Final Staff Assessment

MAGNOLIA POWER PROJECT

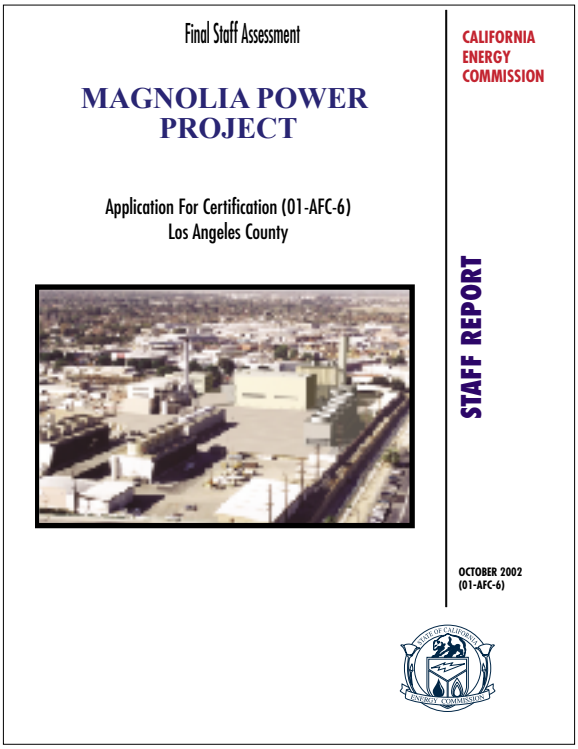
Application For Certification (01-AFC-6)
Los Angeles County

CALIFORNIA ENERGY COMMISSION

STAFF REPORT

OCTOBER 2002
(01-AFC-6)

Gray Davis, Governor



CALIFORNIA ENERGY COMMISSION

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EXECUTIVE SUMMARY

INTRODUCTION

On May 14, 2001, the Southern California Public Power Authority filed an Application for Certification (AFC) for the Magnolia Power Plant Project seeking approval from the California Energy Commission to construct and operate a 328 megawatt (MW) natural gas-fired, combined cycle power generating facility. On September 25, 2001, the California Energy Commission found the AFC to be data adequate and initiated an expedited 6-month review of the project. The project was subsequently converted to a 12-month review in March 2002 due to issues related to the project's NPDES application. The applicant submitted an amendment to the AFC in May 2002, describing a Zero Liquid Discharge (ZLD) option for the proposed project. In August 2002, the applicant withdrew its NPDES permit application and chose the ZLD option as the preferred method of wastewater discharge.

The primary responsibility of the Energy Commission staff in this siting case is to provide an independent assessment of the project's potentially significant effects on the environment, the public's health and safety, conformance with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends measures, referred to as conditions of certification, to mitigate potential significant adverse environmental effects and conditions for construction, operation and eventual closure of the project. The South Coast Air Quality Management District provided its Final Determination of Compliance with District rules and regulations, and staff has incorporated it into the Air Quality section of the FSA. This Final Staff Assessment (FSA) is a document of the Energy Commission staff so, by its very nature, the conclusions and recommendations presented are considered staff's testimony. The final decision of the Energy Commissioners will be based on the evidence presented at upcoming hearings.

During evidentiary hearings, the Energy Commission Committee assigned to the MPP proceedings will consider and weigh the testimony and recommendations of all interested parties, including Energy Commission staff, the applicant, intervenors, public, City of Burbank, and other local, state and federal agencies, before making the proposed decision for consideration by the full commission.

The MPP project and related facilities such as the electric transmission lines, water supply lines and wastewater lines, are subject to the Energy Commission's license. When issuing a license, the Energy Commission acts as lead state agency under the California Environmental Quality Act (CEQA), and its process is certified by the State Resources Agency as a separate program that satisfies the core CEQA requirements.

PROJECT DESCRIPTION

The applicant intends to locate the project on four acres of a 23-acre site at the existing Magnolia Power Station in Burbank, California, an incorporated city in Los Angeles County, at 164 West Magnolia Boulevard. The site is bound by Magnolia Blvd. on the north, Lake Avenue on the west, Olive Avenue on the south, and the Western Burbank

Flood Control Channel, railway switching yards and Interstate 5 to the east of the proposed project.

The Burbank Water and Power Department currently operates and maintains existing gas-fired combustion turbine units and gas-fired steam units on this 23-acre site. No new offsite transmission lines, natural gas, water supply or wastewater pipelines are required. The MPP will occupy about four acres made available by demolition of Magnolia Generating Units 1 and 2, which have been decommissioned. See **Project Description Figure 1** for the general location of the facility. An aerial view of the plant layout **Project Description Figure 2** shows the existing power plant site and electrical substation. **Project Description Figure 3** provides a view of how the plant will look on the site. **Project Description Figure 4** shows elevations of the power plant facilities.

POWER PLANT

The proposed Magnolia Power Plant Project would be a nominal 328 MW, natural gas-fired combined cycle power plant. Site improvements would include demolition of some of the older power generating and fuel storage facilities.

The proposed plant would incorporate one General Electric (GE) 7FA dual-shaft, one-on-one, combined-cycle combustion turbine electric generator (CTG), one heat recovery steam generator (HRSG) with supplemental duct firing, and one steam turbine electric generator (STG). Hot exhaust gas from the CTG would flow through the HRSG, which would extract heat from the exhaust to produce steam to power the STG.

To control nitrogen oxides (NO_x) and carbon monoxide (CO) emissions, Selective Catalytic Reduction (SCR) and a Carbon Monoxide catalyst will be incorporated into the project. NO_x emissions from the CTG will be controlled by dry low NO_x combustors and a post-combustion emission control system that will be a SCR to meet current Best Available Control / Lowest Achieveable Emission Rate (BACT/LAER) limits for NO_x and CO.

TRANSMISSION LINE FACILITIES

Electrical output will be delivered to the existing transmission grid via the existing facility substation. The new combined cycle unit will be connected to the grid by an underground connection with the existing Olive 69 Kilovolt (kV) switchyard with overhead transmission to the Los Angeles Department of Water and Power (LADWP) system at Receiving Station E.

No new offsite transmission lines are required for the project. Two new generator step-up transformers will be installed and connected to the existing 69 kV switchyard. The connections to the switchyard will be made via new 69 kV underground lead lines on-site, 69kV high-voltage circuit breakers and new associated switchgear.

OTHER LINEAR FACILITIES

Most of the auxiliary facilities for the project, such as water supply and disposal systems, site access, fuel supply, and facilities to connect electrical output to the grid are already in place with the existing facilities.

The existing 12” underground gas line will be adequate to supply fuel to the proposed unit. Southern California Gas Company (SoCalGas) will deliver the fuel. The maximum demand for fuel gas will be approximately 2,500 MMBtu/hr at a pressure of 350 pounds per square gas (psig). The project will include a natural gas compressor to increase the gas pressure up into the range of 450 to 700 psig needed for the CTG. A new metering station will also be added.

WATER SUPPLY AND WASTE WATER TREATMENT

Water requirements for the project are estimated at a maximum of 6.546 million gallons per day at full operation and will be supplied from a combination of sources. The new units will use reclaimed water to the maximum extent feasible with potable and / or contaminated water augmentation only in cases of emergency.

The project applicant will be constructing a 2.2 million-gallon reclaim water storage tank to manage diurnal fluctuations in the available volume of reclaimed water. An 180,000-gallon cooling tower blowdown tank will also be constructed to minimize the impacts of City of Burbank (COB) Reclamation Plant upsets that may occur.

The City of Burbank, through purchases from the Metropolitan Water District, will supply potable water. The plant will be using approximately 2,000 gallons per day for domestic uses and fire protection.

The Burbank Reclamation Plant will supply up to 6,546,000 gallons of reclaimed water per day for cooling water makeup, cycle makeup, evaporative cooling and other plant processes.

ZERO LIQUID COOLING WATER DISCHARGE

The applicant amended the proposed project to use a Zero Liquid Cooling Water Discharge (ZLD) system. This system would result in no cooling tower blowdown / wastewater added to the existing reclaimed water stream which flows to the Burbank Water Reclamation Plant Outfall 001 and discharges into the Burbank Western Channel.

The cooling tower blowdown / wastewater from the power plant will be treated to remove hardened minerals by lime precipitation and deionization using a recirculated solids type clarifier and mobile demineralizer trailers for the final hardness and mineral removal. The wastewater will then enter a reverse osmosis unit for removal of other contaminants with the reject brine processed through a thermal crystallizer/filter press/sludge dryer combination to remove the final amount of water. The permeate from the reverse osmosis unit will be returned to the cooling tower as makeup. Dry solids will then be transported to an off site land fill.

CONSTRUCTION AND OPERATIONS

The project is estimated to have a capital cost of approximately $225 million. The applicant plans to complete construction and start operation of the combined-cycle unit in the second quarter of 2005. During construction, up to approximately 330 construction jobs will be created over the 24-month construction schedule. A permanent professional workforce of approximately 33 people will operate the plant.

The project will also include one temporary, offsite equipment laydown area located along Victory Place adjacent to the railroad tracks, between Empire Avenue and Maria Street. This 2.4-acre site is zoned Railroad and the use of this site for a temporary laydown area will require a Conditional Use Permit. Equipment and supplies delivered to the laydown area would then be transferred from the laydown area to the MPP site by truck.

The primary off-site parking area is north of the MPP site on Front Street. Construction personnel can walk to the MPP site from this lot. Approximately 300 parking spaces will available at this site. This area is zoned Automobile Dealership and paved. The zoning designation does not allow for the site to be used for parking which will require a Conditional Use Permit. The second designated parking area is a paved area along San Fernando Boulevard between Hollywood Way and Buena Vista Road along the railroad tracks. Workers will be transported to the project site by shuttle. Approximately 100 parking spaces will be available on this site. This site is zoned Railroad and the use of this site for parking also requires a Conditional Use Permit.

The new plant will be operated and maintained by employees of the City of Burbank. A new service building will be included to support the project. It will include a control room, kitchen, maintenance area, and locker rooms.

PUBLIC AND AGENCY COORDINATION

Staff conducted a number of publicly noticed workshops on air quality, water resources, biological resources, cultural resources, noise, visual resources, traffic and transportation and other issues.

In addition to these workshops, extensive coordination has occurred with the numerous local, state and federal agencies that have an interest in the project. In particular, Energy Commission staff has worked with the City of Burbank; County of Los Angeles; California Independent System Operator (Cal-ISO); South Coast Air Quality Management District; California Air Resources Board; Federal Aviation Administration; U.S. Environmental Protection Agency; Department of Toxics Substances Control; and the Regional Water Quality Control Board to identify and resolve issues of concern. In addition, Commission staff has coordinated the review and analysis of the project with U.S. Fish and Wildlife Service, California Department of Fish and Game, and California Department of Parks and Recreation, U.S. Army Corp of Engineers, intervenors, and the interested residents of the community.

A series of publicly noticed hearings will be conducted on this project in the coming months. Information gathered during these hearings will be used by the Committee to prepare the Presiding Member's Proposed Decision.

The Energy Commission Public Adviser and the staff environmental justice specialist conducted an Environmental Justice Outreach workshop on October 15, 2001, to explain the Energy Commission's siting process. Prior to the workshop, the Public Advisor had sent over 10,000 flyers that were distributed to students and teachers at 12

Burbank schools and bilingual flyers in English, Spanish and Armenian to 10 local churches.

OVERVIEW OF STAFF'S CONCLUSIONS

Environmental / System Impacts and LORS

Staff's analysis indicates that all of the proposed project's potentially significant environmental impacts can be mitigated to levels of less than significance. Staff's analysis also indicates that the project can be made to conform with all LORS. Below is a summary of the potential environmental impacts and LORS compliance for each technical area.

Technical Discipline	Environmental / System Impacts	LORS Conformance
Air Quality	Impacts mitigated	YES
Biological Resources	NO	YES
Cultural Resources	NO	YES
Power Plant Efficiency	N/A	YES
Power Plant Reliability	N/A	YES
Facility Design	NO	YES
Geology	NO	YES
Hazardous Materials	Impacts mitigated	YES
Land Use	NO	YES
Noise	Impacts mitigated	YES
Public Health	NO	YES
Socioeconomics	NO	YES
Soils and Water	Impacts mitigated	YES
Traffic and Transportation	Impacts mitigated	YES
Transmission Line Safety	NO	YES
Transmission System Eng.	NO	YES
Visual Resources	Impacts mitigated	YES
Waste Management	Impacts mitigated	YES
Worker Safety	NO	YES

CONCLUSIONS AND RECOMMENDATIONS

Each technical area assessment in the FSA includes a discussion of the project and the existing environmental setting; the project's conformance with applicable LORS; whether the facility can be constructed and operated safely and reliably; project specific and cumulative impacts; the environmental consequences of the project using the proposed mitigation measures; conclusions and recommendations; and any proposed conditions of certification under which the project should be constructed, operated, and closed should it be approved.

In summary, this FSA finds that:

- If the project is built and operated in compliance with the Conditions of Certification proposed by staff, the project will be in conformance with all applicable LORS.

- The applicant, with the assumption of obtaining the Priority Reserve ERCs for PM_{10} and SO_2, has a complete offset package that satisfies routine SCAQMD permitting and CEQA requirements. The applicant has proposed to the District a plan to secure all necessary offsets. After the applicant issues bonds for the plant they will be executing the purchase of the balance of the Priority Reserve ERC's. Use of the Priority Reserve Credits requires he project owner to begin construction within one year of certification. The District has completed their Final Determination of Compliance (FDOC), which indicates that the proposed project complies with all applicable rules and regulations. The District cannot issue the Title V Permit until the applicant provides a complete offset package and after the Commission certifies the project.
- The ZLD Supplement proposes the use of reclaimed water and contaminated ground water as the source for all process or cooling water to the extent allowed by the characteristics of the supply. Using reclaimed water with a Zero Liquid Discharge system will result in an efficient use of water. Staff considers the reasonable use of degraded groundwater consistent with SWRCB Policy 75-58. For the purpose of minimizing consumption of potable water and reducing existing superfund site contamination, staff recommends that MPP consider the use of contaminated groundwater for process and cooling water for MPP when reclaimed water is not available.
- The project will not disproportionately impact minority or low-income populations.
- With the proposed Conditions of Certification included in the various technical areas, the project's demolition, construction and operation impacts can be mitigated to a level less than significant and meet all CEQA requirements.

Based on staff's assessment of the proposed project, staff recommends approval with the proposed conditions of certification.

MAGNOLIA POWER PROJECT (01 AFC 6)
FINAL STAFF ASSESSMENT

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PROJECT DESCRIPTION

Testimony of James W. Reede, Jr., MPPA

On May 14, 2001, the Southern California Public Power Authority filed an Application for Certification (AFC) for the Magnolia Power Plant Project seeking approval from the California Energy Commission to construct and operate a nominal 250 megawatt (MW) base-load, natural gas-fired, combined cycle power generating facility with peaking capacity of 328 MW. On May 14, 2002, the applicant filed a Supplement to the AFC that described a Zero Liquid Discharge System (ZLD). In August 2002, the applicant withdrew its NPDES permit application and affirmed its preference for the ZLD system.

PROJECT LOCATION

The applicant intends to locate the project on a 23-acre site in Burbank, California, an incorporated city in Los Angeles County, at 164 West Magnolia Boulevard. The site is bound by Magnolia Blvd. on the north, Lake Avenue on the west, Olive Avenue on the south, and the Western Burbank Flood Control Channel, railway switching yards and Interstate 5 to the east of the proposed project.

The proposed plant will be constructed at the existing Magnolia Power Station that is owned and operated by the City of Burbank Water and Power Department. Burbank Water and Power currently operates and maintains existing gas fired combustion turbine units and gas fired steam units on this 23-acre site. The MPP will occupy about 4 acres made available by demolition of Magnolia Generating Units 1 and 2, which have been decommissioned. See **Project Description Figure 1**.

POWER PLANT

The proposed Magnolia Power Plant Project would be a nominal 250-megawatt (MW), with peaking capacity of up to 328 MW, natural gas-fired combined cycle power plant. Site improvements would include demolition of some of the older power generating and fuel storage facilities.

The proposed plant would incorporate one General Electric (GE) 7FA dual-shaft, 1-on-1, combined-cycle combustion turbine electric generator (CTG), one heat recovery steam generator (HRSG) with supplemental duct firing, and one steam turbine electric generator (STG). Hot exhaust gas from the CTG would flow through the HRSG, that would when built, extract heat from the exhaust to produce steam that powers the STG.

The new facility would provide a range of 238 MW to 277 MW base load capacity, depending on ambient conditions and the final configuration. Additional peaking capacity of up to 68 MW is included in the proposed project and this peaking capacity can be incorporated using steam injection and duct firing enhancements to the base unit. Estimated heat rates for the units range up to 6900 Btu/kWh (HHV) at full load, depending on ambient conditions and the final configuration. The plant is expected to have an overall availability up to 95 percent. The CTG and STG would produce approximately 160 MW and 90 MW (gross), respectively. The overall combined cycle thermal efficiency would be about 54%.

To control Nitrogen Oxide (NO_x) and Carbon Monoxide (CO) emissions, Selective Catalytic Reduction (SCR) and a Carbon Monoxide catalyst will be incorporated into the project. NO_x emissions from the CTG will be controlled by dry low NO_x combustors and a post-combustion emission control system that will be a SCR to meet current Best Available Control / Lowest Achieveable Emission Rate (BACT/LAER) limits for NO_x and CO.

An aerial view of the plant layout **Project Description Figure 2** shows the existing power plant site and electrical substation. **Project Description Figure 3** provides a view of how the plant will look on the site. **Project Description Figure 4** shows elevations of the power plant facilities.

