calendar year.

**AQ58** The permittee may apply for the refund of any unneeded ERCs or MERCs, or portion thereof, surrendered to the District to provide offsets for the facility's NOx emissions. To obtain such a refund the permittee must demonstrate a lower emission rate than the emission rate on which the total offset amount was based and accept practicably enforceable permit conditions that reduce potential NOx emissions to that lower level and apply for the refund within 3 calendar years of the District's approval of the initial permit to operate. Any MERCs or portions thereof, shall be refunded only if the provisions of Subsection (m) of the Alternative MERC Program are satisfied and shall have their lifetimes and lifetime beginning date adjusted in accordance with Subsection (f)(5) of the Alternative MERC Program. .

**Verification:** The project owner shall submit any request for a refund of any unneeded NOx ERCs or MERCs or portion thereof to the District and the CPM within three (3) calendar years of the District's approval of the initial permit to operate.

**AQ59** Twenty (20) years after the initial firing of the equipment, the emissions of oxides of nitrogen (NOx) shall not exceed 1.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen. Compliance with this limit shall be based on CEMS data for each unit and averaged over each 3-hour period, excluding hours when the equipment is operated under any startup condition. Additionally, the total annual emissions of oxides of nitrogen

(NO<sub>x</sub>), calculated as nitrogen dioxide, shall not exceed 50 tons per rolling 12-month period. Compliance with this limit shall be verified using the CEMS system on each gas turbine (Application Nos. 973880 and 973881)

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine during commissioning, optimization, replacement and operation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

## **ADDITIONAL GENERAL CONDITIONS**

**AQ60** For each emission limit expressed as pounds per hour or parts per million based on a 1-hour averaging period, compliance shall be based on each rolling continuous 1-hour period using data collected at least once every 15 minutes when compliance is based on continuous emissions monitoring data.

**Verification:**

**AQ61** For each emission limit expressed as pounds per hour or parts per million based on a 3-hour averaging period, compliance shall be based on each rolling continuous 3-hour period using data collected at least once every 15 minutes when compliance is based on continuous emissions monitoring data.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine during commissioning, optimization, replacement and operation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. Quarterly reports shall be sent to the CEC CPM within 60 days after each calendar quarter.

**AQ62** All records required by these conditions shall be maintained on site for a minimum of five years and made available to District personnel upon request. In addition, quarterly reports of information recorded by these conditions, as specified, shall be sent to the CPM

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine during commissioning, optimization, replacement and operation. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. Quarterly reports shall be sent to the CEC CPM within 60 days after each calendar quarter.

**AQ63** Pursuant to 40 CFR 72.30(b)(2)(ii) of the Federal Acid Rain Program, the project owner shall submit an application for a Title IV Operating Permit at least 24 months prior to the initial startup of this equipment.

**Verification:** The project owner shall submit an application for a Title IV Operating Permit to the District, and provide a copy of the application to the CPM, at least 24 months prior to the initial startup.

**AQ64**The project owner shall comply with the continuous emission monitoring requirements of 40 CFR Part 75.

**Verification:** The project owner shall maintain records of the mass emissions and concentrations of each gas turbine when operating. These records shall be maintained on site for a minimum of five years and shall be available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission. The information gathered in this condition shall be included in the quarterly reports required in Condition AQ-59.

**AQ65**The project owner shall submit an application to the District for a Federal (Title V) Operating Permit, in accordance with District Regulation 14 within 12 months of initial startup of this equipment.

**Verification:** The project owner shall submit an application for a Title V Operating Permit to the District, and provide a copy of the application to the CPM, within 12 months prior to the initial startup.

CONDITIONS OF CERTIFICATION numbers AQ-66 through AQ-69 are reserved for future use.

## **ENERGY COMMISSION STAFF CONDITIONS**

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

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

- (1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.
- (2) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.
- (3) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

- (4) **DISTURBED SURFACE AREA** means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust.
- (5) **DUST SUPPRESSANTS** are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.
- (6) **EARTH-MOVING ACTIVITIES** shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.
- (7) **FUGITIVE DUST** means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.
- (8) **INACTIVE DISTURBED SURFACE AREA** means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.
- (9) **STABILIZED SURFACE** means:
- (A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;
  - (B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.
- (10) **VISIBLE ROADWAY DUST** means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

**AQ-70** The project owner shall implement a CEC CPM approved fugitive Dust Control Plan.

Protocol: The plan shall include the following:

1. A description of each of the active operation(s) which may result in the generation of fugitive dust;
2. An identification of all sources of fugitive dust (e.g., earth-moving, storage piles, vehicular traffic, etc.
3. A description of the control measures to be applied to each of the sources of dust emissions identified above (including those required in AQ-71 and -72 below). The description must be sufficiently detailed to demonstrate that the applicable best available control measure(s) as specified in Table 1 (attached) will be utilized and/or installed during all periods of active operations;
4. In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of

the required control measures for any of the sources identified, a justification statement must be provided to explain the reason(s) why the required control measures cannot be implemented.

**Verification:** Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the CEC CPM for review and approval. The project owner shall maintain daily records to document the specific actions taken pursuant to the plan and Table 1. A summary of the monthly activities shall be submitted to the CPM via the Monthly Compliance Report.

**AQ71** During the construction phase of the project, the project owner shall:

1. Prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations, or take at least one of the actions listed in Table 2 (attached) to prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations;
2. Install and use a track-out control device to prevent the track-out of bulk material from areas containing soils requiring corrective to other areas within the project construction site and laydown area;
3. Minimize fugitive particulate emissions from vehicular traffic on paved roads and paved parking lots on the construction site by vacuum mechanical sweeping or water flushing of the road surface to remove buildup of loose material. The project owner shall inspect on a daily basis the conditions of the paved roads and parking lots to determine the need for mechanical sweeping or water flushing.

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

**AQ72** At any time when fugitive dust from OMGP project construction is visible in the atmosphere beyond the property line, the project owner will identify the source of the fugitive dust and implement one or more of the appropriate control measures specified in Table 3 (attached)

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

**AQ73** The project owner shall implement an approved Construction Equipment Plan. The Plan shall identify how the project owner will ensure that all heavy equipment, that includes, but is not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks

and other heavy duty construction related trucks, used on-site by construction contractors and subcontractors:

- a. are properly maintained;
- b. use low sulfur diesel fuel, 50 ppm sulfur or less;
- c. limit idling times; and
- d. meet federal emission standards for construction equipment.