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No new transmission lines are required for the project. Two new generator step-up transformers will be installed and connected to the existing 69 kV switchyard. The connections to the switchyard will be made via new 69 kV underground lead lines on-site, 69kV high-voltage circuit breakers and new associated switchgear.

OTHER LINEAR FACILITIES

Most of the auxiliary facilities for the project, such as water supply and disposal systems, site access, fuel supply, and facilities to connect electrical output to the grid are already in place with the existing facilities.

The existing 12” underground gas line will be adequate to supply fuel to the proposed unit. Southern California Gas Company (Sempra) will deliver the fuel. The maximum demand for fuel gas will be approximately 2,500 MMBtu/hr at a pressure of 350 pounds per square gas (psig). The project will include a natural gas compressor to increase the gas pressure up into the range of 450 to 700 psig needed for the CTG. A new metering station will also be added.

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Water requirements for the project are estimated at a maximum of 6.546 million gallons per day at full operation and will be supplied from a combination of sources. The new units will use reclaimed water to the maximum extent feasible with potable water augmentation only in cases of emergency.

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gallon cooling tower blowdown tank will also be constructed to minimize the impacts of City of Burbank Reclamation Plant upsets that may occur.

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The cooling tower blowdown / wastewater from the power plant will be treated to remove hardness minerals by lime precipitation and deionization using a recirculated solids type clarifier and mobile demineralizer trailers for the final hardness and mineral removal. The wastewater will then enter a reverse osmosis unit for removal of other contaminants with the reject brine processed through a thermal crystallizer/filter press/sludge dryer combination to remove the final amount of water. The permeate from the reverse osmosis unit will be returned to the cooling tower as makeup. Dry solids will then be transported to an off site land fill.

CONSTRUCTION AND OPERATIONS

The project is estimated to have a capital cost of approximately $225 million. The applicant plans to complete construction and start operation of the combined-cycle unit in the second quarter of 2005 based on Commission approval January 2003. The MPP will occupy about 4 acres made available by demolition of Magnolia Generating Units 1 and 2, which have been decommissioned. During construction, up to approximately 330 construction jobs will be created over the 24-month construction schedule. A permanent professional workforce of approximately 33 people will operate the plant.

The project will also include one temporary, offsite equipment laydown area located along Victory Place adjacent to the railroad tracks, between Empire Avenue and Maria Street. This 2.4-acre site is zoned Railroad and the use of this site for a temporary laydown area will require a Conditional Use Permit. Equipment and supplies delivered to the laydown area would then be transferred from the laydown area to the MPP site by truck.

The primary off-site parking area is north of the MPP site on Front Street. Construction personnel can walk to the MPP site from this lot. Approximately 300 parking spaces will available at this site. This area is zoned Automobile Dealership and paved. The zoning

designation does not allow for the site to be used for parking which will require a Conditional Use Permit. The second designated parking area is a paved area along San Fernando Boulevard between Hollywood Way and Buena Vista Road along the railroad tracks. Workers will be transported to the project site by shuttle. Approximately 100 parking spaces will be available on this site. This site is zoned Railroad and the use of this site for parking also requires a Conditional Use Permit.

The new plant will be operated and maintained by employees of the City of Burbank. A new service building will be included to support the project. It will include a control room, kitchen, maintenance area, and locker rooms.

AIR QUALITY

Testimony of Brewster Birdsall, Lisa Blewitt and William Walters

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the planned power island and other systems associated with the Magnolia Power Project (MPP) at the City of Burbank (COB) power plant, as proposed by the Southern California Public Power Authority (SCPPA). Criteria air pollutants are those for which a federal or state ambient air quality standard has been established to protect public health. They include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic compounds (VOC), and particulate matter less than 10 microns in diameter (PM_{10}).

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

- whether the proposed Magnolia Power Project is likely to conform with applicable Federal, State and South Coast Air Quality Management District (SCAQMD) air quality laws, ordinances, regulations and standards (LORS), as required by Title 20, California Code of Regulations, section 1742.5 (b);
- whether the Magnolia Power Project is likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, as required by Title 20, California Code of Regulations, section 1742 (b); and
- whether the mitigation proposed for the Magnolia Power Project is adequate to lessen the potential impacts to a level of insignificance, as required by Title 20, California Code of Regulations, section 1744 (b).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

The federal Clean Air Act requires any new major stationary sources of air pollution and any major modifications to existing major stationary sources to obtain a construction permit before commencing construction. This process is known as New Source Review (NSR). Its requirements differ depending on the attainment status of the area where the major facility is to be located. Prevention of Significant Deterioration (PSD) requirements apply in areas that are in attainment of the national ambient air quality standards (NAAQS). The non-attainment area NSR requirements apply to areas that have not been able to demonstrate compliance with the NAAQS. The entire program, including both PSD and non-attainment NSR permit reviews, is referred to as the federal NSR program.

The U.S. Environmental Protection Agency (EPA) has reviewed and approved the South Coast Air Quality Management District's regulations and has delegated to the District the implementation of the federal PSD, non-attainment NSR, Title IV, and Title V

programs. The SCAQMD implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in the Code of Federal Regulations, Title 40, Part 70. A Title V permit contains all of the requirements specified in different air quality regulations that affect an individual project. The Title V program is administered by SCAQMD under Regulation XXX. As described in Section 5.2.3.2 of the AFC (MPP 2001a), installation of the gas turbine by SCPPA will be a major new source and thus will require a Title V permit.

The Magnolia Power Project is also subject to the federal New Source Performance Standards (NSPS). Enforcement of NSPS has been delegated to the SCAQMD and the corresponding regulations are incorporated into the District's Regulation IX. The power-island must comply with the requirements of NSPS Subparts Da and GG. Local emission limitation rules or BACT requirements are, however, more restrictive than the NSPS requirements. For example, Section 5.2.1.4 of the AFC (MPP 2001a) indicates that the BACT level for NO_x emissions will be no more than 2 parts per million by volume dry (ppmvd) at 15 percent excess oxygen (ppmvd @ 15%O_2), significantly less than the NSPS allowable limit of 75 ppmvd @ 15%O_2. The NSPS requirements also include a SO_2 emissions concentration of no more than 150 ppm @ 15%O_2.

The EPA has delegated its Prevention of Significant Deterioration (PSD) and non-attainment New Source Review (NSR) requirements to the SCAQMD. This delegation is only done for air districts that are able to demonstrate to the satisfaction of EPA that their regulatory programs are at least as stringent as the federal PSD and non-attainment NSR programs. The SCAQMD will issue an Authority to Construct (ATC) only after this project secures a license from the California Energy Commission. This permit will be the equivalent to a federal PSD and federal non-attainment NSR permits. In addition, the EPA has also delegated to the SCAQMD the authority to implement the federal Clean Air Act Title V permitting program. This operating permit is issued only after a facility is in operation and it would be the same as the SCAQMD's Permit to Operate.

Title IV of the federal Clean Air Act provides for the issuance of acid rain permits and requires subject facilities to obtain emission allowances for SO_x emissions. The Title IV program is administered by SCAQMD under Regulation XXXI.

STATE

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

LOCAL

As part of the Energy Commission's licensing process, in lieu of issuing a construction permit to the Applicant for the Magnolia Power Project, the SCAQMD has prepared and presented to the Commission a Determination of Compliance/Permit to Construct (DOC/PTC) (SCAQMD 2002d). The DOC evaluates whether and under what conditions the proposed project will comply with the District's applicable rules and regulations, as described below.

The project is subject to the specific District rules and regulations that are briefly described below:

Regulation II — Permits

This regulation sets forth the regulatory framework of the application for and issuance of construction and operation permits for new, altered and existing equipment.

Rule 202 — Temporary Permit to Operate

This rule states that any new equipment that has been issued a Permit to Construct (PTC) shall be allowed to use that PTC as a temporary Permit to Operate (PTO) upon notification to the Air Pollution Control Officer (APCO).

Rule 203 — Permit to Operate

This rule prohibits the use of any equipment that may emit air contaminants or control the emission of air contaminants, without first obtaining a PTO except as provided in Rule 202.

Rule 217 — Provisions for Sampling and Testing

The Executive Officer (EO) may require the Applicant to provide and maintain facilities necessary for sampling and testing. The EO will inform the Applicant of the need for testing ports, platforms and utilities.

Rule 218 — Continuous Emission Monitoring

This rule describes the installation, QA/QC and reporting requirements for all sampling interfaces, analyzers and data acquisition systems used to continuously determine the concentration or mass emission of an emission source. However, this rule does not apply to the Continuous Emissions Monitoring System (CEMS) required for NO_x monitoring under RECLAIM (Regulation XX).

Regulation IV — Prohibitions

This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, startup/shutdown exemptions and breakdown events.

Rule 401 — Visible Emissions

Generally this rule restricts visible emissions from a single source for more than three minutes in any one hour from being as dark or darker than that designated No. 1 on the Ringelmann Chart (US Bureau of Mines).

Rule 402 — Nuisance

This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance or annoyance to businesses, property or the public.

Rule 403 — Fugitive Dust

This rule requires that the Applicant prevent, reduce or mitigate fugitive dust emissions from the project site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM_{10} emissions (between up and down wind measurements) to less than 50 $\mu g/m^3$ and restricts the tracking out of bulk materials onto public roads. Additionally, the Applicant must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include, adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the EPA.

Rule 407 — Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppm and SO_2 emissions to 500 ppm, averaged over 15 minutes. Equipment that complies with Rule 431.1 is exempt from the SO_2 limit. The Applicant will be required to comply with Rule 431.1 and thus the sulfur limit of Rule 407 will not apply.

Rule 408 — Circumvention

This rule prohibits the use of equipment that conceals emissions without reducing emissions, except in cases where the only violation involved is of Section 48700 of the Health and Safety Code or District Rule 402.

Rule 409 — Combustion Contaminants

This rule restricts the discharge of contaminants from the combustion of fuel to 0.23 grams per cubic meter of gas, calculated to 12% CO_2, averaged over 15 minutes. This rule does not apply to internal combustion (IC) engines or jet engine test stands.

Rule 431.1 — Sulfur Content of Gaseous Fuels

This rule restricts the sale or use of gaseous fuels that exceed a sulfur content limit. The sulfur content limit for natural gas is 16 ppmv calculated as H_2S. This rule also establishes monitoring and reporting requirements, as well as test methods to be used.

Rule 431.2 — Sulfur Content of Liquid Fuels

This rule establishes a sulfur content limit for diesel fuel of 0.05% by weight, as well as, record keeping requirements and test methods.

Rule 475 — Electric Power Generating Equipment

This rule limits combustion contaminants (PM_{10}) from electric power generating equipment with a maximum rating of more than 10 net megawatts to 11 pounds per hour and 23 milligrams per cubic meter @ 3%O_2 (averaging time subject to Executive Officer decision).

Regulation VII — Emergencies

Rule 701 — Air Pollution Emergency Contingency Actions

This rule requires that facilities employing 100 or more people or emitting 100 or more tons of pollutants (NO_x, SO_x or VOC) per year, upon declaration or prediction of a Stage 2 or 3 smog episode, reduce NO_x, SO_x and VOC emissions by at least 20% of normal workday operations. This rule also requires that upon declaration of a state of emergency by the Governor, the facility comply with the Governor's requirements. A power plant facility may be exempt from Rule 701 if they are determined by the District to be an essential service responding to a public emergency or utility outage.

Regulation IX — Standards of Performance for New Stationary Sources

Regulation IX incorporates provisions of Part 60, Chapter I, Title 40 of the Code of Federal Regulations (CFR) and is applicable to all new, modified or reconstructed sources of air pollution. Sections of this regulation apply to electric utility steam generators (Subpart Da) and stationary gas turbines (Subpart GG). These subparts establish limits of particulate matter, SO_2, and NO_2 emissions from the facility as well as monitoring and test method requirements.

Regulation XIII — New Source Review

This regulation sets forth the pre-construction review requirements for new, modified or relocated facilities to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the SCAQMD is not unnecessarily restricted. This regulation limits the emissions of non-attainment contaminants and their precursors as well as ozone depleting compounds (ODC) and ammonia by requiring the use of Best Available Control Technologies (BACT). This regulation specifies that emissions for VOC, NO_x, SO_x, PM_{10}, and CO above 4 tons per year shall be offset by either Emission Reduction Credits (ERCs) or by allocations from the Priority Reserve (SO_x, PM_{10} and CO only). However, this regulation does not apply to the NO_x emissions for the MPP, which are regulated by Regulation XX (RECLAIM).

Rule 1309.1 – Priority Reserve

The Priority Reserve is established to provide credits for PM_{10}, SO_x and CO to specific priority sources. To be eligible, electric generating facilities must submit a complete application for certification to the California Energy Commission or an application for a permit to construct to SCAQMD between 2000 and 2003; be in compliance with all applicable District rules, variances, orders, and settlement agreements; pay a non-refundable mitigation fee for each pound per day of PM_{10}, SO_x and CO obtained from the Priority Reserve; show due diligence effort to secure available ERCs; be fully and legally operational within 3 years; and enter into a long-term (at least 1-year) contract with the state of California to sell at least 50% of the portion of the power generated using Priority Reserve credits. Municipal utilities and joint power authorities, such as SCPPA, are exempt from the contract requirements of this regulation.

Regulation XVII — Prevention of Significant Deterioration

This regulation sets forth the pre-construction requirement for stationary sources to ensure that the air quality in clean air areas does not significantly deteriorate while maintaining a margin for future industrial growth. This regulation establishes maximum allowable increases over ambient baseline concentrations for each pollutant. Because the MPP would not qualify as a major new source of any PSD pollutant, and because SCPPA is permitting the MPP independent of the existing COB power generating facility, the PSD pre-construction requirement would not apply to the project.

Regulation XX — Regional Clean Air Incentives Market (RECLAIM)

The Regional Clean Air Incentives Market (RECLAIM) is designed to allow facilities flexibility in achieving emission reduction requirements for NO_x and SO_x through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission reductions. The RECLAIM program establishes an initial allocation (beginning in 1994) and an ending allocation (to be attained by the year 2003) for each facility within the program (Rule 2002). Each facility then reduces their allocation annually on a straight line from the initial to the ending. The RECLAIM program has its own rules for permitting, reporting, monitoring (including CEM), record keeping, variances, breakdowns and the New Source Review program, which incorporates BACT requirements (Rules 2004, 2005, 2006 and 2012). The RECLAIM program supercedes other district rules where there are conflicts. RECLAIM also has its own banking rule, RECLAIM Trading Credits (RTCs), which is established in Rule 2007. The MPP is exempt from the SO_x RECLAIM program (Rule 2011) because it uses natural gas exclusively (per Rule 2001). However, it will be a NO_x RECLAIM project and therefore subject to the rules of RECLAIM for NO_x emissions.

Regulation XXX — Title V Permits

The Title V federal program is the air pollution control permitting system required by the federal Clean Air Act as amended in 1990. Regulation XXX defines the permit application and issuance as well as compliance requirements associated with the program. Any new or modified major source which qualifies as a Title V facility must obtain a Title V permit prior to construction, operation or modification of that source. Regulation XXX also integrates the Title V permit with the RECLAIM program such that a project cannot proceed without complying with both regulations. The MPP will be a major new source and thus will require a Title V permit.

Regulation XXXI — Acid Rain Permits

Title IV of the federal Clean Air Act provides for the issuance of acid rain permits for qualifying facilities. Regulation XXXI integrates the Title IV program with the RECLAIM program. Regulation XXXI requires a subject facility to obtain emission allowances for SO_x emissions as well as monitoring SO_x, NO_x and CO_2 emissions from the facility.

SETTING

METEOROLOGICAL CONDITIONS

The general climate of California is typically dominated by the eastern Pacific high pressure system centered off the coast of California. In the summer, this system results in low inversion layers and clear skies inland and typically early morning fog by the coast. In winter, this system promotes wind and rainstorms originating in the Gulf of Alaska and striking Northern California.

The large scale wind flow patterns in the South Coast Air Basin (SCAB) are a diurnal cycle driven by the differences in temperature between the land and the ocean as well as the mountainous terrain surrounding the basin. The Tehachapi and Temblor Mountains separate the South Coast and San Joaquin Valley air basins. The San Bernardino, San Gabriel and Santa Rosa Mountains generally make up the eastern mountain range of the South Coast air basin. The Santa Monica and Santa Ana Mountains make up the northern and southern (respectively) coastal mountain ranges of the South Coast air basin.

The project area is in the San Fernando Valley portion of the South Coast Air Basin, with typical warm dry summers and mild, rainy winters with modest transitions in temperatures. In the dry season, a semi-permanent high pressure area in the eastern Pacific dominates the weather over much of Southern California. Warm and very dry air descending from this Pacific high, caps ocean-cooled air under a strong inversion, producing a marine layer of clouds and fog. This marine layer is the prominent weather feature for the coastal areas in the South Coast air basin for much of the year, especially from late spring through early fall. During the winter, Pacific storms push cold fronts across California from northwest to southeast. These storms and frontal systems generate the bulk of the annual rainfall.

The daytime sea breeze and surrounding topography affect the wind patterns in the project area. The sea breeze normally builds in strength from sunrise, peaking during the mid-afternoon. The project site is located north of the eastern end of the Santa Monica Mountains. In this area, the westerly sea breeze from the Santa Monica Bay turns to the north to travel up the San Fernando Valley. At the Burbank Meteorological Station, approximately 50 percent of all winds come from the mouth of the San Fernando Valley to the south and east. In the winter, “Santa Ana” conditions also occur, typically accompanied by easterly winds that bring warm temperatures and low humidity from the desert areas to the east.

The site is located on the flat terrain of the valley floor. Within two kilometers of the site are the Santa Monica Mountains to the south and the Verdugo Mountains to the north, northeast and east. The closest elevated terrain that exceeds the proposed stack height is located approximately 1.3 kilometers to the northeast of the project site.

Temperature and precipitation data, collected at the Burbank Valley Pump Plant meteorological station, show that average summer temperatures (°F) range from average lows in the low-60s to average highs in the high-80s. In winter, the average lows are in the low-40s and the average highs are in the mid- to upper-60s. Annual precipitation in the project area is an average of 16.1 inches about 85 percent of which occurs between November and March. Very little precipitation occurs during the

summer months (about 0.7 inch per month between June and September) due to the strong high pressure system that blocks migrating storm systems.

EXISTING AIR QUALITY

The EPA 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 more restrictive than the federal AAQS, which are established by the EPA. The state and federal air quality standards are listed in **AIR QUALITY Table 1**. As indicated in 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 basis. 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 per cubic meter of air (mg/m^3 and $\mu g/m^3$, respectively).

In general, an area is designated as attainment for a specific pollutant if the 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 would 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 or air basin is usually evaluated to determine the district's attainment status. **AIR QUALITY Table 2** shows the area designation status of the South Coast air basin for each criteria pollutant for both the federal and state ambient air quality standards. The federal classifications go from moderate to extreme.

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 μg/m^3)	0.09 ppm (180 μg/m^3)
	8 Hour	0.08 ppm (160 μg/m^3)	—
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	—
	1 Hour	—	0.25 ppm (470 μg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	0.03 ppm (80 μg/m^3)	—
	24 Hour	0.14 ppm (365 μg/m^3)	0.04 ppm (105 μg/m^3)
	3 Hour	0.5 ppm (1300 μg/m^3)	—
	1 Hour	—	0.25 ppm (655 μg/m^3)
Respirable Particulate Matter (PM_{10}) [a]	Annual Geometric Mean	—	30 μg/m^3
	24 Hour	150 μg/m^3	50 μg/m^3
	Annual Arithmetic Mean	50 μg/m^3	—
Fine Particulate Matter ($PM_{2.5}$) [a]	Annual Arithmetic Mean	—	15 μg/m^3
	24 Hour	—	65 μg/m^3
Sulfates (SO_4)	24 Hour	—	25 μg/m^3
Lead	30 Day Average	—	1.5 μg/m^3
	Calendar Quarter	1.5 μg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 μg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 μg/m^3)
Visibility Reducing Particulates	1 Observation (8 hour)	—	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.

Note(s):

a. The State of California is currently in the process of revising its annual PM_{10} ambient air quality standard and in the process of inacting $PM_{2.5}$ ambient air quality standards. The standards being proposed as of September 26, 2002 are as follows:

PM_{10} – 20 ug/m^3 (annual standard - arithmetic mean)

$PM_{2.5}$ – 12 ug/m^3 (annual standard - arithmetic mean)

$PM_{2.5}$ – 25 ug/m^3 (24-hour standard)

AIR QUALITY Table 2
Federal and State Attainment Status for the South Coast Air Basin

Pollutants	Federal Classification	State Classification
Ozone	Extreme Non-Attainment	Extreme Non-Attainment
PM_{10}	Serious Non-Attainment	Non-Attainment
CO	Serious Non-Attainment	Non-Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

AIR QUALITY Table 3 and **AIR QUALITY Figure 1** summarize the historical air quality data for the project location, recorded at the Burbank, West Palm Avenue air monitoring station for ozone, NO_2, CO, SO_2, and PM_{10}. **AIR QUALITY Table 3** provides the concentration of each pollutant, the averaging time over which the concentration is measured and, where applicable, the number of days of each year (from 1995 to 2000) in which the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS) was violated.

AIR QUALITY Table 3
Ambient Air Quality Monitoring Data
Burbank, West Palm Avenue

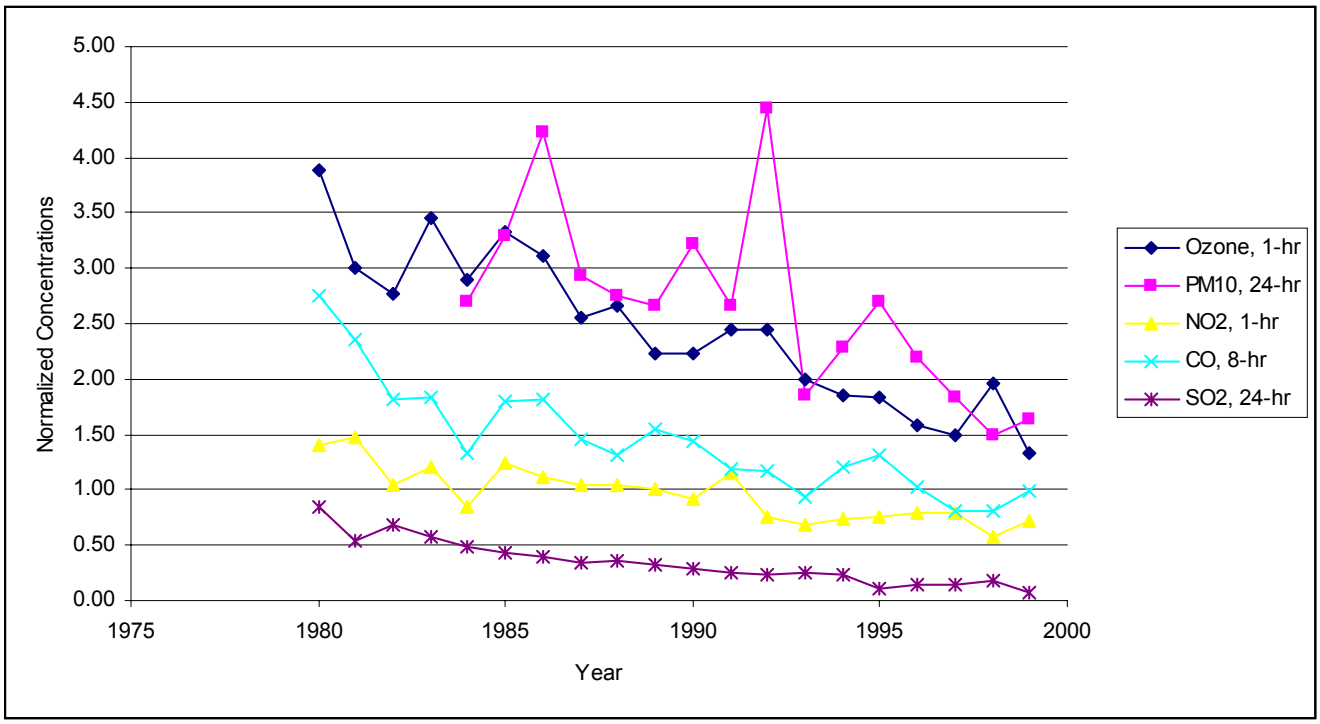
Pollutant	Standard	1995	1996	1997	1998	1999	2000	Most Restrictive Ambient Air Quality Standard
Ozone	Maximum 1-hr Average (ppm)	0.165	0.142	0.134	0.177	0.120	0.125	0.09 (CAAQS)
	# of days exceeding CAAQS	58	31	15	33	13	16	—
	Maximum 8-hr Average (ppm)	0.115	0.116	0.103	0.124	0.099	0.118	0.08 (NAAQS)
	# of days exceeding NAAQS	29	11	6	13	3	11	—
PM_{10}	Maximum 24-hr Average ($\mu g/m^3$)	135	110	92	75	82	74	50.0 (CAAQS)
	# of days exceeding CAAQS*	87	87	102	54	126	84	—
	Annual Geometric Mean ($\mu g/m^3$)	37.18	37.58		32.78	40.59	36.1	30 (CAAQS)
	Annual Arithmetic Mean ($\mu g/m^3$)	42.60	41.34	44.98	36.15	43.73	39.1	50 (NAAQS)
NO_2	Maximum 1-hr Average (ppm)	0.187	0.197	0.200	0.143	0.179	0.163	0.25 (CAAQS)
	Average annual concentration (ppm)	0.045	NA	0.042	0.041	0.045	0.041	0.053 (NAAQS)
CO	Maximum 1-hr Average (ppm)	12.5	11.6	8.8	8.1	9.2	7.7	20 (CAAQS)
	Maximum 8-hr Average (ppm)	11.80	9.23	7.26	7.33	8.93	6.24	9 (CAAQS)
SO_2	Maximum 24-hr Average (ppm)	0.005	0.006	0.006	0.007	0.003	0.004	0.04 (CAAQS)
	Annual Average (ppm)	0.001	0.001	0.002	0.001	0.000	0.001	0.03 (NAAQS)

Source: (CARB 2000)* Days above the state standard (calculated): PM_{10} is generally monitored once every six days, so the potential number of violation days is normally calculated by multiplying the actual number of days of violations by six. However, the multiplier may vary year-to-year depending on the actual sampling frequency.

The maximum background concentrations used in the modeling analysis are the maximum of the last three years of data for each pollutant recorded at the Burbank, West Palm Avenue monitoring station as shown in **AIR QUALITY Table 3.**

In **AIR QUALITY Figure 1**, the short term normalized concentrations are provided from 1980 to 1999 for ozone, CO, NO_2, PM_{10}, and SO_2 at the Burbank air monitoring station. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the most-stringent applicable national or state ambient air quality standard. Therefore, normalized concentrations lower than one indicate that the measured concentrations were lower than the most-stringent ambient air quality standard.

AIR QUALITY Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations: Burbank, West Palm Avenue, 1980-1999



A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1999 the highest 1-hour average ozone concentration measured in Burbank was 0.12 ppm. Since the most stringent ambient air quality standard is the state standard of 0.09 ppm, the 1999 normalized concentration is 0.12/0.09 = 1.33.

Source: (CARB 2000).

Following is a more in-depth discussion of ambient air quality conditions in the project area.

Ozone

In the presence of ultraviolet radiation, both NO_x and VOC go through a number of complex chemical reactions to form ozone. **AIR QUALITY Table 4** summarizes the best representative ambient ozone data collected from three different monitoring stations close to the project site. The table includes the maximum hourly concentration and the number of days above the State standards. As indicated in this table, ozone

formation is higher in spring and summer and lower in the winter. The South Coast air basin is classified as an extreme nonattainment area for ozone for both National Ambient Air Quality Standards and California Ambient Air Quality Standards.

AIR QUALITY Table 4
Ozone Air Quality Summary, 1992-2000

Year	Burbank, West Palm Avenue			Pasadena, South Wilson Avenue			Los Angeles, North Main Street		
	Days Above CAAQS	Max. 1-hr Level (ppm)	Month of Max. 1-hr Level	Days Above CAAQS	Max. 1-hr Level (ppm)	Month of Max. 1-hr Level	Days Above CAAQS	Max. 1-hr Level (ppm)	Month of Max. 1-hr Level
1992	115	0.220	Aug.	128	0.270	Apr.	57	0.200	Apr.
1993	45	0.180	Oct.	92	0.220	Jun.	34	0.160	May
1994	56	0.167	Sep.	106	0.259	Aug.	49	0.193	May
1995	58	0.165	Jul.	88	0.205	Jul.	38	0.167	Sep.
1996	31	0.142	Aug.	54	0.165	Aug.	24	0.144	Oct.
1997	15	0.134	Jul.	24	0.142	Aug	6	0.120	Aug.
1998	33	0.177	Jul.	31	0.171	Jul.	17	0.148	Apr.
1999	13	0.120	Jul.	15	0.120	Aug.	13	0.128	Apr.
2000	16	0.125	Sep.	19	0.157	May	8	0.136	May

California Ambient Air Quality Standard (CAAQS): 0.09 ppm
National Ambient Air Quality Standard: 0.12 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed June 2001.

Long-term trends in reduced emissions of ozone precursors have led to reduced ozone formation in the project area. As shown in the preceding **AIR QUALITY Figure 1**, the long-term trend of ozone levels at the Burbank air monitoring station shows that the area has made significant strides toward attainment of the 1-hour federal ozone standard. However, the air basin is still in violation of the State and Federal ozone standards.

CARBON MONOXIDE (CO)

As **AIR QUALITY Table 5** shows, the maximum one-hour and eight-hour CO concentrations are less than the California Ambient Air Quality Standards. CO is considered a local pollutant as it is found in high concentrations only near the source of emission. Automobiles and other mobile sources are the principal source of CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. Stationary sources, including all industrial sources, cause less than one percent of the CO emissions in Los Angeles County. According to the data recorded at the Burbank air monitoring station, there have been no violations of California Ambient Air Quality Standards or National Ambient Air Quality Standards since 1995 for the one-hour or the eight-hour CO standards (see **AIR QUALITY Table 5**).

The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level in what is known as the stable boundary layer. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise.

Since mobile sources (motor vehicles) are the main cause of CO, ambient concentrations of CO are highly dependent on motor vehicle activity. In fact, the peak CO concentrations occur during the rush hour traffic in the morning and afternoon. Carbon monoxide concentrations in Los Angeles County and the rest of the state have declined significantly due to two state-wide programs: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phases I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems have also contributed to the decline in CO levels in the state.

AIR QUALITY Table 5
CO Air Quality Summary, 1992-2000

Year	Burbank, West Palm Avenue		Pasadena, South Wilson Avenue		Los Angeles, North Main Street	
	Maximum 1-hr Average (ppm)	Maximum 8-hr Average (ppm)	Maximum 1-hr Average (ppm)	Maximum 8-hr Average (ppm)	Maximum 1-hr Average (ppm)	Maximum 8-hr Average (ppm)
1992	13.0	10.50	11.0	7.25	12.0	9.50
1993	12.0	8.43	11.0	6.25	9.0	6.75
1994	12.9	10.81	12.4	8.76	10.7	8.61
1995	12.5	11.80	11.4	9.13	9.7	8.39
1996	11.6	9.23	10.7	7.14	10.3	8.38
1997	8.8	7.26	8.1	5.99	8.9	7.80
1998	8.1	7.33	8.4	6.30	8.2	6.18
1999	9.2	8.93	8.7	6.58	7.2	6.37
2000	7.3	6.24	9.0	7.51	7.0	5.98

California Ambient Air Quality Standard: 1-hr, 20 ppm; 8-hr, 9 ppm
National Ambient Air Quality Standard: 1-hr, 35 ppm; 8-hr, 9 ppm
Source: CARB Air Quality Data CD, 2000 and CARB web site, http://www.arb.ca.gov/adam/, Accessed Jan. 2002.

NITROGEN DIOXIDE (NO_2)

As shown in **AIR QUALITY Table 6** the maximum one-hour and annual concentrations of NO_2 at the Burbank air monitoring station are lower than the California Ambient Air Quality Standard and the National Ambient Air Quality Standard, respectively. Approximately 90 percent of the NO_x emitted from combustion sources is NO, while the balance is NO_2. NO is oxidized in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion. This is why the highest concentrations of NO_2 occur during the fall and not in the winter when atmospheric conditions favor the trapping of ground level releases but lack significant photochemical activity (less sunlight). In the summer the conversion rates of NO to NO_2 are high but the relatively high temperatures and windy conditions (atmospheric unstable conditions) disperse pollutants, preventing the accumulation of NO_2 to levels approaching the 1-hour ambient air quality standard. The formation of NO_2 in the summer with the help of the ozone is according to the following reaction.

$$NO + O_3 \rightarrow NO_2 + O_2$$

In urban areas, ozone concentration level is typically high. That level will drop substantially at night as the above reaction takes place between ozone and NO. This

reaction explains why, in urban areas, ozone concentrations at ground level drop, while aloft and in downwind rural areas (without sources of fresh NO_x emissions) ozone concentrations can remain relatively high.

AIR QUALITY Table 6
NO_2 Air Quality Summary, 1992-2000

Year	Burbank, West Palm Avenue		Pasadena, South Wilson Avenue		Los Angeles, North Main Street	
	Maximum 1-hr Average (ppm)	Maximum Annual Average (ppm)	Maximum 1-hr Average (ppm)	Maximum Annual Average (ppm)	Maximum 1-hr Average (ppm)	Maximum Annual Average (ppm)
1992	0.19	0.050	0.22	0.042	0.30	0.040
1993	0.17	0.044	0.18	0.039	0.21	0.034
1994	0.18	0.050	0.18	0.042	0.22	0.047
1995	0.19	0.045	0.23	0.037	0.24	0.045
1996	0.20	NA	0.20	0.037	0.24	NA
1997	0.20	0.042	0.17	0.034	0.20	0.043
1998	0.14	0.041	0.17	0.035	0.17	0.039
1999	0.18	0.045	0.15	0.037	0.21	0.039
2000	0.163	0.041	0.173	0.029	0.152	0.040

California 1-hr Ambient Air Quality Standard: 0.25 ppm
National Annual Ambient Air Quality Standard: 0.053 ppm
Source: CARB Air Quality Data CD, 2000, and CARB web site, http://www.arb.ca.gov/adam/, Accessed Dec. 2001.

INHALABLE PARTICULATE MATTER (PM_{10})

As **AIR QUALITY Table 7** indicates, the project area also annually experiences a number of violations of the state 24-hour PM_{10} standard. The violations of the state 24-hour standard occur predominately between the months of October and February, with the highest number of violations occurring from October through January.

PM_{10} 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_x, SO_x and VOC from turbines, and ammonia from NO_x control equipment, given the right meteorological conditions, can form particulate matter in the form of nitrates (NO_3), sulfates (SO_4), and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere.

PM nitrate (mainly ammonium nitrate) is formed in the atmosphere from the reaction of nitric acid and ammonia. Nitric acid in turn originates from NO_x emissions from combustion sources. The nitrate ion concentrations during the wintertime are a significant portion of the total PM_{10}, and should be even a higher contributor to particulate matter of less than 2.5 microns ($PM_{2.5}$). The nitrate ion is only a portion of the PM nitrate, which can be in the form of ammonium nitrate (ammonium plus nitrate ions) and some as sodium nitrate. If the ammonium and the sodium ions associated with the nitrate ion are taken into consideration, PM nitrate contributions to the total PM would even more significant.