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

**AQ74**The project owner shall ensure that all heavy earthmoving equipment including, but not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, have been properly maintained and the engines tuned to the engine manufacturer's specifications. The project owner shall also install oxidizing soot filters on all suitable construction equipment used either on the power plant construction site or associated linear construction sites. Where the oxidizing soot filter is determined to be unsuitable, the owner shall install and use an oxidizing catalyst. Additionally, the project owner shall employ high pressure fuel injection, timing retardation, and reduced idle time on all suitable construction equipment. Suitability is to be determined by an independent California Licensed Mechanical Engineer or a Qualified Environmental Professional who will stamp and submit for approval an initial and all subsequent Suitability Reports as necessary containing at a minimum the following:

Initial Suitability Report:

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

as to the suitability of using high-pressure fuel injectors, timing retardation and/or reduced idle time on all construction equipment after the installation of either oxidizing soot filters or oxidizing catalysts.

#### Subsequent Suitability Reports

- If a piece of construction equipment is subsequently determined to be unsuitable for an oxidizing soot filter after such installation has occurred, the filter may be removed immediately. However notification must be sent to the CPM for approval containing an explanation for the change in suitability within 10 days.
- Changes in suitability are restricted to three explanations, which must be identified in any subsequent suitability report. Changes in suitability may not be based on the use of high-pressure fuel injectors, timing retardation and/or reduced idle time.
  1. The oxidizing soot filter is reducing normal availability of the construction equipment due to increased downtime, and/or power output due to increased back pressure by 20% or more.
  2. The oxidizing soot filter is causing or reasonably expected to cause significant damage to the construction equipment engine.
  3. The oxidizing soot filter is causing or reasonably expected to cause a significant risk to nearby workers or the public.

Changes in suitability may not be based on the use of high-pressure fuel injectors, timing retardation and/or reduced idle time.

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

**AQ75**The owner/operator shall provide \$1.7 million, as a mitigation fee for potential PM10 and PM10 precursor impacts, to the District APCO to provide PM10 and PM10 precursor reductions throughout the District. The fees shall be provided to the District, who in cooperation with CARB or the CEC, will allocation the funds to programs such as the Lower-Emission School Bus Program, the Carl Moyer, or some other program designed to reduce PM10 and PM10 precursor emission in District.

**Verification:** The owner/operator shall provide the funds to the District APCO in two installments. The first payment of \$1 million shall be provided no later than 1

year after the date of CEC certification. The second and last payment of \$0.7 million shall be provided no later than 18 months after date of CEC certification. Copies of the payments shall be provided to the CEC CPM 20 days after delivery of the deposit to the District.

**AQ76**The owner/operator shall assign to the project all PM10, VOC and SOX emission reductions that occur intentionally or incidentally during the formation of the NOx MERC for the project. The PM10, VOC and SOx emission reductions are part of the PM10 and PM10 precursor mitigation for the project.

**Verification:** The owner/operator shall provide a letter assigning to the project, and for the life of the project, all PM10, VOC and SOX emission reductions that occur intentionally or incidentally during the formation of the project's NOx MERCs. The letter shall be provided to the CEC CPM with the surrender of the ERC and MERC certificates identified in Condition AQ-55.



**TABLE 1  
BEST AVAILABLE FUGITIVE DUST CONTROL MEASURES**

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	<p>Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR</p> <p>For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.</p>
Earth-moving: Construction fill areas:	<p>Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the CEC CPM, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.</p>
Earth-moving: Construction cut areas and mining operations:	<p>Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.</p>
Disturbed surface areas (except completed grading areas)	<p>Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.</p>
Disturbed surface areas: Completed grading areas	<p>Apply chemical stabilizers within five working days of grading completion; OR Take actions (3a) or (3c) specified for inactive disturbed surface areas.</p>
Inactive disturbed surface areas	<p>Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR</p> <p>Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR</p> <p>Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR</p> <p>Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.</p>
Unpaved Roads	<p>Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR</p> <p>Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR</p> <p>Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.</p>
Open storage piles	<p>Apply chemical stabilizers; OR</p> <p>Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR</p> <p>Install temporary coverings; OR</p> <p>Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.</p>
ALL CATEGORIES	<p>Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 1 may be used.</p>

**TABLE 2**

## TRACK-OUT CONTROL OPTIONS

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

**TABLE 3****CONTROL MEASURES FOR WIND CONDITIONS EXCEEDING 25 MPH**

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

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# LAND USE

## Testimony of Eric Knight

### INTRODUCTION

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This 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 existing or planned future uses.

### LAWS, ORDINANCES, REGULATIONS AND STANDARDS

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The proposed power plant site is located in the County of San Diego. The existing Miguel-Tijuana 230 kV transmission line 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 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 2000).

Staff reviewed the San Diego County 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 section of this analysis 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 (CSD 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 (CSD 1994b).

### ***EAST OTAY MESA SPECIFIC PLAN***

Approved in 1994, the East Otay Mesa Specific Plan sets forth a comprehensive vision for 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 (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, which make it highly suitable for large-scale industrial development"<sup>1</sup> (CSD 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 that enhances both the industrial development as well as the Regional Park<sup>2</sup>."

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<sup>1</sup> The Maquiladora or Twin Plant Program, initiated by the Mexican government in 1965, allows U.S. companies to manufacture in a trade zone in Mexico along the international border. According to the East Otay Mesa Specific Plan, the growth of the Maquiladora Program in the early 1980s initiated a demand for industrial land in the U.S. near the border to accommodate distribution and warehousing of products manufactured in Mexico. In recognition of this demand, San Diego County amended its General Plan in 1983 to allow general industrial uses in East Otay Mesa (CSD 1994a, pp. 4-5).

<sup>2</sup> The proposed Otay River Valley Regional Open Space Park is located to the north and adjacent to the East Otay Mesa Specific Plan area.



## ***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.

## **CITY OF SAN DIEGO**

### ***DRAFT COMPREHENSIVE LAND USE PLAN FOR BROWN FIELD AIRPORT***

Brown Field Airport was required to prepare a Comprehensive Land Use Plan (CLUP). The CLUP focuses on preventing new problems of land use incompatibility, and identifying existing incompatible uses (City of San Diego 2000).

## **SETTING**

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### **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 located approximately 800 feet east of Alta Road and 1,500 feet north of Otay Mesa Road<sup>3</sup> (PG&E 1999a, p. 1-3). 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, 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 (PG&E 1999a, p. 5.12-1). 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 (PG&E 1999a, p. 5.12-1). Existing land uses 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) are shown on **LAND USE Figure 1**.

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<sup>3</sup> The 46-acre property is located within an approximately 79-acre parcel (Assessor Parcel Number 648-040-22-00).

Historically, much of the flat portions of the East Otay Mesa Specific Plan Area have been used for agriculture (CSD 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, p. 5.4-12 and OMGC 2000n, p. 5.4-1).

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, pp. 5.4-12 – 5.4-13 and OMGC 2000n, p. 5.4-13).

### ***PLANNED LAND USE***

As shown on 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 (CSD 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 uses as “industrial plants primarily engaged in manufacturing, compounding, processing, assembling, packaging, treatment or fabrication of materials and products” (CSD 1994a, pp. 26-28).

The Land Use Element designates 154 gross acres of the Specific Plan Area for 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).

A portion of the proposed Otay River Valley Regional Park is located to the northwest within one mile of the power plant site. The Otay River Valley Regional Park is one of the largest regional parks planned for San Diego County (CSD 1994). According to the Specific Plan, a goal of the regional park is to provide a mix of active and passive recreational 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 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 site.

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's natural gas supply pipeline (Route 2A) would be within 0.25 mile of these proposed projects (OMGC 1999a, p. 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 be limited to 5 years (Caldwell 2000a).

## **LINEAR FACILITIES**

### ***ELECTRICAL TRANSMISSION LINE (ROUTE 1)***

The project would connect to SDG&E's Miguel substation via the existing Miguel-Tijuana 230 kV transmission line. Two new 0.1-mile long interconnection lines would span from the power plant switchyard to the interconnection point on the Miguel-Tijuana 230 kV transmission line east of the power plant site. Two new steel lattice or steel pole structures would be constructed within SDG&E's existing right-of-way to connect the new transmission lines to the Miguel-Tijuana transmission line (OMGC 2000q). The proposed interconnection lines would 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 section of the Miguel-Tijuana transmission line between the power plant site and the Miguel Substation. The new conductors would be hung on existing towers. Existing land uses along the 9.05-mile "reconductoring" route include 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 are 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, p. 5.9-19). According to the AFC, grading for phase one of the project (Village One and Village Five) is complete (PG&E 1999a, p. 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 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, pp. 5.18-12 – 5.18-13). The existing Miguel-Tijuana transmission line passes through 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 ROUTES (ROUTE 2A AND 2B)***

The proposed 2.05-mile natural gas pipeline (Route 2A) would 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 would be buried in a trench that would be at a minimum 32 inches wide and 62 inches deep (PG&E 1999a, p. 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 (PG&E 1999a, p. 5.9-20). 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 (CSD 1994a).

The 1.6-mile alternate gas pipeline (Route 2B) would connect the power plant with an SDG&E metering station southeast of the site near the U.S. Mexico border. Route 2B generally follows the alignment of Miguel-Tijuana 230 kV transmission line. From the site boundary to approximately MP 1.2 of Route 2B, the alternate gas pipeline would follow existing access roads along the Miguel-Tijuana transmission line (OMGC 2000q). From MP 1.2 the alternate gas pipeline would run parallel and adjacent to the easterly side of the Miguel-Tijuana transmission line right-of-way before turning west to connect to the gas metering station. A short extension of the alternate gas pipeline would continue along the easterly side of the transmission line right-of-way to the border to interconnect with anticipated future gas supplies in Mexico (OMGC 2000q). As shown on the Specific Plan Land Use Map, Route 2B would travel through undeveloped land planned for mixed industrial uses and very low-density (1 dwelling unit per 20 acres) rural residential uses.

## ***WATER SUPPLY PIPELINE (ROUTE 3)***

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

## ***WASTEWATER DISCHARGE PIPELINE (ROUTE 4)***

The 2.0-mile wastewater discharge pipeline (G-L-J) would begin at the northeast corner of the power plant site and travel 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, p. 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 (C-D-L), a 0.85-mile alternate segment of the wastewater discharge pipeline, was added at the County's request (OMGC 2000n, p. 3-6). Route 4A would begin at the southwest corner of the power plant site and travel 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 wastewater pipeline route (Route 4, Segment L-J) 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 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 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 would be from the Southern Access Road, which was added at the County's request (OMGC 2000n, p. 3-4). Route 5A would connect the southwest corner of the plant site to Alta Road and follow the route of the future Loop Road. Route 5A would follow 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 Southern Access Road would traverse undeveloped land planned for mixed industrial uses.

**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**



**LAND USE Figure 4  
East Otay Mesa Open Space Plan**

**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**

## IMPACTS

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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.

In addition, staff evaluates whether a project would cause compatibility conflicts with existing and planned land uses. A power plant 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 when it 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, Energy Commission staff typically meets and consults with the applicable agencies to determine conformity. 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.”

Discussion: The applicant has been working with the County to develop a site plan (which includes grading and landscaping) consistent with the East Otay Mesa Site Planning and Design Guidelines, which are the adopted design standards for industrial development in East Otay Mesa. The applicant's revised landscaping plan meets the approval of the County; however, the grading plan is currently with the County Public Works Department awaiting final approval (Caldwell 2000b).

Conformance with the East Otay Mesa Site Planning and Design Guidelines is discussed later in this analysis.

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.

Discussion: The project would use dry cooling and therefore would not create a visible 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 nearby land uses. Please refer to the **NOISE, VISUAL RESOURCES**, and **PUBLIC HEALTH** sections of the Final Staff Assessment (FSA). Therefore, staff concludes that the project would be consistent with Land Use Policy #4.

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 (CSD 1983).

Discussion: 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 2000a). Construction of the site access roads would also preclude agricultural use in the areas they would traverse. Again, these areas are not currently used for agriculture. The short transmission lines 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 therefore, would be consistent with this policy.

### ***EAST OTAY MESA SPECIFIC PLAN***

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

#### **SUBDIVISION REGULATIONS**

The Specific Plan establishes standards for minimum lot size and lot dimensions for mixed industrial uses. The minimum lot size is 30,000 square feet. The minimum lot width is 100 feet and minimum lot depth is 50 feet.

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 existing 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,



which is shown on Figure 3.5-1 in the March 2000 AFC Supplement, would be consistent with the lot standards of the Specific Plan.

To subdivide the 79-acre parcel, the County will require the applicant to go through a Tentative Parcel Map process (Stocks 2000a). The proposal is considered a minor subdivision, which does not require a public hearing before the Board of Supervisors, only a decision from the Planning Director. However, a Tentative Parcel Map is subject to CEQA. For environmental clearance, the County indicated that it will use the Environmental Impact Report (EIR) completed for the East Otay Mesa Specific Plan, and prepare an addendum to that EIR (Russell 2000). County staff expects that any additional studies needed to prepare the addendum, such as a traffic analysis, have already been completed for the power plant project during the Energy Commission's Application for Certification (AFC) process. In approving the Tentative Parcel Map, conditions will be required of the applicant; once these conditions are fulfilled, the parcel map would be recorded.

## LAND USE REGULATIONS

### *Power Plant*

Land Use Policy LU-1 of the 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 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."