The air agencies in California are now deploying $PM_{2.5}$ ambient air quality monitors throughout the state. $PM_{2.5}$ ambient air quality attainment plans, if needed, are due to the EPA by 2005.

The highest PM concentrations are measured in the winter. During wintertime high PM episodes, the contribution of ground level releases to ambient PM concentrations is disproportionately high. The contribution of wood-smoke particles to the $PM_{2.5}$ concentrations may be even higher, considering that most of the wood-smoke particles are smaller than 2.5 microns.

AIR QUALITY Table 7
PM_{10} Air Quality Summary, 1992-2000

Year	Burbank, West Palm Avenue			Los Angeles, North Main Street		
	Days Above State Standard* (calculated)	Maximum Daily Average ($\mu g/m^3$)	Month of Maximum Daily Level	Days Above State Standard* (calculated)	Maximum Daily Average ($\mu g/m^3$)	Month of Maximum Daily Level
1992	108	222.0	Jan.	132	137.0	Apr.
1993	111	93.0	Jan.	156	104.0	Nov.
1994	66	114.0	Jan.	120	122.0	Jan.
1995	87	135.0	Nov.	84	141.0	Nov.
1996	87	110.0	Jan.	66	138.0	Jan.
1997	102	92.0	Oct.	90	102.0	Oct.
1998	54	75.0	Jan.	66	80.0	Apr.
1999	126	82.0	Sep.	114	88.0	Jan.
2000	54	70.0	Jan.	60	61.0	Mar.

California Ambient Air Quality Daily Standard: 50 $\mu g/m^3$
National Ambient Air Quality Daily Standard: 150 $\mu g/m^3$
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed June 2001.

***** Days above the state standard (calculated): Because PM_{10} is monitored approximately once every six days, the potential number of violation days is calculated by multiplying the actual number of days of violations by six.

Fine Particulate Matter ($PM_{2.5}$)

As **AIR QUALITY Table 8** indicates, the 98th percentile 24-hour average and annual average $PM_{2.5}$ concentration levels have generally been declining at the North Long Beach and Azusa monitoring stations since 1991. The 3-year 24-hour average concentrations at these two stations have been below or just marginally above the proposed standard of 65 $\mu g/m^3$ since 1994. The 3-year average of annual arithmetic means (national annual average) measured at these two monitoring stations have dropped substantially since 1991, but remain above the proposed NAAQS of 15 $\mu g/m^3$. The South Coast air basin is expected to be determined to be in nonattainment of the $PM_{2.5}$ standards in the future when the EPA makes the initial attainment designation determination for the air basin.

AIR QUALITY: Table 8

$PM_{2.5}$ Air Quality Summary, 1991-1998 ($\mu g/m^3$) [a]

Year	North Long Beach				
	Max. Daily Average	98th Percentile of Max. Daily Average	3-Yr. Avg. 98th Percentile of Max. Daily Average	Annual Average	3-Yr. Annual Average
1991	101	100.7	85.7	30.4	26.7
1992	45	44.7	76.6	21.1	25.1
1993	63	54	66.5	20.9	24.1
1994	65	60	52.9	20.2	20.7
1995	60	54	56	19.9	20.3
1996	81	81	65	20.1	20.1
1997	51	49	61.3	17.0	19.0
1998	42	39	56.3	16.0	17.7
	Azusa				
	Max. Daily Average	98th Percentile of Max. Daily Average	3-Yr. Avg. 98th Percentile of Max. Daily Average	Annual Average	3-Yr. Annual Average
1991	98	87.3	86.3	34.8	30.7
1992	81	60	77.0	24.6	28.1
1993	71	68	71.8	24.0	27.8
1994	87	58	62.0	23.2	23.9
1995	83	82	69.3	25.4	24.2
1996	52	48	62.7	21.2	23.2
1997	68	68	66.0	17.6	21.4
1998	57	37	51.0	15.5	18.1

Proposed National Ambient Air Quality Standards:
3-Year Average - 98th Percentile of 24-Hr Avg. Concentrations, 65 $\mu g/m^3$;
3-Year Average of Annual Arithmetic Mean (National Annual Average), 15 $\mu g/m^3$
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.
Note(s):
a. More recent data for this pollutant is not readily available.

SULFUR DIOXIDE (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel that contains sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast, fuels high in sulfur content such as lignite (a type of coal) emit very large amounts of SO_2 when combusted.

Sources of SO_2 emissions within the South Coast Air District come from every economic sector and include a wide variety of fuels, gaseous, liquid and solid. The South Coast air basin is designated attainment for all the SO_2 state and federal ambient air quality standards. **AIR QUALITY Table 9** shows the historic 1-hour, 24-hour and annual average SO_2 concentrations measured at the Burbank, West Palm Avenue and Los Angeles, North Main Street monitoring stations. As **AIR QUALITY Table 9** and **AIR**

QUALITY Figure 1 show, concentrations of SO_2 are far below the state and federal SO_2 ambient air quality standards.

AIR QUALITY Table 9
SO_2 Air Quality Summary, 1992-1999

Year	Burbank, West Palm Avenue			Los Angeles, North Main Street		
	Maximum 1-hr Average (ppm)	Maximum 24-hr Average (ppm)	Annual Average (ppm)	Maximum 1-hr Average (ppm)	Maximum 24-hr Average (ppm)	Annual Average (ppm)
1992	0.030	0.009	0.0010	0.050	0.010	0.0015
1993	0.080	0.010	0.0012	0.010	0.007	0.0003
1994	0.030	0.009	0.0021	0.021	0.009	0.0017
1995	0.008	0.005	0.0007	0.013	0.008	0.0023
1996	0.010	0.006	0.0011	0.014	0.009	0.0024
1997	0.035	0.006	0.0016	0.020	0.011	0.0018
1998	0.010	0.007	0.0012	0.090	0.006	0.0014
1999	0.010	0.003	0.0004	0.053	0.010	0.0033
2000	0.009	0.004	0.001	0.075	0.007	0.001

California Hourly Ambient Air Quality Standard: 0.250 ppm
California 24-hr Ambient Air Quality Standard: 0.040 ppm
National Annual Ambient Air Quality Standard: 0.030 ppm
Source: CARB Air Quality Data CD, 2000 and CARB web site, http://www.arb.ca.gov/adam/ Accessed Dec. 2001.

Visibility

The conditions of visibility in the region of the project site are dependent upon the relative humidity natural to the area and the intensity of both particulate and gaseous pollution in the atmosphere. The most straightforward characterization of visibility is probably the visual range (the greatest distance that a large dark object can be seen). However, in order to characterize visibility over a range of distances, it is more common to analyze the changes in visibility in terms of the change in light-extinction that occurs over each additional kilometer of distance (1/km). In the case of a greater light-extinction, the visual range will decrease.

The South Coast air basin is currently designated as unclassified for visibility reducing particles.

Summary

In summary, staff recommends using the background ambient air concentrations in **AIR QUALITY Table 10** for modeling and evaluating potential ambient air quality impacts from the proposed project.

AIR QUALITY Table 10
Staff Recommended Background Concentrations

Pollutant	Averaging Time	Concentration ($\mu g/m^3$)	Concentration (ppm)
Ozone	1 Hour	354	0.177
Particulate Matter	Annual Geometric Mean	40.59	---
	Annual Arithmetic Mean	43.73	---
	24 Hour	82	---
Carbon Monoxide	8 Hour	8,333	7.5
	1 Hour	10,580	9.2
Nitrogen Dioxide	Annual Average	84.9	0.045
	1 Hour	336	0.179
Sulfur Dioxide	Annual Average	3.1	0.0012
	24 Hour	18.3	0.007
	3 Hour	23.6	0.009
	1 Hour	26.2	0.010

Three years of complete monitoring data (1998 to 2000) for the Burbank monitoring site was used as the basis for the recommended background concentrations. Staff does not believe that the other monitoring stations the Applicant used to determine worst-case background concentrations are pertinent due to the close proximity of the Burbank monitoring station to the project site. For the 8-hour CO concentration an average of the highest single 8-hour average concentration in each year, 1998 through 2000, was used, while for the other pollutants the maximum value in any of the three years was used. The MPP project's construction and operation will likely not start until at least 2003 and 2005, respectively, so the recommended 8-hour CO background concentration was adjusted to account for the expected reductions in future CO concentrations. This anticipated reduction in future CO concentrations was demonstrated in practice in 2001, when the maximum 8-hour CO concentration monitored in Burbank was found to be only 5.0 ppm. The 3-hour SO_2 concentration was determined based on multiplying the maximum 1-hour concentration by 0.9. With the exception of the 8-hour CO concentration, the recommended background concentrations were not adjusted (i.e. lowered) to consider SCAQMD predicted reductions in future background concentrations; and staff considers all of these recommended background concentrations to be conservative.

PROJECT DESCRIPTION AND EMISSIONS

This section describes the project construction and the operating design and criteria pollutant control devices as described in the Magnolia Power Project AFC (MPP 2001a).

CONSTRUCTION

The proposed project construction schedule will require approximately 2 months for demolition and removal of the existing boilers (Magnolia Units 1 and 2) and approximately 25 months for site preparation, foundation work, equipment and structural facilities installation, startup and commissioning. During the construction period, air emissions will be generated from the exhaust of heavy equipment and fugitive dust from activity on unpaved surfaces. Heavy equipment would include loaders and haul trucks

to remove demolished facilities, graders, cranes, lifts, and smaller equipment such as welders, generators, and air compressors. Fugitive dust emissions will occur due to activity on areas of the 3-acre site that are unpaved. **AIR QUALITY Table 11** summarizes the estimated levels of criteria pollutants generated from the construction activities at the Magnolia Power Project site (SCPPA, 2001).

Air Quality Table 11
MPP Estimated On-Site Construction Emissions
(Maximum Hourly Emissions and Annual Tons)

	NO_x		CO		VOC		SO_2		PM_{10}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Construction Equipment	21.8	17.66	14.9	11.28	2.5	2.05	1.8	1.49	1.3	1.08
Fugitive Dust	---	---	---	---	---	---	---	---	1.7	1.77

Source: MPP Appendix H.3, Table H.3-1 and H.3-3, pg. H-76.

The construction vehicle emissions provided above were based on SCAQMD's CEQA Handbook (SCAQMD 1993) emission factors and load factors, and the estimated number of operational hours for each piece of equipment throughout project construction outlined in Appendix H.3 of the AFC (MPP 2001a). The emission estimates provided above do not include the potential emission reductions that will occur based on the application of tailpipe emission controls required in Condition of Certification **AQ-C3**, and use somewhat dated emission factors that may overestimate the potential equipment emissions.

The Magnolia Power Project will use a new on-site underground electrical circuit and new on-site fuel piping. Potable and reclaimed water supply and wastewater systems will be through existing systems. Therefore, only on-site construction will be necessary for this project.

OPERATIONAL PHASE

Equipment Description

The major equipment proposed in the application includes the following:

- One F-Class (General Electric GE 7FA) combined cycle combustion turbine generator (CTG) nominally rated at 158 MW at 95°F and 26.6% relative humidity (MPP 2002a). The CTG includes dry low-NO_x combustors for NO_x reduction. The heat recovery steam generator (HRSG) includes supplemental duct burners, with a maximum total duct burner heat input of 600MMBtu/hr, and an integral SCR and oxidation catalyst pollution control system to control NO_x, CO and VOC emissions from the CTG. The steam turbine generator (STG) system will be nominally rated at 94 MW without firing the duct burners in the HRSG and 147 MW with full firing of the duct burners. Total net output, at 95°F and 26.6% relative humidity with the evaporative cooler in operation, is approximately 245 MW without power augmenting steam injection and without duct firing and up to approximately 311 MW with steam injection and duct firing.

- Aqueous ammonia storage (12,000 gallon), vaporization, and injection system for SCR.
- Cooling system with a 6-cell conventional counter-flow mechanical draft evaporative cooling tower with mist eliminators to minimize drift.
- A continuous emission monitoring (CEM) system.
- A zero liquid discharge (ZLD) system will be incorporated as part of the design to eliminate discharge to the Burbank Western Channel.

Equipment Operation

The Magnolia Power Project will be located adjacent to the existing City of Burbank (COB) Power Generating Facility. The existing COB power station has been operating since 1941 and currently provides a net plant output of 226 MW, generated by the existing Olive and Magnolia units. Although the SCPPA is the Applicant for the MPP, the COB will operate the MPP. The project will be located on approximately 3 acres, completely within the boundaries of the existing 23-acre site.

The project will provide approximately 250 MW nominally at base load. Duct firing and/or steam injection will be included to achieve up to approximately 315 MW during peaking. The SCPPA members, including the Cities of Anaheim, Burbank, Colton, Glendale, and Pasadena, will primarily use the output from the project; but during periods of low demand by the SCPPA members, the unneeded capacity and energy may be made available to the wholesale power market.

Emission Controls

The CTG will be equipped with dry low-NO_x combustors controlling NO_x to 9 ppmvd @ 15%O_2 upstream of the HRSG under normal operating conditions, and to 12 ppmvd @ 15%O_2 under steam injection conditions. SCR and oxidation catalyst systems integral to the HRSG will be used to further reduce NO_x and reduce CO emissions. The SCR system will use ammonia vapor in the presence of a catalyst to further reduce NO_x exhaust concentrations to 2.0 ppmvd @ 15%O_2 (3-hour average), excluding startup and shutdown operations (MPP 2001k, page AQ-24). The SCR system will also reduce VOC emissions to less than 2 ppm @ 15%O_2 (1-hour average) under all operating conditions (MPP 2001o, page AQ-8). Good combustion practices and the oxidation catalyst will reduce CO concentrations to no more than 2.0 ppmvd @ 15%O_2 (1-hr average) (MPP 2001k, page AQ-24). Ammonia slip will be limited to 5 ppmvd @ 15%O_2 (1-hour average) (SCAQMD 2002d, page 44).

Continuous emission monitors (CEMs) are proposed by SCPPA to be installed on the exhaust stack to monitor NO_x, CO, oxygen, and carbon dioxide concentrations to assure adherence with the proposed emission limits. The CEM system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant's control room when the level of emissions approaches or exceeds pre-selected limits.

The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, will limit the formation of PM_{10} and SO_2 emissions. Natural gas contains very little noncombustible gas or solid residues and a small amount of reduced sulfur compounds

including mercaptan, thus resulting in relatively low emissions of the above mentioned pollutants.

The cooling tower PM_{10} emissions will be controlled using drift eliminators with an efficiency of 0.0006 percent (MPP 2001o, page AQ-2).

The ZLD system is a completely wet process that does not have any direct air emission sources. The Applicant initially designed the system with a filter cake dryer, but that unit has been eliminated from the design. The wet filter cake from the filter press will be trucked to a licensed disposal site. The ZLD system will consume electricity and therefore will lower the efficiency of the MPP and cause a small indirect increase in pollutant emissions; however, the secondary emission impacts are already incorporated in the maximum pollutant emission estimates provided herein for the MPP.

Project Operating Emissions

Air emissions will be generated from operating the major project components. **AIR QUALITY Tables 12 and 13** summarize the maximum (worst-case) estimated levels of the different criteria pollutants associated with project operation. The assumptions used in calculating the emissions in these tables include:

- emission factors guaranteed by the manufacturer,
- facility operation of 24 hours per day, available for 95 percent of the year, for a total of 8,322 hours per year,
- operating scenarios generating maximum daily emissions, based on the following assumptions:
    a. one cold start for four hours, 12 hours of duct firing, and full-load operation of the combustion turbine without duct firing for the remaining 8 hours of the day.
    b. cooling tower operation of 24 hours per day.
- operating scenarios generating maximum monthly emissions, based on the following assumptions:
- Load Following Scenario (for maximum CO emissions only)
    a. 16 hours of cold starts, 8.4 hours of warm starts and 4 hours of shutdown per month.
    b. full-load operation of the combustion turbine without duct firing for 163.6 hours per month and 240 hours per month with duct firing.
    c. cooling tower operation of 432 hours per month.
- Baseload Scenario
    a. full-load operation of the combustion turbine without duct firing for 480 hours per month and 240 hours per month with duct firing.
    b. cooling tower operation of 720 hours per month.
- operating scenarios generating maximum annual emissions were based on the following assumptions:
- Load Following Scenario (for maximum CO emissions only)
    a. cold starts 52 times per year, warm starts 52 times per year, and 104 shutdowns per year, totaling approximately 369.2 annual hours.

b. full-load operation of combustion turbine without duct firing for 3,209 annual hours and no more than 1,000 hours per year of duct firing.
c. cooling tower operation of 4,578 hours per year.

Baseload Scenario

a. full-load operation of combustion turbine without duct firing for 7,322 annual hours and no more than 1,000 hours per year of duct firing.
b. cooling tower operation of 8,322 hours per year.

The proposed project's hourly emissions of criteria air pollutants are shown in **AIR QUALITY Table 12**. As this Table shows, the highest NO_x, CO, and VOC emissions occur during startup and shutdown periods, because the pollution control devices are not at optimal operating conditions. It should be noted that PM_{10} startup emissions do not continue for a full hour (MPP 2001k, page AQ-33). No duct burning was assumed during turbine startup because duct burning cannot begin until the turbine reaches 100% load conditions. PM_{10} shutdown emissions, however, assume the duct burners have been operating. Additionally, NO_x shutdown emissions do not take into consideration the efficiency of the SCR. Thus, it was conservatively assumed that there will be no control during shutdown (MPP 2001k, page AQ-34).