Discussion: The Major Impact Services and Utilities use type would allow a power plant (CSD 1999f). 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 from the County. However, Energy Commission staff requested County staff to review the AFC and provide their comments on the project's consistency with the County's laws, ordinances, regulations, and standards (LORS) (CEC 1999b). On April 12, 2000, the County Board of Supervisors voted to adopt a County staff report on the project and a resolution recommending approval of the project by the Energy Commission. The resolution recommends conditions of approval that would be included in a Major Use Permit (if the County had jurisdiction over the project) to ensure the project's compatibility with the future development expected within the East Otay Mesa Specific Plan area and consistency with County LORS (CSD 1999f). The Board of Supervisors' resolution comments on a variety of the project's aspects, including consistency with the East Otay Mesa Site Planning and Design Guidelines (i.e., grading and landscaping), circulation, lighting, noise, fire protection, hazardous materials, and sewerage. Those comments dealing with compatibility with future land uses and consistency with the East Otay Mesa Site Planning and Design Guidelines are addressed in this section of the FSA. Other topic areas are addressed by the corresponding technical sections of the FSA, such as **TRAFFIC**

**AND TRANSPORTION, VISUAL RESOURCES, SOILS AND WATER RESOURCES, and WORKER SAFETY.**

Section 7358 of the Zoning Ordinance provides that before a Major Use Permit can be granted, the County must make specific findings. The County staff report and resolution addressed these findings (CSD 1999f). The County's comments are summarized below.

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;

Discussion: The County finds that the industrial appearance of the project would fit with the character of nearby, existing land uses. In terms of scale, the project would substantially exceed the height allowed by the zoning. The County finds that the visual impact on adjacent properties from those structures exceeding the height limit would be mitigated to some extent by the large setbacks proposed from the north and south property lines, about 200 feet and 300 feet respectively. 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. In terms of bulk, the County finds that the mass of the power plant structures can be broken somewhat by the planting of large trees around the facility. According to the County, implementation of the revised landscape plan, in combination with painting the structures with olive-colored earth tones, should reduce, as much as possible, the impacts from scale and bulk. Conditions of certification to address color and landscaping are included in the **VISUAL RESOURCES** section of the FSA. A condition of certification (**LAND-1**) to address setbacks is included in this section of the FSA.

- b. The availability of public facilities, services and utilities;

Discussion: The County finds that public facilities, services and utilities will be available to the project. Please refer to the **WORKER SAFETY, SOILS AND WATER RESOURCES, TRAFFIC AND TRANSPORTATION, and SOCIOECONOMICS** sections of the FSA.

- c. The harmful effect, if any, upon desirable neighborhood character;

Discussion: Since there is limited development within the Specific Plan area, the County's finding on this criterion is based on the project's consistency with the East Otay Mesa Site Planning and Design Guidelines. Conformance with the Design Guidelines is addressed later in this analysis.

With mitigation measures contained in the **VISUAL RESOURCES** section of the FSA, Energy Commission staff expects that the project would comply with applicable laws, ordinances, regulations, and standards related to visual resources, and the project's visual impacts would be reduced to less than significant levels. Energy Commission staff expects that the project would be built and operated to comply with the San Diego County Noise Ordinance. In addition, the project would not be expected to cause significant adverse noise impacts, and would likely represent an unobtrusive, nearly undetectable addition to existing noise levels (please refer to the **NOISE** section of the FSA). Thus, Energy Commission staff concludes that the project would not have a harmful effect upon the existing and planned neighborhood character.

- d. The generation of traffic and the capacity and physical character of surrounding streets;

Discussion: The County finds that the project would generate an insignificant amount of traffic when in operation. Conditions of certification to implement the project's fair share of the circulation improvements set forth by the Specific Plan are included in the **TRAFFIC AND TRANSPORTATION** section of the FSA.

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

Discussion: According to the County staff report, the land within the Specific Plan area designated for industrial and commercial development is generally rolling terrain having slopes less than 15 percent. The County raised concerns that the proposed grading was substantially different than that allowed by the East Otay Mesa Site Planning and Design Guidelines and requested changes to make the project consistent with the Design Guidelines.

- f. Any other relevant impact of the proposed use.

Discussion: The County did not identify any other relevant impacts from the project.

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

Discussion: The County finds that a power plant is a use that is categorized as a Major Impact Service and Utility Use type. As such, the County finds that the power plant is allowed by the existing Mixed Industrial zoning (upon approval of a Major Use Permit) and is generally consistent with the industrial uses allowed by the zoning. However, the County finds the project as originally proposed to be inconsistent with the East Otay Mesa Site Planning and Design Guidelines, and recommends changes to make the project consistent.

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

Discussion: The County finds that the applicant is seeking approval through the California Energy Commission's Application for Certification (AFC) process to construct and operate a power plant<sup>4</sup>. The County finds that the project could have significant land use impacts if the project is not revised in accordance with the conditions proposed in the Board of Supervisors' resolution.

### ***Linear Facilities***

Electric transmission lines and gas and water pipelines are classified as "Essential Services" by the San Diego County Zoning Ordinance (Caldwell 2000a). The Essential Service (1335) use type is defined as "services which are necessary to support principal development and involve only minor structures, such as utility lines and/or poles, which are necessary to support principal development" (CSD 1978, p. 1-94). Essential services are permitted uses within all zoning districts in the East Otay Mesa Specific Plan area (CSD 1994a). 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 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" (CSD 1994a, p. 75). The project's 230 kV interconnection line to the existing Miguel-Tijuana transmission line also would be exempt from the requirement to be underground (Caldwell 2000a).

During a conference call on February 3, 2000, County staff informed Energy Commission staff that the proposed wastewater discharge pipeline (Route 4) would be inconsistent with the Wastewater Facilities Plan and would require an amendment to the 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 2000n, p. 3-6). In response, the applicant added Route 4A, which would follow the route of the future Lone Star Road, replacing the corresponding section of Route 4 (G-L) 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.

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<sup>4</sup> The California Energy Commission's power plant licensing process is certified by the California Resources Agency as "functionally-equivalent" to the California Environmental Quality Act (CEQA) process.

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 of the FSA 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 and 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. Conformance with the East Otay Mesa Site Planning and Design Guidelines is discussed later in this analysis.

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 finds that reconductoring the Miguel-Tijuana transmission line would have a less than significant effect on visual resources (please see the **VISUAL RESOURCES** section of the FSA).

#### **DEVELOPMENT STANDARDS**

The East Otay Mesa Specific Plan contains development standards for the planned mixed industrial uses. These standards include floor area ratio, structure height, lot coverage, setbacks, usable open space, and off-street parking. According to the Specific Plan, the development standards establish a maximum level of development intensity; any waiver or modification of these standards requires a variance.

Building Type: The “W” Building Type Designator allows both the detached and attached non-residential building types proposed by the project (CSD 1999f).

Floor Area Ratio: The zoning allows a .40 floor area ratio. The project has only single floor structures that would cover less than 20 percent of the site (CSD 1999f). Since the standard establishes the maximum level of development intensity, the project would be consistent with this standard (Stocks 2000b).

Height: The zoning allows a maximum structure height of 60 feet. Project features that exceed this limit are: the 65-foot tall heat recovery steam generators (HRSGs); the 131-foot tall HRSG stacks; the two 70-foot tall generation buildings; and the two 76-foot tall air cooled condensers (OMGC 1999a, p. 5.13-2; OMGC 2000n, p. 5.13-1). At Energy Commission staff's Data Request Workshop on November 16, 1999, County staff stated that ordinarily an exception to a height limitation requires a Major Use Permit. Section 4620 of the County 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 (CSD 1978). Based on the Board of Supervisor's resolution, staff assumes that were this an application for a Major Use Permit, the County would allow the additional height with the mitigation measures described earlier in this analysis. Staff has proposed a condition of certification (**LAND-2**) to limit the heights of the structures exceeding the 60-foot height restriction to those heights specified above.

Coverage: The coverage designator is .40. The project would cover about 20 percent of the site (CSD 1999f). Since the standard establishes the maximum level of development intensity, the project would be consistent with this standard (Stocks 2000b).

Setback: The zoning designates a variable setback to be established during the use permit process (CSD 1999f). In their report, County staff stated that the minimum 200-foot structural setback should be adequate for a facility of this scale. Staff has proposed a condition of certification (**LAND-1**) to ensure that the setbacks proposed by the applicant are provided.

Usable Open Space: The Specific Plan states that industrial uses shall provide for passive or active recreational use by building occupants and/or customers. The revised landscape plan shows a natural drainage area in the southwest portion of the site that is proposed to remain in its natural state. In addition, the westerly 20 acres of the site is not currently proposed for development. The County has determined that since this is a single use facility that doesn't cover the entire site, it is not necessary for the project to provide integrated, usable open space (CSD 1999f).

Parking Standards/Loading Areas: The Specific Plan requires development projects to provide adequate off-street parking for all parking needs, such as for employees and visitors. The revised grading plan shows a total of 34 parking spaces. When in operation, the power plant will employ about 25 people (PG&E 1999a, p. 5.10-10a). The County finds the number of proposed parking spaces to be adequate for the project (CSD 1999f). According to County staff, the two loading areas located along the east side of the "Warehouse/Mech Shop" and the "Water Treatment Building" should be adequate for the project. Staff has proposed a condition of certification (**LAND-3**) to require installation of the specified number of parking spaces and loading areas.

## ***EAST OTAY MESA SITE PLANNING AND DESIGN GUIDELINES***

The East Otay Mesa Site Planning and Design Guidelines (Design Guidelines) are intended to “allow design flexibility under the premise that there are many design solutions which can achieve a stated goal” (CSD 1994c, pp. 1-2). 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” (CSD 1994c, p. 2).

In the AFC, the applicant stated that the project would be designed “as practical” to conform to the Design Guidelines (PG&E 1999a, p. 5.9-24a). In their September 28, 1999 letter to the Energy Commission, County staff requested an opportunity to informally review a detailed site plan of the project (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 to provide a detailed site plan demonstrating compliance with the Design Guidelines (CEC 1999c, data request #8).

On February 22, 2000, the applicant submitted a site plan to the County, which County staff reviewed and found inconsistent with the Design Guidelines (CSD 1999e). As stated in their report, County staff was concerned with the applicant’s grading plan, which proposed a cut ratio of 1.5:1 and a fill ratio of 2:1. These cut and fill ratios are inconsistent with the 3:1 ratio allowed by the Design Guidelines. County staff was concerned about allowing the project to set a precedent substantially contrary to the Design Guidelines (CSD 1999f). In response, the applicant revised the grading plan to be consistent with the allowed 3:1 slope ratios (OMGC 2000q). The applicant’s revised grading plan is currently with the County Public Works Department awaiting final approval (Caldwell 2000b). Conditions of certification proposed in the **FACILITY DESIGN** section of the FSA (e.g., **GEN-4**, **GEN-8**, and **CIVIL-1**) should ensure that the grading plan conforms to all applicable LORS, including the East Otay Mesa Site Planning and Design Guidelines.

In addition to the grading issues, County staff requested changes to the applicant’s conceptual landscaping plan to make it consistent with the Design Guidelines (CSD 1999f). The recommended changes include: replacing the proposed palm trees with large evergreen trees that would maximize visual screening of the plant; adding more trees on all sides of the facility and closer in to the structures for additional screening of the power plant structures; relocating the fencing and screening in the southeast portion of the project site to the top of the slope above the natural drainage area; and adding vegetative groundcover in all areas that will be graded and the existing vegetation removed. The applicant’s revised landscaping plan meets with the County’s approval and is now consistent with the Design Guidelines (Caldwell 2000b). The **VISUAL RESOURCES** section of the FSA includes a condition of certification (**VIS-4**) requiring the project owner to implement a landscaping plan.

County staff identified other inconsistencies with the Design Guidelines. The original landscaping plan showed the distance between the pavement of the northern access road and the northern property line to be about 10 feet. The

guidelines state that "...no driveway should be located closer than 15 feet to an interior property line" (CSD 1994c, p. 7). The revised plan shows this distance to be about 25 feet. Staff's proposed condition of certification **LAND-1** would ensure that the project complies with this setback requirement. The Design Guidelines state that "no fence or wall shall be constructed which exceeds a height of 72 inches above the grade, except when the Board of Supervisors, the Planning Commission, or the Director of Planning and Land Use, as a condition of approval of a matter under their jurisdiction, requires that a fence or a wall be constructed to a greater height in order to mitigate against potential adverse effects" (CSD 1994c, p. 14). The project proposes 8-foot tall fences and walls. County staff believes that the extra margin of security provided by 8-foot tall fences and walls is appropriate for a power plant (CSD 1999f). Staff has proposed a condition of certification (**LAND-4**) to ensure that the proposed fences are no more than 8 feet in height.

The project proposes a monument sign at the entry of the plant site. The monument sign is proposed to be 50 square feet in size. The sign is proposed as a permanent "ground hugger," which would not exceed 6 feet in height above the finished grade (Shapouri 2000). The proposed monument sign appears to comply with the Industrial Signage Guidelines in the East Otay Mesa Site Planning and Design Guidelines. The guidelines require signs to be located so they do not block driveway views of oncoming traffic. Compliance with this requirement could not be verified from the information provided to staff. Additional directional signs are also proposed to direct traffic to and from the plant site. Staff has proposed a condition of certification (**LAND-5**) to ensure that any proposed signs conform to the East Otay Mesa Site Planning and Design Guidelines.

### ***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 2000a).

### ***DRAFT COMPREHENSIVE LAND USE PLAN FOR BROWN FIELD***

According to the Brown Field CLUP, the power plant would be located approximately 13,210 feet from the future end of Runway 26R. The project's 131-foot tall HRSG stacks would have a top elevation of 794 feet about Mean Sea Level (MSL). The top of the HRSG stacks would be about 31 feet below the runway's Conical Surface elevation (FAR Part 77 20:1) of 825 feet above MSL. Therefore, the CLUP concludes that the power plant would not be an airspace obstruction or hazard to air navigation (City of San Diego 2000). Please see the **TRAFFIC AND TRANSPORTATION** of the FSA for additional discussion on this issue.