AIR QUALITY Table 12
MPP Maximum Hourly Emissions, lb/hr

Operational Source (Condition)	NO_x	CO	VOC	SO_2	PM_{10}	NH_3
Combustion Turbine (Cold Start, 4.0 hr)[b]	36.25	125.0	10.0	1.31	12.0	4.76
Combustion Turbine (Warm Start, 2.1 hr)[b]	42.86	142.86	9.52	1.31	12.0	9.07
Combustion Turbine (Hot Start, 1.5 hr)[b]	33.33	190.0	13.33	1.31	12.0	7.93
Combustion Turbine (Shutdown, 0.5 hr)[b]	50.0	240.0	34.0	1.31	12.0	5.96
Combustion Turbine w/ Duct Firing (95°F)	17.24	10.49	6.00	1.71	18.0	15.93
Combustion Turbine w/o Duct Firing (41°F)	13.16	8.01	4.58	1.31	12.0	12.16
Cooling Tower[a]	---	---	---	---	1.26[a]	---

Sources: MPP 2002a, Attachment 2, SCAQMD 2002d (offset calculation emissions basis).
Note(s):
a. The Applicant has assumed a total of 0.48 lbs/hr based on Electric Power Research Institute (EPRI) test cell for a 0.0003% drift rate (MPP 2001o, page AQ-4, Table AQ-2) to determine droplet size fraction and deposition. Staff does not agree with the methodology and has revised the emission estimate to disregard the deposition assumption.
b. Maximum hourly emission rates given for starts and shutdowns are averages for the time period of each event, the actual maximum emissions in any 60 minute period may be higher.

The Applicant's cooling tower PM_{10} emission estimate includes the assumption that 38.02% (by weight) of the drift water droplet emissions are in small droplets that are "atmospherically dispersible", while 61.98% of the drift water emissions are composed of large water droplets that are deposited on-site. The maximum potential PM_{10} emissions from the cooling tower assuming that none of the emissions are deposited on-site, or that the deposited emissions are later re-entrained, is 1.26 lbs/hour. Using the Applicant's assumptions would mean that 61.98% of the particulate emissions, or as much as 3.25 tons/year, is deposited on-site. This is an equivalent of 130 50-lb bags of crushed limestone being deposited on the site each and every year. In the approximate thirty-year lifetime of the project, using the Applicants deposition assumption, a total of almost 100 tons of fine particulate (equivalent to 3,900 50-lbs bags of crushed

limestone) would deposit on the site. It is the Applicant's contention (MPP 2002l, DR 198) that the regular housekeeping and the site's high walls would limit the re-entrainment of the fine particulate that they assume is deposited on-site.

The Applicant's cooling tower emissions analysis was performed using the assumptions and methodology accepted for the Blythe Energy Project. The Blythe Energy Project is located in the Mojave Desert air basin, which is in attainment for the federal PM_{10} ambient air quality standard. Therefore, the analysis done for the Blythe Energy Project did not required the level of detail that is required for the Magnolia Power Project, which is located in the South Coast air basin and is in non-attainment for both the federal and state PM_{10} ambient air quality standards. The Blythe Energy Project does not set precedence for determining cooling tower PM_{10} emissions. For many recent projects, such as the San Joaquin Valley Energy Center (01-AFC-22) and the Avenal Energy Project (01-AFC-20), cooling towers are permitted by the local agency and PM_{10} emissions and these emissions, without including a deposition fraction assumption, are included in the facility PM_{10} emissions total for offset purposes.

Staff does not agree that the PM_{10} deposition assumption used by the Applicant is reasonably supported with actual particulate source test data. Additionally, without source testing of the MPP cooling tower's mist eliminator, its actual operating efficiency cannot be verified. Therefore, considering these uncertainties, staff has assumed that all of the particulate matter released by the cooling tower will be PM_{10} emissions. Staff's corrected cooling tower emission rate is reflected in all of the emission estimates, all of the modeling analyses, and offset calculations presented in this document.

AIR QUALITY Table 13 summarizes the maximum (worst case) daily, monthly and annual estimated criteria pollutants emissions from the project, using the operating emissions assumptions provided above. Annual emissions are estimated based on the operating scenarios that provide for 100% load, including startup/shutdown emissions and 1,000 annual hours of duct firing.

AIR QUALITY Table 13
MPP Estimated Maximum Daily, Monthly and Annual Emissions

Pollutant	NO_x	CO	VOC	SO_2	PM_{10}	NH_3
Daily Emissions (lb/day)						
Combustion Turbine Cold Start (4.0 hr * 1 event = 4.0 hours)	145	500	40	5.2	48.0	19.04
Combustion Turbine w/ Duct Firing (95°F) (12 hours) [c]	206.9	125.9	72.0	20.5	216.0	191.16
Combustion Turbine w/o Duct Firing (41°F) (8 hours)	105.3	64.1	36.6	10.5	96.0	97.3
Cooling Tower (24 hours)	---	---	---	---	30.24	---
Total Maximum Daily Emissions	457	690	149	36	360	307.5
30-Day Avg. Daily Emissions [b] (for Non-RECLAIM pollutants)	NA[b]	**266**	**121**	**35**	**336**	NA[b]
Monthly Load Following Scenario Emissions (lb/month)						
Combustion Turbine Cold Start (4.0 hr * 4 events = 16 hours)	580	2,000	160	20.8	192.0	76.2
Combustion Turbine Warm Start (2.1 hr * 4 events = 8.4 hours)	360.0	1,200	80.0	11.0	100.8	76.2
Combustion Turbine Shutdown (0.5 hr * 8 events = 4 hours)	200.0	960.0	136.0	5.24	48.0	23.8
Combustion Turbine w/ Duct Firing (95°F) (240 hours) [c]	4,138	2,518	1,440	410.4	4,320	3,823
Combustion Turbine w/o Duct Firing (41°F) (163.6 hours)	2,153	1,310	749.3	214.3	1,963	1,989
Cooling Tower (432 hours)	---	---	---	---	544	---
Total Monthly Load Following Scenario Emissions[a]	7,431	**7,988**	2,565	661	6,624	5,988
Monthly Baseload Scenario Emissions (lb/month)						
Combustion Turbine w/ Duct Firing (95°F) (240 hours) [c]	4,138	2,518	1,440	410	4,320	3,823
Combustion Turbine w/o Duct Firing (41°F) (480 hours)	6,317	3,845	2,198	629	5,760	5,837
Cooling Tower (720 hours)	---	---	---	---	907	---
Total Monthly Baseload Scenario Emissions[a]	10,455	6,363	**3,638**	**1,039**	**10,987**	9,660
Annual Load Following Scenario Emissions (lb/year)						
Combustion Turbine Cold Start (4.0 hr * 52 events = 208 hours)	7,540	26,000	2,080	272	2,496	990
Combustion Turbine Warm Start (2.1 hr * 52 events = 109.2 hours)	4,680	15,600	1,040	143	1,310	990
Combustion Turbine Shutdown (0.5 hr * 104 events = 52 hours)	2,600	12,480	1,768	68	624.0	310
Combustion Turbine w/ Duct Firing (95°F) (1,000 hours)	17,240	10,490	6,000	1,710	18,000	15,930
Combustion Turbine w/o Duct Firing (41°F) (3,208.8 hours)	42,227	25,702	14,696	4,204	38,505.6	39,019
Cooling Tower (4,578 hours)	---	---	---	---	5,768	---
Total Annual Load Following	74,287	**90,272**	25,584	6,397	66,703	57,239

Pollutant	NO_x	CO	VOC	SO_2	PM_{10}	NH_3
Scenario Emissions[a]						
Total Annual Load Following Scenario Emissions (tpy)	37.14	**45.14**	12.79	3.20	33.35	28.62
Annual Baseload Scenario Emissions (lb/year)						
Combustion Turbine w/ Duct Firing (95°F) (1,000 hours)	17,240	10,490	6,000	1,710	18,000	15,930
Combustion Turbine w/o Duct Firing (41°F) (7,322 hours)	96,358	58,649	33,535	9,592	87,864	89,036
Cooling Tower (8,322 hours)	---	---	---	---	10,486	---
Total Annual Baseload Scenario Emissions[a]	**113,598**	69,139	**39,535**	**11,302**	**116,350**	**104,966**
Total Annual Emissions Baseload Scenario (tpy)	**56.80**	34.57	**19.77**	**5.65**	**58.18**	**52.48**

Source: MPP 2002a, Attachment 2, and SCAQMD 2002d.
Note(s):
a. The load following scenario provides maximum CO emissions ONLY. Baseload emissions for NO_x and VOC are higher due to higher fuel use. Baseload emissions for PM_{10} are higher due to higher fuel use and higher water recirculation flows.
b. 30-Day Average Emissions from SCAQMD 2002d offset calculations. This value is not used for NO_2, which is offset under RECLAIM; or NH_3, which does not require offsets. The PM_{10} value does not include the cooling tower emissions.
c. Average daily amount of duct firing during the worst-case month is 8 hours per day. Maximum daily emissions include 12 hours per day of duct burning.
Bold numbers indicate maximums used for offset calculations.

In order to assess the effects of the project's impacts relative to the existing COB power plant emissions, emissions data for the existing emission sources were provided. **AIR QUALITY Table 14** summarizes the maximum (worst case) hourly (for NO_x) and annual emissions from the existing units.

Air Quality Table 14
Existing City Of Burbank Power Plant
Estimated Maximum Hourly and Annual Emissions

Unit	NO_x (tpy)	NO_x [a] (lb/hr)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)
Olive 1	26.5	45.4	22.2	0.16	2.0
Olive 2	33.8	71.2	0.2	27.2	2.5
Olive 3	15.9	---	4.8	0.03	0.4
Olive 4	9.1	158.9	2.8	0.02	0.2
Magnolia 5	5.5	112.7	1.7	0.01	0.1

Source: AFC (MPP 2001a), Table 5.2-36, pg. 5.2-52.
Note(s):
a. Hourly NO_x data for Olive 3 was not provided.

The existing units that will continue to operate after the installation of the Magnolia Power Project and the installation of a proposed LM6000 peaker turbine, to be owned and operated by the COB, are natural-gas fired utility boilers Olive Units 1 and 2. These two existing boilers are scheduled to be retrofit with flue gas recirculation (FGR) and selective catalytic reduction (SCR) by the time that the MPP begins operations in 2004. Historical fuel use data for July 1998 through June 2000 was used by SCPPA in

conjunction with emission factors (from AP-42, U.S. EPA, 2000) to estimate existing worst-case emissions.

Additionally, the Magnolia 3 and 4 cooling towers will be demolished. The PM_{10} emissions from these two cooling towers was approximately 12 to 24 tons/year, using historic operating data from 1995 to 1997, depending on the assumed tower's operating cycles of concentration (MPP 2002l; DR 199).

INITIAL COMMISSIONING

The initial commissioning of a power plant refers to the time frame between the completion of the construction and the consistent production of electricity for sale on the market. For most power plants, operating emission limits usually do not apply during the initial commissioning procedures. Normally, during initial commissioning the post-combustion control systems (i.e. the SCR and oxidation catalyst) are not operational.

Startup and commissioning for the MPP combustion turbine is considered part of the construction phase of the project and is estimated to last seven weeks from first fire to full load commercial operation.

The range of commissioning activities for each CTG includes the following: 1) first fire; 2) install SCR catalyst; 3) full speed, no load and first sync testing; 4) emission/pulsation tune; 5) low load operation; 6) steam blows; 7) condenser bypass test; 8) STG commissioning; 9) power train optimization and tuning; 10) full load performance and CEMS certification; 11) full load rejection testing; and 12) full load run back. Fuel consumption data and load conditions for each commissioning event are provided in **AIR QUALITY Table 15**.

AIR QUALITY TABLE 15
Estimated Turbine Commissioning Emissions

						Steady State Operation*			
Commissioning Activities	**Total CTG Starts Per Task**			**Total Operation**	**Total Heat Consumed**	**Avg. CTG Load**	**NO_x**	**CO**	**VOC**
Task	Cold	Warm	Hot	(Hours)	(MMBtu, LHV)	(%)	(lb/hr)	(lb/hr)	(lb/hr)
1 First Fire	1			3	4,450	10	159.1	**200.0**	4.31
2 Install SCR Catalyst		1		0	1,970	0	10.65	6.41	1.89
3 Full Speed, No Load, and First Sync	1		1	8	7,980	10	159.1	**200.0**	4.31
4 Emission/Pulsation Tune		1	1	8	9,680	40	6.73	178.2	9.18
5 Low Load		1	1	4	5,470	20	**192.1**	77.77	**13.64**
6 Steam Blows (with duct firing)	1	1		110	201,300	100	10.65	19.41	11.15
7 Condenser Bypass Test (no duct firing)	1	1		10	20,000	100	10.65	6.41	1.89
8 STG Commissioning	1	1	1	72	90,020	70	8.69	5.08	1.58
9 Power Train Optimization and Tuning		1		40	53,140	80	9.34	5.51	1.68
10 Full Load Performance Test and CEMS Certification		2	1	327	497,180	100	10.65	6.41	1.89
(with duct firing)				40	71,400	100	10.65	19.41	11.15
11 Full Load Rejection Testing		1	1	3	7,580	100	10.65	6.41	1.89
(with duct firing)			1	3	6,450	100	10.65	19.41	11.15
12 Full Load Run Back	1	1	1	5	13,570	100	10.65	6.41	1.89
(with duct firing)			1	3	6,450	100	10.65	19.41	11.15

Source: MPP 2001o, page AQ-7, Table AQ-4.
Note(s):
The emissions estimates shown include the effects of a CO catalyst reducing CO levels to 6 ppm and VOC levels by 30%, and SCR reducing NO_x levels to 2 ppm. The SCR effects are assumed to begin taking effect when the CTG is at 40% of base load, and the CO catalyst at 11% CTG load. (MPP 2001a, Appendix H.12, page H-178)
The emission estimates are based on Black & Veatch estimate of GE 7FA gas turbine performance during transient operation, on typical 1x1 combined cycle plant startup curves, and plant startup procedures for Black & Veatch projects. The estimates cannot be guaranteed.
The first month of the commissioning phase is passed after Task 8.
Total startup emissions during transient operation are defined as uncontrolled emissions from zero load to the average CTG load as indicated in the table for steady state operation.
Ambient temperature for steady state operation is assumed to be 95 °F.
Emissions estimates do not include cooling tower or emergency generator.
Numbers shown in BOLD were used in the commissioning modeling analysis.
* During each commissioning event, the plant is frequently operated at different loads and in transient states. The standard deviation from the average load is expected to be up to 50%. Therefore, the stack emissions, exhaust flow and temperatures are expected to vary significantly during each commissioning event and the accuracy of this estimate is to be considered low.

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. Air dispersion modeling provides estimates of the ground level concentrations of the pollutants emitted by the proposed project.

When the AFC was initially submitted to the Energy Commission the Applicant had not determined whether they were going to use a GE or Westinghouse model turbine. Their initial screening modeling analysis determined which turbine provided the worst-case impacts for each pollutant; and the refined modeling analysis modeled the worst-case turbine, generally the Westinghouse turbine, for each pollutant analyzed. The Applicant eventually selected the GE 7F model turbine. Remodeling to consistently use GE 7F turbine emissions and exhaust parameters, which are slightly different that the Westinghouse turbine values, was not considered necessary since the original modeling analysis presents slightly more conservative impact results (i.e. does not under predict impacts). Therefore, some of the project impact results presented in this assessment are slightly higher than expected for the GE 7F turbine.

The Applicant used the EPA-approved ISCST3 model to estimate the worst-case impacts of the project's estimated NO_x, PM_{10}, CO and SO_x emissions resulting from project construction and operation. The ISC model is a steady-state Gaussian plume model, appropriate for regulatory use that can be used to assess pollution concentrations from a wide variety of sources associated with an industrial source complex. Modeled impacts were added to the available highest ambient background concentrations measured during 1997 through 1999 at the Burbank – West Palm Avenue monitoring station, the Los Angeles – North Main Boulevard monitoring station, or the Pasadena – South Wilson Avenue monitoring station (MPP 2001a, Table 5.2-40, page 5.2-67). Staff presentation of the modeling results has modified some of the total impact values presented by the Applicant by using more appropriate 1998 to 2000 background concentration data from the Burbank monitoring station. Staff does not believe that the other monitoring stations the Applicant used to determine worst-case background concentrations are pertinent due to the close proximity of the Burbank monitoring station to the project site. The Applicant in focused modeling analyses, performed subsequent to the initial modeling analysis, used the staff recommended background concentration values. A summary of the monitoring data, as well as a discussion regarding the staff recommended background concentrations, are provided in the **Setting** section.

Staff compared the results of the modeling analysis with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or significantly contribute to an existing violation.

The Applicant has used the SCREEN3 model to determine worst-case 1-hour NO_2, CO and SO_2 impacts under fumigation conditions. The SCREEN3 model is a steady-state Gaussian plume model, appropriate for the screening level modeling of single point sources to assess worst-case impacts.

For 1-hour average construction and commissioning NO_x modeling, the Applicant provided a refined modeling analysis using the ozone limiting method (OLM) model (ISC3_OLM, Version 96113). This method calculates the maximum NO to NO_2 conversion using ozone concentration files to determine maximum 1-hour NO_2 concentrations assuming that 10 percent of the exhaust NO_x is initially in the form of NO_2 and that there is a 100% conversion of NO to NO_2 through a chemical reaction with the ozone as the exhaust plume is blown downwind. This method is somewhat conservative in that it does not consider mixing or ozone consumption limitations in determining maximum NO_2 concentrations. This modeling method is accepted by the USEPA and CARB for 1-hour NO_2 modeling. For the commissioning modeling, the Applicant revised the initial stack NO_2 concentration assumption from 10% to 25% as requested by staff.

Inputs for the modeling include stack information (exhaust flow rate, temperature, and stack dimensions), emission data and meteorological data, such as wind speed, atmospheric conditions, and site elevation. For this project, the meteorological data used as inputs to the model included hourly wind speeds and directions measured at the SCAQMD Burbank station in 1981. The Applicant was required to use this meteorological data set in their SCAQMD permit application, and 1981 meteorological data is generally considered a worst-case year for modeling purposes.