## **COMPATIBILITY WITH EXISTING AND PLANNED LAND USES**

### ***POWER PLANT***

Construction laydown areas for the power plant would 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, p. 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 FSA). To control fugitive dust during construction, staff will require all feasible mitigation (e.g., Best Management Practices). Any fugitive dust impacts would be short term and unavoidable, but mitigated to the extent feasible. For additional information please refer to the **AIR QUALITY** section of the FSA.

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 full build-out of the Specific Plan area would have a less than significant impact on the County's agricultural resources (CSD 1994b). Therefore, development of 46 acres for the power plant project would have a less than significant impact on the County's agricultural resources.

The power plant site is located within an approximately 3,300-acre area predominately planned for mixed industrial uses. The industrial uses envisioned for the area include wholesale storage and distribution, and general industrial uses, such as industrial plants engaged in the manufacturing, compounding, processing, assembling, packaging, treatment or fabrication of materials and products. A power plant would be compatible with the industrial character of these uses.

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 conflict with the alignment of a 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 FSA.

### ***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 would not disrupt or divide the physical arrangement of an established community. The area traversed by the new interconnection lines is planned for mixed industrial uses. Transmission lines would be compatible with

these uses. According to the AFC, right-of-way easements for the new transmission lines have been negotiated with affected property owners (PG&E 1999a, p. 3.8-7). Thus, staff does not expect the new interconnection lines would restrict future land uses.

Reconductoring of the existing Miguel-Tijuana transmission line is anticipated to take 3 to 4 months (PG&E 1999a, p. 3.8-7). One or two staging areas for materials and equipment will be needed during reconductoring (PG&E 1999a, p. 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 reconducted line and will not require widening (PG&E 1999a, p. 3.6-3). Since it would be entirely within an existing and established right-of-way, the reconducted transmission line would not disrupt or divide the physical arrangement of an established community. Also for these reasons, the reconducted transmission line would not restrict existing or future land uses along the route.

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

The proposed 2.05-mile 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 unduly restrict existing or future uses. Please refer to the **TRAFFIC AND TRANSPORTATION** section of the FSA for a discussion of temporary construction impacts to local roadways and the measures proposed to mitigate these impacts.

For nearly its entire length, the alternate gas pipeline route (Route 2B) would run either within the Miguel-Tijuana transmission line right-of-way or parallel and adjacent to the easterly side of right-of-way. Route 2B would traverse land that is currently undeveloped. Since it would be underground, the alternate gas supply pipeline would not 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, p. 3.8-11). Since it would be underground and follow the routes of planned roadways, the water supply pipeline would not 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, p. 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 alternate segment of the wastewater discharge pipeline would be underground and follow the routes of planned roadways it would not 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.

### ***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.

## **CUMULATIVE IMPACTS**

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

## **FACILITY CLOSURE**

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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

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The project would exceed the allowable height limit of 60 feet. In their resolution, the County Board of Supervisors found that the visual impact on adjacent properties from those structures exceeding the height limit would be mitigated to some extent by the large setbacks proposed from the north and south property lines, about 200 feet and 300 feet respectively. Staff has proposed conditions of certification to ensure that the proposed setbacks are provided and to limit the heights of the structures exceeding the height limitation to those specified by the applicant.

Staff requested the applicant to provide a detailed site plan to determine the project's consistency with the East Otay Mesa Site Planning and Design Guidelines. The applicant submitted a site plan, including grading and conceptual landscaping plans, to the County for review and comment. The County found the grading and landscaping plans to be inconsistent with the Site Planning and Design Guidelines, and recommended changes to bring the plans into conformance. The applicant has submitted revised plans to the County. The revised landscaping plan meets with the County's approval, however the grading plan is currently with the County Department of Public Works awaiting approval. With the proposed conditions of certification included in this section of the FSA, as well as the **VISUAL RESOURCES** and **FACILITY DESIGN** sections, staff expects that the project would be consistent with the East Otay Mesa Site Planning and Design Guidelines.

## CONCLUSIONS AND RECOMMENDATION

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### CONCLUSIONS

The project is consistent with the East Otay Mesa Specific Plan land use and zoning designations of the site (Mixed Industrial). The project would exceed the allowable height limit allowed by the zoning, however, the County has implied that the project would qualify for a height exception (if the County had jurisdiction over the project) with the inclusion of the mitigation measures detailed in the Board of Supervisors' resolution. The proposed project would comply with the other applicable development standards contained in the East Otay Mesa Specific Plan. With the conditions of certification included in this section of the FSA, as well as the **VISUAL RESOURCES** and **FACILITY DESIGN** sections, staff expects that the project would be consistent with the East Otay Mesa Site Planning and Design Guidelines.

While water pipelines are permitted uses within all zoning districts in the East Otay Mesa Specific Plan area, County staff have stated that the proposed wastewater discharge pipeline (Route 4) would be inconsistent with the East Otay Mesa Specific Plan and would require an amendment to the 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 of the Specific Plan. According to the County, this alignment would better serve the sewer needs of potential future development in the area. To avoid the nonconformity with the East Otay Mesa Specific Plan, the applicant should substitute segment G-L of Route 4 with the alternative segment of the wastewater discharge pipeline (Route 4A). Staff has proposed a condition of certification (**LAND-6**) to ensure that segment G-L of Route 4 is not constructed unless the nonconformity with the East Otay Mesa Specific Plan is resolved.

The project would not physically divide an established community, or unduly restrict existing or future land uses. The power plant would be compatible with the character of the land uses envisioned for the area, which include wholesale storage and distribution uses, and general industrial uses, such as industrial plants engaged in the manufacturing, compounding, processing, assembling, packaging, treatment or fabrication of materials and products. With mitigation, the project would not cause significant adverse noise, public health, traffic, or visual impacts on nearby land uses.

The project would have a less than significant impact on the County's agricultural resources. The project would not contribute substantially to any cumulative land use impacts.

## **RECOMMENDATION**

If the Energy Commission certifies the Otay Mesa Generating Project, staff recommends that the Commission adopt staff's proposed condition of certification.

## **CONDITIONS OF CERTIFICATION**

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**LAND-1** The project owner shall design and construct the project to satisfy the following setback requirements:

The structural setback from the northern property line shall be no less than 199 feet, unless a lesser setback is mutually agreed to by the Chief Building Official (CBO) and the California Energy Commission Compliance Project Manager (CPM), in consultation with the County of San Diego.

The structural setback from the southern property line shall be no less than 299 feet, unless the CBO and the CPM, in consultation with the County of San Diego, mutually agree to a lesser setback.

The distance between the driveways and the interior lot lines shall be no less than 15 feet.

Protocol: The project owner shall submit to the CBO a final plot plan demonstrating that the setbacks will be provided. The project owner shall not start construction of the project until the project owner receives written approval of the final plot plan from the CBO.

**Verification:** At least sixty (60) days prior to the start of construction, the project owner shall submit the final plot plan to the CBO. The project owner shall send copies of the CBO's approvals of the final plot plan to the Energy Commission Compliance Project Manager (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.

**LAND-2** The project owner shall design and construct the project to meet the following height requirements, unless otherwise mutually agreed to by the CBO and the CPM, in consultation with the County of San Diego:

The heat recovery steam generators shall be limited to 65 feet above finished grade.

The heat recovery steam generator stacks shall be limited to 131 feet above finished grade.

The generation buildings shall be limited to 70 feet above finished grade.

The air-cooled condensers shall be limited to 76 feet above finished grade.

**Protocol:** The project owner shall submit to the CBO final design specifications demonstrating that the specified structures and facilities will be limited to the specified heights. The project owner shall not start construction of the project until the project owner receives written approval of the final design plans from the CBO.

**Verification:** At least sixty (60) days prior to the start of construction, the project owner shall submit the final design specifications to the CBO. The project owner shall send copies of the CBO approval of the design specifications 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.

**LAND-3** The project owner shall provide thirty-four (34) onsite parking spaces. Loading areas shall be provided at the Warehouse/Mech Shop and the Water Treatment Building.

**Verification:** At least thirty (30) days prior to construction of the permanent parking area and loading areas, the project owner shall submit evidence to the CPM for review and approval that the specified number of parking spaces and loading areas are provided.

The project owner shall notify the CPM within seven (7) days after completion of the permanent parking and loading areas that the parking and loading areas are ready for inspection.

**LAND-4** The project owner shall design and construct all fences and walls to a maximum height of eight (8) feet above finished grade.

**Verification:** At least thirty (30) days prior to construction of all fences and walls, the project owner shall submit design specifications to the CPM for review and approval.

The project owner shall notify the CPM within seven (7) days after completion of the fences and walls that the fences and walls are ready for inspection.

**LAND-5** The project owner shall ensure that any proposed signs comply with the Industrial Signage Guidelines contained in the East Otay Mesa Site Planning and Design Guidelines.

**Verification:** At least thirty (30) days prior to the installation of any signs, the project owner shall submit evidence to the CPM for review and approval that the proposed signs will conform to the guidelines. The submittal shall show the location of all proposed signs. The submittal to the CPM shall include evidence of review and comment by the County.

The project owner shall notify the CPM within seven (7) days after installation of the signs that the signs are ready for inspection.

**LAND-6** The project owner shall replace segment G-L of the proposed wastewater discharge pipeline (Route 4) with alternative segment Route 4A, unless the project owner provides evidence that the nonconformity of the proposed wastewater discharge pipeline segment (G-L) with the East Otay Mesa Specific Plan has been resolved to the satisfaction of the County of San Diego.

**Verification:** At least sixty (60) days prior to the construction of the wastewater discharge pipeline, the project owner shall provide to the CPM for review and approval either a statement that segment Route 4A will replace segment G-L of the proposed wastewater discharge pipeline, or a letter from the County of San Diego that the nonconformity with the East Otay Mesa Specific Plan has been resolved.

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# TRAFFIC AND TRANSPORTATION

Testimony of James Adams

## INTRODUCTION

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The Traffic and Transportation section of the Final 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

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### 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:

5. Promote the development of local road circulation facilities to adequately serve the planned land uses in the East Otay Mesa Specific Plan Area.

6. Public road design and private development shall follow all road standards of the Specific Plan.
7. Assure that necessary road improvements are provided to mitigate project impacts.
8. Promote the development of regional road facilities as necessary to accommodate future development in the East Otay Mesa Specific Plan Area.
9. 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 was released in April 2000 (SANDAG 2000a). These documents contain updated traffic counts, status of other development projects in the area, and suggestions for relieving congestion.

## **SETTING**

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### **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, PG&E 1999a). 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 plant's 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
<b>Interstate 5</b>	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
<b>Interstate 805</b>	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
<b>SR- 905</b>	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
<b>SR-125</b>	I-8 – SR-94	110,000	10,600	4,884	4.4	244,800	A
<b>SR- 54</b>	I-5 – I-805I-805 –	98,000	8,800	6,644	6.8	244,800	A
	Reo Drive	77,000	6,800	2,002	2.6	70,000	D
<b>Otay Mesa Road</b>	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
<b>Otay Mesa Road</b>	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**
<b>Otay Valley Road</b>	Heritage Road – I-805	5,200	280	832*	16.0	7,100	C
<b>Heritage Road</b>	Otay Valley Road - Otay Mesa Road	6,300	570	1,008*	16.0	7,100	C
<b>La Media Road</b>	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
<b>Alta Road</b>	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 due 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 2000b).

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] (County of San Diego 2000a). 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 (PG&E 1999a,-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 (County of San Diego 2000a). The LOS for this intersection is F with congestion occurring all day. 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 (Caltrans 2000c).

### ***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 (City of San Diego 2000a) 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. 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 (Caltrans 1999).

On July 26, 2000 the San Diego County Board of Supervisors adopted a resolution opposing the expansion of the Brown Field Airport due to perceived inadequacies in the FEIR (County of San Diego 2000d). The Mayor of San Diego has put the project on hold until the Federal Aviation Administration releases a report on changes in operations and flight patterns at Brown Field Airport (County of San Diego 2000e).

# IMPACTS

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## 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 (PG&E 1999a, 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 (PG&E 1999a, p.5.11-13 and Table 5.11-3a, p. 5.11-14). Workforce vehicle trips were calculated based on this data.

Otay Mesa Generating Company (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 (County of San Diego 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 the junction of SR-905 and Old Otay Mesa Road along this state route is LOS 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. 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. OMGC submitted a Supplemental Traffic Impact Study that predicts traffic impacts from the OGMP using an alternate route for construction workers that involves La Media, Airway and Sanyo Roads and avoids the skewed intersection on Old Otay Mesa Road (PG&E 2000a). This route could also be used for hazardous materials transportation. In preliminary discussions with staff, representatives from the County and City of San Diego and Caltrans have expressed concerns about the Supplemental Traffic Study and its recommendations. These include concerns regarding OMGC's proposed use of temporary signal lights at two intersections, the increased deterioration of the asphalt on Airway Road; and the alternate routes potential impact on current truck traffic on La Media Road.. On October 3, 2000 staff received written comments from the City of San Diego regarding the Supplemental Traffic Study (City of San Diego 2000b). These were discussed with Caltrans, San Diego County, the City of San Diego, and OMGC at a workshop on October 18, 2000. The applicant is performing an additional analysis of a proposed traffic route using SR 905, Airway, Sanyo and Old Otay Mesa Roads. The issue will be addressed in hearings before the Commission.

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 decrease 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 PG&E 1999a 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 (PG&E 1999a, 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 (County of San Diego 1999c). 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 proposed 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 (PG&E 2000b). 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.