The Applicant modeling input and output files (MPP 2001b, 2001g, 2002a, 2002b) were reviewed by staff. The operational PM_{10} emissions were remodeled by staff to include a correction to the cooling tower PM_{10} emission estimate.

CONSTRUCTION IMPACTS

The Applicant modeled the emissions of the on-site construction activities, including the demolition and removal of the existing boilers (Magnolia Units 1 and 2). This analysis was completed using the ISCST3 model (Version 00101). A simplified approach of four point source stacks for modeling construction equipment was employed. The following information was also added to refine the construction emissions modeling analysis:

- Effective plume height of 3.05 meters was used for all equipment exhaust emissions.
- Assumed stack diameter of 0.15 meters, exit velocity of 40 m/s, and exhaust temperature of 700°F.
- Fugitive dust emissions were modeled as a single volume source with a release height of 3.05 meters.
- Approximate on-site fugitive dust source area was estimated to be 3.1 acres.
- Receptors were placed approximately every 25 meters along the property boundary at 25-meter increments to a distance of 500 meters, at 100-meter

increments to a distance of 1 kilometer, and at 250-meter increments to a distance of 10 kilometers.

- The 1-hour NO_x emissions were modeled from 7 am to 5 pm, while the 1-hour SO_2 and CO emissions were modeled from 6 am to 5 pm to represent the daily construction schedule. Temporal operating files were not used for the modeling of the other pollutant/timeframe combinations.
- The SCAQMD default Ambient Ratio Method (ARM) ratio of 0.71 was used to determine maximum annual average NO_2 concentrations.

AIR QUALITY Table 16 provides the results of the Applicant modeling analysis.

AIR QUALITY Table 16
MPP Ambient Air Quality Impact
Applicant Construction Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$) [b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard (%)
NO_2	1-Hour	325.9	195.5	**521.4**	470	CAAQS	**111**
	Annual [a]	13.2	84.9	98.1	100	NAAQS	98
PM_{10}	24-Hour	32.5	**82**	**114.5**	50	CAAQS	**229**
	Annual Geo. Mean	7.1	**40.59**	**47.69**	30	CAAQS	**159**
CO	1-Hour	370	10,580	10,950	23,000	CAAQS	48
	8-Hour	252	8,333	8,585	10,000	CAAQS	86
SO_2	1-Hour	45.7	26.2	71.9	655	CAAQS	11
	24-Hour	7.2	18.3	25.5	105	CAAQS	24
	Annual	1.1	3.1	4.2	80	NAAQS	5

Source: MPP 2001a, page H-77, Table H.3-4. NO_2 1-hour impacts from MPP 2002l, Addendum to Data Response 164.
Note(s):
a. Results based on ambient ratio method (ARM) using SCAQMD default ratio of 0.71.
b. Background concentration values for this table and all other modeling result tables have been adjusted to the staff recommended values shown in **AIR QUALITY Table 10;** with the exception of the 1-hour NO_2 background concentration, which is based on the monitored background concentration that corresponds to the hour that was found to have the worst case NO_x-OLM 1-hour modeling results using monitored hourly 1998 and 1999 ozone and NO_2 background values from the Burbank Palm Avenue monitoring site. This worst-case NO_x impact did not occur concurrent with maximum NO_2 background concentrations.

As can be seen from the modeling results provided in Table 16, with the exception of 24-hour and annual PM_{10} impacts and 1-hour NO_x impacts, construction impacts are below the state and national standards. However, the state 24-hour and annual PM_{10} standards are exceeded in the absence of construction emissions from the MPP. It should be noted that the ISCST3 model tends to over-predict PM_{10} construction emission impacts, and the Applicant modeling analysis was as rigorous as it could have been. Additionally, the use of all proposed construction mitigation measures and emission controls were not reflected in the model inputs or impact results. Staff believes that a more detailed modeling analysis would predict significantly lower offsite PM_{10} concentrations. The highest PM_{10} impacts are forecast to occur during the initial site preparation phase, and the PM_{10} emission impacts after that time are forecast to be significantly lower than the maximum impacts shown in Table 16. Additionally, the highest PM_{10} impacts occur at the fence line and drop sharply with distance from the site. Therefore, with the mitigation proposed these short-term impacts are not

considered to be significant, and are not expected to impact area residences or other sensitive receptors.

The high 1-hour NO_2 concentration modeled and provided in Table 16 is, to a large degree, an artifact of the modeling assumptions used in the NOx-OLM model. The NO_x emissions from construction are primarily from diesel engines, which typically emit NO_x at an NO/NO_2 ratio of 0.1 or less. The NO reacts with ozone over time to convert to NO_2. The approved ISC-OLM (Ozone Limiting Method) modeling technique uses an ozone concentration file that matches the meteorological file to identify maximum NO_2 conversion. The Plume Volume Molar Ratio Method (PVMRM) modeling technique, which is under review by EPA, goes one step further and considers the actual amount of ozone that mixes with and is consumed by the NO in the plume to determine the maximum near field NO_2 concentrations. The modeling results provided by the Applicant predicts that there is the potential for the NO_2 standard to be exceeded four hours of the year at the project fence line, but does not predict any exceedances of the standard beyond the fence line receptors. Therefore, considering the conservative nature of the NO2 modeling analysis staff believes that the project is not expected to cause exceedances of the 1-hour NO2 standard, and is not expected to significantly impact area residences or other sensitive receptors.

Staff was also concerned that there was the potential for other construction activities to occur concurrently on-site, such as the LM6000 turbine construction and the Olive Units 1 and 2 control equipment retrofit, that were not included in the construction modeling analysis provided by the Applicant. However, the LM6000 turbine construction is now complete, and the Olive Units 1 and 2 control equipment retrofit would only slightly overlap with the initiation of the MPP construction and in combination would not cause combined emissions that are higher than the maximum MPP construction emissions, which occur later in the MPP construction schedule (MPP 2002i, DR 162 to 164).

OPERATION IMPACTS

A screening model analysis, using the ISCST3 model, was performed to select the worst-case turbine (Westinghouse 501F versus GE 7FA). A turbine stack diameter of 19 feet (5.79 meters) and a stack height of 150 feet (45.72 meters) were assumed. Existing and proposed buildings and structures were included in the screening model analysis. The screening analysis showed that the Westinghouse turbine leads to the highest concentrations during non-startup conditions for all gaseous pollutants (NO_x, CO, VOC, SO_2). Therefore, Westinghouse stack parameters and emissions were used in the refined modeling analysis for gaseous pollutants. The Westinghouse turbine showed higher impacts for both 24-hour and annual concentrations of PM_{10} under duct burning conditions. Under non-duct burning conditions, the GE turbine showed higher impacts. Both types of turbines were included in the refined PM_{10} 24-hour and annual modeling analysis.

Pollutant emissions were based on the following operating scenarios for the refined modeling analysis (MPP 2001a, pg. 5.2-60 to 61):

- Hourly concentrations of CO, NO_2, and SO_2 were estimated assuming startup operating conditions. GE gas turbine exhaust parameters were used at a minimum operating load point of 50% to characterize the turbine exhaust.
- 8-hour CO was estimated assuming a cold startup for 4.0 hours and duct burning for the remaining 4.0 hours.
- 24-hour PM_{10} and SO_2 were estimated assuming a cold start for 4.0 hours, 12 hours of duct burning and 8 hours of non-duct burning at 100% load.
- Annual NO_2, PM_{10}, and SO_2 were estimated based on 1,000 hours of duct burning, 52 cold starts, 52 warm starts, 104 shutdowns, and 6,953 hours of operation at full load with no duct burning.

It should be noted that all operations impact analyses were based on the emissions shown in **AIR QUALITY Table 12** through **AIR QUALITY Table 13**.

Operational Modeling Analysis

The EPA approved ISCST3 model (Version 00101) was used to identify the potential ambient air quality impacts from the project's operation. The maximum hourly emissions, as provided in **AIR QUALITY Table 12,** were modeled for each pollutant to determine the short-term impacts (1-hour, 3-hour, 8-hour and 24-hour). For the determination of the maximum short-term impacts, startup (cold and warm), shutdown, with duct firing and without duct firing case emissions were modeled. The maximum daily and annual emissions, as provided in **AIR QUALITY Table 13**, were modeled to determine the daily and annual impacts. The maximum hourly and annual emissions are provided in **AIR QUALITY Table 14**.

AIR QUALITY Table 17 presents the results of the modeling analysis of maximum ground level impacts due to operation of the facility.

AIR QUALITY Table 17
MPP Ambient Air Quality Impacts
Applicant Operation ISC Modeling Results

Pollutant	Averaging Period	Project Impact [a] ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard (%)
NO_2	1-Hour	38.5	336	374.5	470	CAAQS	80
	Annual	0.28	84.9	85.18	100	NAAQS	85
PM_{10} [b]	24-Hour	3.28	**82**	**85.3**	50	CAAQS	**171**
	Annual Geometric	0.30	**40.59**	**40.89**	30	CAAQS	**136**
CO	1-Hour	171	10,580	10,751	23,000	CAAQS	47
	8-Hour	29	8,333	8,362	10,000	CAAQS	84
SO_2	1-Hour	1.13	26.2	27.33	655	CAAQS	4
	3-Hour	0.95	23.6	24.55	1300	NAAQS	2
	24-Hour	0.23	18.3	18.53	105	CAAQS	18
	Annual	0.024	3.1	3.12	80	NAAQS	4

Source: MPP 2002a.
Note(s):
a. Proposed facility including combustion turbine, duct burner and cooling tower.
b. Modeling results reflect correction of cooling tower emissions as provided in **AIR QUALITY Tables 12 and 13**. The Applicant's results for project impact using the lower cooling tower emission value are 2.27 ug/m^3 (24-hour) and 0.20 ug/m^3 (annual).

As shown in Table 17, the model results were compared to the most restrictive state and national ambient air quality standards. Table 17 shows the project operation would not cause any new violations of attainment pollutants, but would have the potential to exacerbate existing violations of PM_{10} standards.

The project's PM_{10} 24-hour concentration provided in **AIR QUALITY Table 17** is the maximum concentration found any time during the year and most likely does not correspond to the same day as the maximum PM_{10} background concentration shown in the table. Additionally, the ambient conditions that normally cause high PM_{10} concentrations (high winds during dry periods or low inversion conditions during cold periods) are not the same as the conditions under which maximum PM_{10} impacts from the project would occur. Because the South Coast AQMD is classified as non-attainment for PM_{10} and violations of the state and federal ambient air quality standards continue to occur, the project PM_{10} emissions impacts are, without appropriate mitigation, significant.

The MPP operating impacts would not cause a new violation of any NO_2, CO or SO_2 ambient air quality standard. The PM_{10} impacts from the operation of the MPP would, however, cause a further exacerbation of violations of the state and federal PM_{10} standards. Offsets will be provided for the net increase in PM_{10} emissions from the project.

Fumigation Impacts

There is the potential that higher short-term pollutant concentrations may occur during fumigation conditions that are caused by the rapid mixing of the plume to ground level.

Fumigation conditions are generally only compared to 1-hour standards. The Applicant analyzed the air quality impacts during inversion breakup fumigation conditions from the project site. Inversion breakup fumigation typically occurs at sunrise, when sunlight heats ground-level air, resulting in vertical mixing with the stable, early morning air above it. Pollutant emissions that enter this vertically mixed volume of air can cause high concentrations of pollutants at ground level. This phenomenon usually ceases 30 to 90 minutes after sunrise.

The EPA model SCREEN3 (Version 96043) was used by the Applicant to estimate potential impacts due to inversion breakup fumigation conditions. The results of the analysis, estimated for the worst-case operating conditions, are summarized in **AIR QUALITY Table 18**.

AIR QUALITY Table 18
MPP Maximum Inversion Breakup Fumigation Impacts
Applicant SCREEN3 Modeling, 1- Hour Results

Pollutant	Operating Condition [a]	Maximum Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	Startup GE turbine (50% Load, 41°F)	9.86	336	345.9	470	CAAQS	74
CO		43.71	10,580	10,623.7	23,000	CAAQS	46
SO_2		0.289	23.6	23.9	1300	NAAQS	2

Source: MPP 2002a.
Note(s):
a. Operating conditions are based on the General Electric 7FA (GE).

As the above table indicates, the fumigation impacts would not exceed applicable 1-hour California Ambient Air Quality Standards (CAAQS). Staff would also like to note that fumigation impact modeling is generally performed for emission sources in rural settings (inversion breakup fumigation) or sited next to large water bodies (shoreline fumigation). No approved fumigation modeling techniques exist for urban settings. Staff therefore believes that the analysis provided by the Applicant, which is typically used for rural sites, overstates the potential short-term fumigation operational impacts.

Secondary Pollutant Impacts

The project's gaseous emissions, primarily NO_x, SO_2, VOC, and NH_3, can contribute to the formation of secondary pollutants, namely ozone and PM_{10}, particularly ammonium nitrate and sulfate/bisulfate PM_{10}.

There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the model over an area of several hundred or thousand square miles to determine ozone impacts. No regulatory agency models are approved for assessing single source ozone impacts. However, because of the known relationship of NO_x and VOC emissions to ozone formation, it can be said that the unmitigated emissions of NO_x and VOC from the MPP do have the potential to contribute in some minor unquantifiable way to higher ozone levels in the region. However, the controlled NO_x and VOC

emission levels proposed by the Applicant are not expected to noticeably contribute to ozone concentrations or deter the District's ozone attainment progress.

Concerning secondary PM_{10} (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 that participate in or aid the reactions that form secondary particulates. Currently, there is not an agency (EPA or CARB) recommended model or procedure for estimating secondary particulate formation.

Staff believes that the emissions of NO_x, SO_2, VOC, and NH_3 from MPP have the potential to contribute (although not quantifiably) to higher secondary PM_{10} (particularly of ammonium nitrate) levels in the region. However, the project would use BACT to control emissions and would be fully offset. Therefore, the MPP project is not expected to cause significant secondary PM_{10} impacts or affect the PM_{10} attainment status for the South Coast air basin.

Initial Commissioning

Maximum NO_x and CO emissions from **AIR QUALITY Table 15** were used in the commissioning modeling analysis, which are more than 90% greater than during the majority of the commissioning activities. PM_{10}, SO_2, and VOC emissions are not expected to differ from normal operation; therefore, they were not included in the dispersion modeling analysis. Dispersion modeling parameters used in the analysis are based on the GE turbine at 50% load operating conditions. The commissioning modeling results are provided in **AIR QUALITY Table 19**.

AIR QUALITY TABLE 19
Commissioning Modeling Analysis Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	1-Hour	108.1	336	444.1	470	CAAQS	94
CO	1-Hour	174	10,580	10,754	23,000	CAAQS	47
	8-Hour	85.1	8,333	8,418	10,000	CAAQS	84

Source: MPP 2001a, ACF Appendix H.12, "Commissioning Emissions and Modeling Results", pg. H-179 for CO, and MPP; and MPP 2002b for NO_x using ISC-OLM modeling with an initial NO_2/NO_x ratio of 0.25.

As can be seen from the modeling results provided in Table 19, the modeled commissioning impacts do not exceed the ambient air quality standards and are therefore insignificant.

VISIBILITY IMPACTS

The Applicant provided a Level I and Level II screening visibility impact analysis, which showed that the project is not expected to exceed any significant visibility impairment increment inside the San Gabriel Wilderness and the Cucamonga Wilderness PSD Class I areas. The National Forest Service (NFS) and SCAQMD reviewed this screening analysis. Both agencies found that the project will not affect visibility or other Air Quality Related Values (AQRVs) for these two Wilderness Areas (SCAQMD 2002d, page 21).

MITIGATION

Construction Mitigation

As described in the applicable LORS section, District Rule 403 limits fugitive dust during the construction phase of a project. Staff will recommend that construction emission impacts be mitigated to the greatest extent feasible, include all appropriate measures from the LORS, as well as, other measures considered necessary by staff to fully mitigate the construction emissions.

Applicant's Proposed Mitigation

The Applicant has proposed to implement the following construction mitigation measures (MPP 2001a, pages 5.2-84 to 85 and Appendix H.3, page H-75):
Heavy Equipment Maintenance

- Limit engine idling time to no more than five minutes and shut down equipment when not in use.
- Provide regular preventive maintenance.
- Use of low-sulfur and low-aromatic fuel meeting California standards for motor vehicle diesel fuel.
- Use of low-emitting diesel engines meeting federal emissions standards for construction equipment as applicable.
- Install oxidizing soot filters on all suitable off-road construction equipment used on the power plant construction site. Where the oxidizing soot filter is determined to be unsuitable, install and use an oxidation catalyst.
- Employ high pressure fuel injection (common rail) system or engine timing retardation to control the emissions of oxides of nitrogen.

Fugitive Dust Mitigation Plan

- Vacuum sweeping and/or water flushing of paved road surface to remove buildup of loose material to control dust emissions from travel on the paved access road (including adjacent public streets impacted by construction activities) and paved parking areas.
- Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least two feet of freeboard.
- Limit traffic speeds on unpaved surfaces to 25 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to roadways.
- As needed, use gravel pads along with wheel washers or wash tires of all trucks exiting construction site that carry track-out dirt from unpaved surfaces.
- Mitigate fugitive dust emissions from wind erosion in areas disturbed from construction activities (including storage piles) by application of either water or chemical dust suppressant and/or use of wind breaks.