The San Diego County Board of Supervisors made a number of recommendations to the Energy Commission staff regarding road easements and improvements, intersection sight distances and other issues concerning the roads adjacent to or near the proposed OMGP site (County of San Diego 2000c). Staff has proposed a condition of certification to ensure compliance with these recommendations.

## **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. (PG&E 1999a, p. 5.11-19). However, OMGC has not selected a truck route for supplying and removing hazardous materials (URS Greiner Woodward Clyde 1999).

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 (PG&E 1999a, 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.

### **TRUCK TRAFFIC**

If Selective Catalytic Reduction is used as an alternative to SCNOX 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 (PG&E 1999a, 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 (PG&E 1999a, p. 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 and the County of San Diego and Caltrans continue to evaluate the need to mitigate possible transportation hazards associated with the skewed intersection of Old Otay Mesa Road and SR-905, or identify an alternate route. This issue will be updated in hearings before the Commission. 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 (Arbuckle 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 (PG&E 1999a, 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 (PG&E 1999a, 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 (County of San Diego 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.

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 (City of San Diego. 2000, Table 7.1).

The County of San Diego is currently processing three applications for development in the East Otay Mesa Specific Plan Area (County of San Diego 2000b). 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 project site is located north of Otay Mesa Road and east and west of Harvest Road. A traffic analysis contained in the Sunroad Centrum Supplemental Environmental Impact Statement (SEIS) concludes that the Sunroad project will have significant traffic impacts on local road segments. Estimated total daily trips for Phase 1 would be 13,020 (Sunroad 2000). In order to get to the site, the project's construction workforce, permanent employees, and visitors need to travel through the skewed intersection of SR-905 and Old Otay Mesa Road. The SEIS discusses prospects for Sunroad Centrum being the catalyst for fixing the skewed intersection.

Should the OMGC choose to use the SR905/Old Otay Mesa Road route, they would need to participate in mitigation to improve the skewed intersection. The Sunroad Centrum project raises the potential for mitigation costs being shared. Construction of Phase 1 could start by early 2001 (County of San Diego 2000f).

The East Otay Mesa Travel Plaza is an 80-acre project to serve trucks and drivers involved in trans-border commerce. The project would be located on the east side of Enrico Fermi Drive north of Airway Road and south of Otay Mesa Road. Approximately 5,300 average daily trips would be generated by the project (Travel Plaza 2000). The County of San Diego has issued a Major Use Permit for the project. Construction could start in early 2001 (County of San Diego 2000g). 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. A condition of certification will require the OMGC to work with the County and City of San Diego, and Caltrans, to develop appropriate mitigation and contribute a fair share of funds needed for improvements to maintain satisfactory levels of service on the relevant roads in the East Otay Mesa area.

## **COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS**

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### **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**

The OMGP is consistent with the Circulation Element of the San Diego County General Plan that provides a guide for a coordinated system of highway routes consistent with street and highway needs in subdivision and other land development programs. In addition, the OMGP fits within the goals and policies of the East Otay Mesa Specific Plan which, among other things, promotes the development of local road circulation in accordance with all road standards of the Specific Plan and requires necessary road improvements to mitigate project impacts.

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. Staff will provide an update on this matter in hearings before the Commission.

## **FACILITY CLOSURE**

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### **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**

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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. If OMGC decides to use the skewed intersection of SR-905 and Otay Mesa Road as a route for construction workers, further analysis and mitigation will be required. Staff will require OMGC to participate in this process to remedy the problem. If the La

Media-Airway-Sanyo Road alternate route is selected, OMGC must resolve the concerns noted to in the Impacts section above and perform additional analyses and mitigation as necessary. Staff anticipates an additional workshop to help facilitate this process. This issue will be updated in hearings before the Commission.

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.

## RESPONSE TO PUBLIC AND AGENCY COMMENTS

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*CT-1 A Traffic Impact Report will need to be completed before construction of the Power Plant can begin. Caltrans is concerned about the impact of construction worker traffic to the existing road system, especially the intersection of "interim" SR-905/Old Otay Mesa Road. OMGC has submitted a Supplemental Traffic Impact Study that is being reviewed by Commission staff, Caltrans, and the County and City of San Diego. A workshop was held in October 2000 to discuss the supplement. The issue will be updated in hearings before the Commission.*

*CT-2 Any suggestions for a "Traffic Control Plan" by the Power Plant applicant should be based upon a completed Traffic Impact report acceptable to Caltrans, the County of San Diego and the City of San Diego. As noted above, the Supplemental Traffic Impact Study will be reviewed by all the relevant parties and discussed at the workshop. A Traffic Control Plan will be developed consistent with the outcome of the workshop and will be incorporated within Condition of Certification **TRANS-4**.*

*CT-3 Any work performed within Caltrans' right of way will require an encroachment permit. For those portions of the project within the Caltrans right of way the permit application must be stated in both English and Metric units (English first, with Metric in parentheses). Early coordination with our agency is strongly advised for all encroachment permits. Condition of Certification **TRANS-2** requires the project owner or its contractor to comply with Caltrans and San Diego County limits for encroachment into public rights of way and obtain all necessary permits.*

*CDC-1 Will the applicant be required to improve transportation infrastructure from I-905 along Old Otay Mesa Road up to and including Alta Road? In general, the*

applicant will be required to mitigate any impacts on roads caused by the construction and operation OMGP. If SR-905 and Old Otay Mesa Road is the preferred route for construction traffic, improvements on this road segment will be required. The precise improvements will be determined after the construction route is identified during hearings before the Commission.

## **CONCLUSIONS AND RECOMMENDATIONS**

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### **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 and an alternate route for construction traffic 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. OMGC will be required to use an alternate truck route until the skewed intersection at Old Otay Mesa Road and SR-905 is mitigated.

#### ***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**

Given the fact that the route for truck and commute traffic has not been determined to date, at this time staff cannot recommend that the Commission certify the OMGP.

## **CONDITIONS OF CERTIFICATION**

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**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:

- primary roads to be used during construction;
- 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.
- Determine the fair share of funds needed for road improvements to mitigate the impacts from construction of OGMP

**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. A

similar repair schedule will be prepared if the La Media-Airway-Sanyo Roads alternative route is used during construction.

**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. 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. This consultation shall address the recommendations noted in the San Diego County Board of Supervisors Resolution of April 12, 2000.

**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 and arterial roads and Alternate Route 4A or another alternative route.

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# **VISUAL RESOURCES**

Errata to the FSA Part 1-Testimony of David Flores

On FSA Part 1 Page 136, revise the "CONCLUSIONS" section under the **CONCLUSIONS AND RECOMMENDATIONS** section of the report with the following:

## **CONCLUSIONS AND RECOMMENDATIONS**

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### **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.

As discussed in staff's analysis, the applicant has also indicated their use of dry cooling which would eliminate the potential for cooling tower plumes, therefore will not cause a significant adverse visual impact.