In addition to the above primary mitigation measures, the following additional mitigation measures will be employed during the project construction phase (MPP 2001f, AQ-1):

- Construction operations will be carried out to the extent feasible in a stepwise manner within the existing construction schedule. Not all of the equipment shall operate at the same time wherever feasible and practical.
- Construction management techniques to minimize emissions will be employed and may include the following:
  - Increasing the distance between the emission sources to the extent feasible.
  - Requiring a phased schedule for construction activities to even out emission peaks.
  - Utilizing existing power poles rather than temporary internal combustion engine power generators.
  - Using low sulfur fuel for stationary construction equipment.

The above mitigation measures are intended to minimize the air quality impacts associated with construction equipment.

Staff Proposed Mitigation

Staff is recommending Conditions of Certification **AQ-C2** through **AQ-C4** that require all feasible construction PM_{10} emission mitigation measures be used including those proposed by the Applicant. Conditions of Certification AQ-C1 and AQ-C5 require the Applicant to retain a Construction Mitigation Manager and to prepare a monthly construction compliance report, respectively.

Operations Mitigation

Applicant's proposed mitigation

Emissions Controls

As discussed in the facility description section, the Applicant will apply air pollution control equipment to limit the project's emission levels. To reduce emissions from the gas turbine, the Applicant proposes to use dry low-NO_x combustors, SCR with ammonia injection, an oxidation catalyst, and operate exclusively on pipeline quality natural gas with a maximum sulfur content of 0.25 grains/100 SCF (SCAQMD 2002d, page 25).

The following BACT emission rates during normal operation, excluding turbine startup, shutdown and commissioning periods, are guaranteed for the CTG (MPP 2001f, page AQ-5; MPP 2001k, page AQ-24; MPP 2001o, pages AQ-8 and AQ-9; and SCAQMD 2002d, page 44):

NO_x: Emissions ≤ 2.0 ppmvd @ 15%O_2 (3-hr average)
CO: Emissions ≤ 2.0 ppmvd @ 15%O_2 (1-hr average)
VOC: Emissions ≤ 2.0 ppmvd @ 15%O_2 (1-hr average)
PM_{10}: Emissions ≤ 18 lb/day (duct firing) and 12 lb/day (without duct firing)
SO_x: Emissions ≤ 1.71 lb/hr (duct firing) and 1.31 lb/hr (without duct firing)
NH_3: Emissions ≤ 5 ppmvd @ 15%O_2 (1-hour average)

The Applicant proposes to use drift eliminators with an efficiency of 0.0006 percent (MPP 2001o, page AQ-2) for the cooling tower.

Emission Offsets

The Applicant is required by the District's New Source Review Rule, Regulation XIII, to provide emission offsets for NO_x, CO, SO_2, PM_{10} and VOC emissions. To comply with the NO_x emissions offset requirement, the Applicant plans to purchase RECLAIM Trading Credits (RTCs). To comply with CO and VOC emissions offset requirements, the Applicant plans to purchase ERCs from the open market. To comply with SO_2 and PM_{10} emissions offset requirements, the Applicant plans to purchase emission credits from the District's Priority Reserve in accordance with Rule 1309.1.

Credits from the Priority Reserve are available to electrical generating facilities that submit permit to construct applications to the District during calendar years 2000 to 2003 provided the facility meets the following requirements: 1) complies with BACT requirements for pollutants received from the Priority Reserve for all existing sources under common ownership with the District; 2) pays the specified mitigation fee for each pound per day of pollutant received from the Priority Reserve; 3) conducts due diligence effort to secure and/or generate ERCs for each requested Priority Reserve pollutant; 4) has the new source fully and legally operational at the rated capacity within 3 years following the issuance of the permit to construct; and 5) for non-municipal utilities, enters into a long-term contract with the State of California to sell at least 50% of the portion of power which it has generated using the Priority Reserve credits (SCAQMD Rule 1309.1).

AIR QUALITY Table 20 shows the estimate of the emission liabilities that need to be mitigated under SCAQMD rules. In addition, CEC staff is recommending additional PM_{10} emissions mitigation for the project's cooling tower, which does not require permitting or emissions mitigation under SCAQMD rules.

AIR QUALITY Table 20
MPP Emission Liability

Pollutant	Emissions Increase	Offset Ratio	Emission Reduction Credits Required	Source of Offsets
NO_x, lb/yr [a]	119,198	1.0	119,198	RTCs
CO, lb/day [b]	266	1.2	319	ERCs
VOC, lb/day [b]	121	1.2	145	ERCs
PM_{10}, lb/day [b]	336	1.0	336	Priority Reserve
SO_x, lb/day [b]	35	1.0	35	Priority Reserve

Source: SCAQMD 2002d, page 20.
Note(s):
a. NO_x RTC requirement is calculated for the first year of operation assuming the following: 636 hours of commissioning and baseload operations.
b. Non-RECLAIM pollutant requirements are calculated assuming the following: CO base on load following operations and all other pollutants based on baseload operations. Daily requirements are estimated assuming 30 days per month. As per District policy, the daily emissions are 30-day average emissions. PM_{10} emissions shown above do not include the emissions from the cooling tower, which do not need to be offset per District rules, but will need to be offset to satisfy CEQA requirements.

The Applicant is proposing several sources of offsets to mitigate the project's potential emissions. Calculations of the required ERCs are based on the distance of the project from different sources of offsets. The District requires a 1.2:1 offset ratio for offsite ERCs. RECLAIM Trading Credits and Priority Reserve offsets are provided at an offset ratio of 1:1.

NO_x Emission Offsets

The Applicant has provided documentation that they are in the process of securing sufficient NO_x RECLAIM Trading Credits (RTCs) to offset their NO_x liability of 119,198 lb/yr for the first year and 113,729 lb/yr thereafter (SCAQMD 2002d, page 13 and Appendix D and F). SCAPPA has entered into a purchase agreement for the purchase of 90,000 lb/yr Cycle 2 Zone Coastal Vintage 2004 NO_x RTCs and 32,000 lb/yr Cycle 2 Zone Coastal Vintage 2005 NO_x RTCs (122,000 lb/yr total for the first year of operation).

VOC Emission Offsets

AIR QUALITY Table 21 provides a summary of the total project VOC emissions and identifies the project offset sources (MPP 2001k, page AQ-28). ERC AQ004002 was generated from various locations in the SCAQMD. ERC AQ003730 was generated from EM-One Power Station, LLC, a power production facility.

AIR QUALITY Table 21
VOC Offsets for the Magnolia Power Project

Offset Source Location	Type of Credit	Credit Number	Total (lb/day)
Various Locations in SCAQMD, Vernon	ERCs	AQ004002	185
Value @ 1.2:1			**154.2**
5440 Southern Avenue, South Gate	ERCs	AQ003730	123
Value @ 1.2:1			**102.5**
Total Provided	---	---	**256.7**
Total Required	---	---	121
Difference	---	---	135.7

From MPP 2001k, page AQ-27, Attachment DR 12-1.
* A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

The Applicant's current VOC emission reduction credits are sufficient to fully offset the MPP VOC operating emissions.

CO Emission Offsets

AIR QUALITY Table 22 provides a summary of the total project CO emissions and identifies the project offset sources (MPP 2001k, page AQ-27 to AQ-29). The Applicant has an agreement with Southern California Gas Company buy up to 70 lbs of CO ERCs from certificate AQ004378. ERC AQ003604 was generated from an independent oil and gas production company.

AIR QUALITY Table 22
CO Offsets for the Magnolia Power Project

Offset Source Location	Type of Credit	Credit Number	Total (lb/day)
Unknown Coastal Zone Location	ERCs	AQ004378	70
Value @ 1.2:1			**58.3**
20101 Goldenwest Street, Huntington Beach	ERCs	AQ003604	307
Value @ 1.2:1			**255.8**
Total Provided	---	---	**314.1**
Total Required	---	---	266
Difference	---	---	48.1

From MPP 2001k, page AQ-27, Attachment DR 12-1.
* A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

The Applicant's current CO emission reduction credits are sufficient to fully offset the MPP CO operating emissions.

SO_2 Emission Offsets

SO_2 emissions from the MPP will be offset through the SCAQMD Priority Reserve (MPP 2001k, page AQ-30). The Priority Reserve for SO_2 is established by SCAQMD Rule 1309.1 and will be used to offset the 35 lbs/day required for the MPP. This regulation allows 750 lbs/day to be used for power plants during the period of January 1, 2001 to December 31, 2003, when any unused portion of the 750 lbs/day will be returned to the District's NSR account. A non-refundable mitigation fee of $8,900 is required for each pound per day for SO_x obtained from the Priority Reserve. The quantity of SO_2 ERCs available through the Priority Reserve is large enough to sufficiently accommodate the MPP emission offset requirement. The Applicant will need to deposit sufficient funds to purchase the priority reserve credits prior to the District issuing the Permit to Construct/Title V permit.

PM_{10} Emission Offsets

PM_{10} turbine/HRSG emissions from the MPP will be offset through the SCAQMD Priority Reserve (MPP 2001k, page AQ-28). The Priority Reserve for PM_{10} is established by SCAQMD Rule 1309.1 and will be used to offset the 336 lbs/day required for the MPP. A non-refundable mitigation fee of $25,000 is required for each pound per day for PM_{10} obtained from the Priority Reserve. The quantity of PM_{10} ERCs available through the Priority Reserve is large enough to sufficiently accommodate the MPP emission offset requirement. The Applicant will need to deposit sufficient funds to purchase the priority reserve credits prior to the District issuing the Permit to Construct/Title V permit.

The PM_{10} emissions from the cooling tower will be offset using the emission reductions that will occur from the shutdown of Magnolia 3 and 4 cooling towers. These two cooling towers will be demolished prior to the operation of the MPP cooling tower. Staff calculates that the Magnolia 3 and 4 cooling towers, based on information presented by the Applicant (MPP 2002l, DR 199), had an average PM_{10} emission rate of 60 to 120

lbs/day during 1995 through 1997, which depends on the assumed cycles of concentration which are noted to have ranged from 2 to 4 for these two cooling towers. However, these calculations may somewhat overstate the emissions as they are based on an assumed default drift fraction of 0.0002. The use of these two cooling towers has diminished in recent years and the advent of the recent COB LM6000 turbine construction and the proposed MPP will displace the power boilers that these cooling towers served. While these emission reductions occurred over four years ago they are as recent as many SCAQMD banked emission reduction credits, they occurred onsite, and they would represent an actual offset ratio that could be as high as 2:1 to 4:1, which is considerably higher than the District's required offset ratio of 1.2:1. Therefore, staff is willing to accept the Magnolia 3 and 4 cooling tower shutdown emission reductions to offset the MPP cooling tower PM_{10} emissions of 30.25 lbs/day. Staff is recommending a condition of certification (**AQ-37**) that will require the applicant to document the demolition of Magnolia 3 and 4 cooling towers and to provide assurance that the emission reductions from the shutdown of these units will not be used for any other purpose than to offset the MPP cooling tower PM_{10} emissions.

Staff Proposed Mitigation

Staff concurs with the Applicant's and the District's determination that the project's proposed emission controls meet BACT requirements.

Staff concurs with the emission offset requirements specified by the District, and amended by the Applicant to include the Magnolia 3 and 4 cooling tower shutdown PM_{10} emission reductions.

Since the District is not permitting the MPP cooling tower, staff is recommending conditions **AQ-35** and **AQ-36** that require the Applicant to provide cooling tower water flow, water quality data, and PM_{10} emission estimates in quarterly operation reports; as well as stipulate a cooling tower PM_{10} emissions limit of 30.25 lbs/day.

ADEQUACY OF PROPOSED MITIGATION

The Applicant's proposed mitigation measures, plus staff's additional proposed mitigation measures and the District's proposed conditions, as recommended in Conditions of Certification **AQ-C1** through **AQ-C5** and **AQ-1** through **AQ-39** are considered to be adequate to mitigate project impacts to less than significant.

The use of emission offsets to mitigate project emissions has been employed since the 1980's. This method for emission mitigation creates a financial incentive that impels the owners of stationary sources that do not otherwise have to control their emissions to add emission controls. Additionally, the current offset regulatory system requires that all of the emission reductions occur prior to the permitting and operation of the new emission source. Only permitted stationary sources are regularly required to obtain emission offsets. Other types of development projects, such as large new housing developments, are not required to offset the emissions from the new activity that they directly cause and do not attempt to fully mitigate their direct or secondary impacts. So while the offset system is not perfect, it has allowed major stationary source growth to occur in the State of California while reducing overall major stationary source emissions.

The use of Priority Reserve credits will provide approximately $8,700,000 of funding for SCAQMD emission reduction programs. Additionally, since the money will be available two to two and a half years before the project is online, the emission reductions should be realized prior to the project beginning operation. However, the SCAQMD priority reserve program does not specifically require that emission reductions be funded in same area as the project that provides the funding. Therefore, to mitigate the project most effectively, staff strongly suggests that the SCAQMD diligently try to find and fund Burbank area emission reduction targets, such as the Burbank Airport, with the funding provided by the MPP.

CUMULATIVE IMPACTS

To evaluate the cumulative emission impacts of the Magnolia Power Project along with other probable future emission sources, the Energy Commission staff gathered and evaluated South Coast Air Quality Management District records to determine other sources, which along with the MPP, may cumulatively impact the site area (MPP 2001f, page AQ-29 to AQ-32). The following criteria were used to identify other stationary emission sources located within six miles of the MPP site that may contribute to cumulative impacts:

- Have received an ATC permit and operation began after 1999;
- Have received an ATC permit but are not yet operational; or
- Have submitted complete ATC applications to the District.

Emissions from existing projects operating prior to and during 1999 are reflected in the background ambient air quality data. Therefore, it was not necessary to include them in the atmospheric dispersion modeling analysis. Pollutant concentrations from the cumulative impact analysis were added to the maximum measured background air quality levels to account for these existing projects.

A list of projects within the study area with net emission increases greater than 10 lb/day for CO, NO_x, SO_x, or PM_{10} was requested from the SCAQMD. The SCAQMD supplied a list containing 84 potential sources. Of the 84 sources, 37 were identified as combustion sources and were considered for further analysis. Non-combustion sources, cooling towers, emergency equipment, and internal combustion engines were not included in the cumulative analysis. Sources that met any of the following criteria are not be significant sources of pollutants and were not included in the cumulative modeling analysis:

- Sources where no information was provided (type of source, emissions data) by the SCAQMD;
- Combustion sources where no emissions data and/or stack exhaust parameters were provided by the SCAQMD;
- Small combustion sources ($\leq$ 2 MM Btu/hr) exempt from the permitting process under SCAQMD Rule 222; or
- Emergency equipment that was not expected to be in operation at the same time as major combustion sources, and/or was only permitted for emergency operation in the year 2001.

Based on the elimination process described above, a total for five facilities were included in the cumulative impact analysis including the proposed MPP.

- Glendale Power Plant located approximately two and a half miles to the southeast of the MPP has one new turbine.
- Los Angeles Department of Water and Power (LADWP) located just over six miles to the northwest of the MPP has one new turbine. Although additional sources have been proposed at this location, specific source parameters and emissions were not supplied by the SCAQMD; therefore these sources were not included in the analysis.
- Children's Hospital of Los Angeles located approximately five and a half miles to the southeast of the MPP has proposed the installation of two boilers.
- City of Burbank (COB) has installed a single LM6000 turbine on the same property as the MPP, which replaces the Magnolia 5 peaker unit (MPP 2001k, page AQ-3). Existing sources at the site include Olive 1 and 2 utility boilers.
- Magnolia Power Project sources including the proposed turbine with duct burners, and the cooling tower.

The ISCST3 model was used to evaluate cumulative localized air quality impacts. Meteorological data from Burbank, CA were used in the modeling analysis (1981). Upper air data used to calculate mixing heights were collected in Ontario, CA. The MPP combustion turbine stack parameters used in modeling the impacts for each pollutant and averaging period reflect the worst-case gas turbine operating conditions identified in the screening analysis presented in the AFC. Specifically, the Westinghouse 501 F turbine exhaust parameters and emission rates for all pollutants except PM_{10} were used (the emission rate for PM_{10} for the GE 7FA was used, as this showed the highest impacts).

The results of the modeling analysis are summarized in **AIR QUALITY Table 23**.

AIR QUALITY Table 23
MPP Cumulative Modeling Analysis Maximum Impacts

Pollutant	Averaging Period	Cumulative Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard (%)
NO_2	1-Hour	53.19	336	389	470	CAAQS	83
	Annual	1.21	84.9	86.1	100	NAAQS	86
PM_{10}	24-Hour	3.18	**82**	**85.2**	50	CAAQS	**170**
	Annual Geometric	0.30	**40.59**	**40.9**	30	CAAQS	**136**
CO	1-Hour	107.44	10,580	10,687.4	23,000	CAAQS	46
	8-Hour	37.72	8,333	8,370.7	10,000	CAAQS	84
SO_2	1-Hour	1.36	26.2	27.6	655	CAAQS	4
	3-Hour	1.23	23.6	24.8	1300	NAAQS	2
	24-Hour	0.28	18.3	18.6	105	CAAQS	18
	Annual	0.033	3.1	3.13	80	NAAQS	4

Source: MPP 2001f, AQ-6.1, Table 4, pg. AQ-36. NO_2 and SO_2 values (except for 3-hour SO_2 value which is from MPP 2001f) from MPP 2002a, Comment AQ-6, Table AQ-1, page 5.

As can be seen from the modeling results provided in Table 23, with the exception of 24-hour and annual PM_{10} impacts, cumulative impacts are expected to be below the state and national standards. However, the state 24-hour and annual PM_{10} standards and the national annual PM_{10} standard are exceeded in the absence of cumulative emissions from the MPP. Also a comparison of **AIR QUALITY Table 23** with **AIR QUALITY Table 17** shows that the cumulative PM_{10} impact, the impact above the project's direct impacts, are minimal. Because the South Coast AQMD is classified as non-attainment for PM_{10} and violations of the state and federal ambient air quality standards continue to occur, the project PM_{10} emissions impacts are, without appropriate mitigation, significant.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows that the minority population is marginally greater than fifty percent within a six-mile radius of the proposed Magnolia Power Project (please refer to **Socioeconomics Figure 1** in this Staff Analysis), while the minority populations are less than fifty percent within one mile and two miles of the project site. The census tract information indicates that there are no minority populations located within two miles of the site; while at the census block level there are scattered small pockets of minority populations located within one and two miles of the site.

Staff has found that there are no unmitigated significant impacts as a result of the construction and operation of this project. Additionally, staff does not believe that there will be any disproportionate air quality impacts resulting from the project. Due to the scattered minority/non-minority block level populations there are both minority and non-minority populations living close to the site where the highest construction impacts and 24-hour PM_{10} operational impacts will occur, so no disproportionate impacts are expected from construction emissions. Additionally, staff has found that the operational

impacts of the other pollutants/averaging times are highest in locations in elevated terrain, which are primarily populated by non-minorities.

COMPLIANCE WITH LORS

FEDERAL

The District is responsible for issuing the Federal Prevention of Significant Determination (PSD) permit. The District has issued a revised draft of their Final Determination of Compliance (FDOC), which indicates that the project is in compliance with all PSD requirements (SCAQMD 2002d). The Final PSD permit will be part of the ATC, which will be issued if the Commission grants the project a license.

STATE

California State Health and Safety Code, Section 41700 requires that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerate number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." Staff believes that the project has demonstrated compliance with California State Health and Safety Code, Section 41700, as the air pollutant emissions from the project have been reasonably demonstrated to not singly or cumulatively cause injury, annoyance, or damage to persons, businesses or property.

LOCAL

The South Coast Air Quality Management District has submitted a revised draft to the Final Determination of Compliance of the District's Rules and Regulations (SCAQMD 2002d). The FDOC was issued in April, 2002 (SCAQMD 2002c), but was revised to incorporate design changes, such as the removal of the initially proposed auxiliary boiler, requested by the Applicant.

Compliance with specific substantive SCAQMD rules and regulations are discussed below. For additional discussion of the compliance of the MPP with local regulations please refer to the Determination of Compliance (SCAQMD 2002d).

Regulation II — Permits

The Applicant is in substantial compliance of this regulation through the receipt of the FDOC. The ATC will then be issued if the Commission grants the project a license.

Rule 218 — Continuous Emission Monitoring

The MPP will be required to install a CO CEMS to verify that emissions of CO meet the hourly and daily emission limits. The CO CEMS will need to comply with the requirements of Rule 218, and the facility will need to submit a CEMS application for District review and approval prior to installing the CEMS. (Continuous monitoring for NO_x emissions is required under the RECLAIM and acid rain regulations, discussed further below.)

Regulation IV — Prohibitions

Rule 401 — Visible Emissions

Visible emissions are not expected under normal operating conditions of the turbines.

Rule 402 — Nuisance

Nuisance problems are not expected under normal operating conditions of the turbines, cooling tower or ammonia storage system.

Rule 403 — Fugitive Dust

The MPP will submit a fugitive dust plan to both the District and the Commission.

Rule 407 — Liquid and Gaseous Air Contaminants

This rule limits the CO emissions to 2000 ppm max, and the sulfur content of the exhaust to 500 ppm for equipment not subject to the emission concentration limits of 431.1. Since the turbines are subject to the limits of Rule 431.1, only the 2000 ppm limit of this rule applies. It is expected that the equipment will be able to meet the CO limit with the use of an oxidation catalyst. Compliance will be verified through CEMS data.

Rule 409 — Combustion Contaminants

Limits PM emissions to 0.1 gr/scf. The equipment is expected to meet this limit based on the calculations shown below:

Assumptions
CTG estimated exhaust gas flow is 48.6 MMscf/hr.
CTG PM emissions are estimated to be 18 lbs/hr when duct firing.
CTG PM emissions are estimated to be 12 lbs/hr with no duct firing.

Calculations
CTG Duct Firing = 18 lbs/hr * 7000 gr/lbs / 48.6 x 10^6 scf/hr = 0.0026 gr/scf
CTG No Duct Firing = 12 lbs/hr * 7000 gr/lbs / 48.6 x 10^6 scf/hr = 0.0017 gr/scf

Compliance will be verified through the initial performance test as well as periodic testing as required by Title V.

Rule 431.1 — Sulfur Content of Gaseous Fuels

The rule requires that gas fired equipment meet a sulfur content limit of 40 ppm on a 4-hour averaging time. The commercial grade natural gas to be burned in the turbine and boiler is expected to meet this limit.

Rule 431.2 — Sulfur Content of Liquid Fuels

This rule establishes a sulfur content limit for diesel fuel of 0.05% by weight, as well as, record keeping requirements and test methods. The MPP project is not proposing the use of liquid fuels for its stationary equipment.

Rule 475 — Electric Power Generating Equipment

This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. Equipment is required to meet a limit for combustion contaminants (combustion contaminants are defined as particulate matter in AQMD Regulation I) of

11 lbs/hr or 0.01 gr/scf. Compliance is achieved if either the mass limit or the concentration limit is met. Maximum PM_{10} emissions from the project turbines are estimated at 18 lbs/hr when duct firing and 12 lbs/hr with no duct firing. However, the expected grain loading is less than 0.01 gr/scf (see calculations under Rule 409 discussion). Therefore, compliance is expected. Compliance will be verified through the initial performance test as well as periodic testing required by Title V.

Regulation IX — Standards of Performance for New Stationary Sources

Regulation IX incorporates provisions of Part 60, Chapter I, Title 40, of the Code of Federal Regulations (CFR) and is applicable to all new, modified or reconstructed sources of air pollution. Sections of this regulation apply to electric utility steam generators (Subpart Da) and stationary gas turbines (Subpart GG). These subparts establish limits of particulate matter, SO_2 and NO_2 emissions from the facility as well as monitoring and test method requirements. The MPP is expected to comply with these emission limits with the controls proposed.

Regulation XIII — New Source Review

This regulation sets forth the pre-construction review requirements for new, modified or relocated facilities to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the SCAQMD is not unnecessarily restricted. This regulation limits the emissions of non-attainment contaminants and their precursors as well as ozone depleting compounds (ODC) and ammonia by requiring the use of Best Available Control Technologies (BACT). However, this regulation does not apply to NO_x emissions from the MPP project, which are regulated by Regulation XX (RECLAIM). The MPP has complied with all of the BACT requirements of the Regulation. The Applicant has obtained its required emission reduction credits for CO and VOC and will be obtaining its PM_{10} and SO_2 credits through the Priority Reserve.

Rule 1309.1 – Priority Reserve

The Applicant has stated that their due diligent attempt to obtain both PM_{10} and SO_2 emission reduction credits has failed and that they plan to obtain emission reduction credits from the Priority Reserve. The Applicant is a municipal power authority and is therefore exempt from the state contract requirements of this regulation. The Applicant plans on being operational within 3 years of obtaining the Priority Reserve credits. Notwithstanding any final revisions to the projects emissions estimates, the Applicant will have to pay the SCAQMD the following non-refundable amounts to secure the necessary Priority Reserve credits.

SCAQMD PM_{10} Offsets 336 lbs/day * $25,000 lb/day = $8,400,000
SCAQMD SO_2 Offsets 35 lbs/day * $8,900 lb/day = $311,500
Total = $8,711,500

The project is not yet fully funded and the Applicant has stated that they do not have the ability to pay for these credits until after the Commission decision (assuming it is favorable).

Regulation XVII — Prevention of Significant Deterioration

The PSD permit will be issued by the District as part of the Final Determination of Compliance/Permit to Construct.

Regulation XX — Regional Clean Air Incentives Market (RECLAIM)

The MPP has obtained necessary first year RTCs and has complied with all other aspects of the RECLAIM Regulation.

Regulation XXX — Title V Permits

The District will issue the Title V permit as part of the Permit to Construct after the Commission has certified the project.

Regulation XXXI — Acid Rain Permits

The District will issue the Title IV Acid Rain permit as part of the Permit to Construct. It is expected that MPP will comply with the monitoring requirements of the acid rain provisions with the use of gas meters in conjunction with gas analysis.

FACILITY CLOSURE

Eventually, the Magnolia Power Project will close, either as a result of the end of its useful life, or through some unexpected situation, such as a natural disaster or catastrophic facility breakdown. When the facility closes, then all sources of air emissions will cease and thus all impacts associated with those emissions will no longer occur. The only other expected emissions will be construction/demolition emissions from the dismantling activities. These activities will be short-term. Nevertheless, staff recommends that a facility closure plan be submitted to the Energy Commission Compliance Project Manager to demonstrate compliance with applicable District Rules and Regulations during closure activities. A detailed description of the closure requirements are provided in the General Conditions Including Compliance Monitoring and Closure Plan section of the Final Staff Assessment.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

No written comments concerning air quality have been received from either the public or from any public agency.

CONCLUSIONS AND RECOMMENDATIONS

The Applicant will have a complete offset package that satisfies routine SCAQMD permitting requirements after obtaining the Priority Reserve ERCs for PM_{10} and SO_2. The Applicant has proposed to the District a plan to secure all necessary offsets. The District has completed a revised draft to its Final Determination of Compliance (FDOC), which indicates that the proposed project complies with all applicable rules and regulations.

Staff recommends the following Conditions of Certification to address the impacts associated with the construction and operation of the MPP.

As conditioned and with a District permit, the project is not expected to have any significant air quality impacts.

CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition. Other Conditions have been changed based on stipulated agreements between staff and the applicant. All of the modified Conditions are supported by the analysis outlined in the text above.

AIR QUALITY Table 24 correlates the District proposed conditions from the revised draft of the Final Determination of Compliance to the staff proposed Conditions of Certification. It is staff's opinion that this table is necessary due to the complex nature of the District's permitting system. The table shows the staff conditions of certification in the far left column and the corresponding District condition in the far right column. The middle column is a brief description of the intent of each proposed condition.

AIR QUALITY Table 24
Energy Commission Staff ~ District
Conditions of Certification

Commission	Notes	District
The following conditions concern the construction of the proposed project only.		
AQ-C1	Construction Mitigation Manager requirement	NA
AQ-C2	Construction fugitive dust mitigation plan requirement.	NA
AQ-C3	Diesel construction equipment mitigation plan requirement.	NA
AQ-C4	Additional Applicant Specified Construction Mitigation	NA
AQ-C5	Monthly Construction Compliance Report	NA
The following conditions concerns the gas turbine/duct burner/SCR system only		
AQ-1	Duct burner annual fuel limitation	1-2
AQ-2	Duct burner daily fuel limitation	1-3
AQ-3	Ammonia injection monitoring.	12-1
AQ-4	SCR temperature monitoring.	12-2
AQ-5	SCR pressure monitoring.	12-3
AQ-6	Initial source testing requirement for the following pollutants: NO_x, CO, SO_x, ROG, PM_{10}, ammonia, acetaldehyde, benzene, formaldehyde, and PAH.	29-1
AQ-7	Ongoing source testing requirement for ammonia. Quarterly for first 12 months and annually thereafter.	29-2
AQ-8	Ongoing (every 3 years) source testing requirement for the following pollutants: SO_x, ROG and PM_{10}.	29-3
AQ-9	Source test requirements in addition to 29-1.	40-1
AQ-10	Vent gas to CO oxidation and SCR control.	57-1
AQ-11	Monthly emissions limits.	63-1
AQ-12	Record keeping requirement for natural gas fuel use.	67-1
AQ-13	Conditions for exemption of ammonia injection requirement.	73-1
AQ-14	CEMS CO monitoring and reporting requirements	82-1

Commission	Notes	District
AQ-15	CEMS NO_x monitoring and reporting requirements	82-2
AQ-16	Exception for NO_x limit (2.0 ppm) during commissioning, startup, and shutdown periods. Limit on commissioning (636 hours). Limit on startup (4 hours, 1 per day). Limit on shutdown (30 minutes, 1 per day).	99-1
AQ-17	Exception for CO limit (2.0 ppm) during commissioning, startup, and shutdown periods. Limit on commissioning (636 hours). Limit on startup (4 hours, 1 per day). Limit on shutdown (30 minutes, 1 per day).	99-2
AQ-18	Interim reporting period NO_x emission limit for RECLAIM emission reporting (37.15 lbs/MMCF).	99-4
AQ-19	Ammonia injection and SCR temperature monitoring requirement.	179-1
AQ-20	SCR pressure monitoring requirement.	179-2
AQ-21	Operational date requirement for PM_{10} ERC compliance	193-2
AQ-22	Hourly NO_x limit (2.0 ppmvd @ 15%O_2, 3 hour average)	195-1
AQ-23	Hourly CO limit (2.0 ppmvd @ 15%O_2)	195-2
AQ-24	Hourly ammonia limit (5 ppmvd @ 15%O_2)	195-3
AQ-25	Hourly VOC limit (2.0 ppmvd @ 15%O_2)	195-6
AQ-26	CEMS NH_3 monitoring requirement	232-1
AQ-27	Requires MPP to retain adequate RTCs for operation of turbines.	296-1
AQ-28	Combustion contaminant emissions limitation.	327-1
The following conditions concern the ammonia storage tank only		
AQ-29	Venting limitation.	144-1
AQ-30	Pressure relief valve setting (25 psig).	157-1
The following condition applies to all permit units		
AQ-31	Equipment operation and maintenance requirement.	193-1
Facility conditions		
AQ-32	Opacity limitation.	F9-1
AQ-33	Accidental release requirements	F24-1
The following are conditions identified by CEC Staff to meet CEQA requirements		
AQ-34	Requires that the project owner provide offset documentation.	NA
AQ-35	Requires cooling tower water testing to ensure emission estimates for the cooling tower are not underestimated.	NA
AQ-36	Specifies cooling tower PM_{10} emission limit (30 lbs/day) and requires cooling tower emissions to be estimated and reported.	NA
AQ-37	Requires MPP to provide assurance that the source of the cooling tower PM_{10} CEQA mitigation will not be reused for any other PM_{10} mitigation purpose, and requires MPP to document that the PM_{10} mitigation has occurred prior to operation.	NA
AQ-38	Quarterly Reporting Requirement.	NA
AQ-39	Air permit modification notification and approval	NA

N/A – not applicable.

STAFF CONSTRUCTION CONDITIONS

AQ-C1 The project owner/operator shall submit the resume(s) of each individual proposed to fill the Construction Mitigation Manager (CMM) position to the CEC Compliance Project Manager (CPM) for approval. One or more individuals may hold this position. The owner/operator shall be responsible for funding the costs

of the CMM, however the CMM shall report directly to the CPM. The CMM shall preferably have a minimum of eight years experience as follows, however the CPM shall consider all resumes submitted regardless of experience:

- five years construction experience as a subcontractor or general contractor.
- An engineering degree or an additional five years construction experience.
- one year construction project management experience.
- two years air quality assessment experience.

The project owner/operator shall make available an onsite dedicated office for the CMM. The CMM shall be responsible for implementing all mitigation measures related to construction equipment combustion emissions, construction monitoring and enforcing the effectiveness of construction mitigation measures as outlined in Conditions of Certification **AQ-C2, AQ-C3** and **AQ-C4**. The CMM shall be onsite during all construction activities, until no longer deemed necessary by the CPM. The CMM shall be granted access to all areas of the main and linear facility construction sites. The CMM shall have the authority to stop specific construction activities on either the main or the linear facility construction sites as specified in Condition AQ-C3 (3) below. The CMM may not be terminated prior to the cessation of construction activities unless approval is granted by the CPM.

Verification: The project owner/operator shall submit the CMM resume(s) to the CPM for approval at least 60days prior to site mobilization.

AQ-C2 The project owner shall ensure that the CMM prepares and submits to the CPM for approval, a Fugitive Dust Mitigation Plan (FDMP) that specifically identifies all fugitive dust mitigation measures that will be employed during the construction of the facility. The FDMP shall be administered on site by the full-time CMM.

The FDMP shall include a schedule of each operation planned for the first two months of the project that may result in the generation of fugitive dust, including location, source(s) of fugitive dust, and proposed mitigation measures specific to each operation/source.

The construction mitigation measures that shall be addressed in the FDMP include, but are not limited to, the following:

- Identification of the employee parking area(s) and surface composition of those parking area(s)
- The frequency of watering of unpaved roads and all disturbed areas
- Application of chemical dust suppressants
- Gravel in high traffic areas
- Paved access aprons
- Sandbags to prevent run off
- Posted speed limit signs

- Wheel washing areas prior to large trucks leaving the project site
- Methods that will be used to clean tracked-out mud and dirt from the project site onto public roads
- For any transportation of solid bulk material
    1. Vehicle covers
    2. Wetting of the transported material
    3. Appropriate freeboard
- Methods for the stabilization of storage piles and disturbed areas
- Windbreaks at appropriate locations
- Additional mitigation measures to be implemented at the direction of the CMM in the event that the standard measures fail to completely control dust from any activity and/or source
- The suspension of all earth moving activities under windy conditions
- On-site monitoring devices

In monitoring the effectiveness of all mitigation measures included in the FDMP, the CMM shall take into account the following, at a minimum:

a. Onsite spot checks of soil moisture content at locations where soil disturbance, movement and/or storage is occurring; and

b. Visual observations of all construction activities.

The CMM shall implement the following procedures for additional mitigation measures if the CMM determines that the existing mitigation measures are not resulting in effective mitigation:

1. The CMM shall direct more aggressive application of the existing mitigation methods within 15 minutes of making such a determination.

2. The CMM shall direct implementation of additional methods of dust suppression if step #1 specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

3. The CMM shall direct a temporary shutdown of the source of the emissions if step #2 specified above fails to result in adequate mitigation within one) hour of the original determination. The activity shall not restart until one full hour after the shutdown. The owner/operator may appeal to the CPM any directive from the CMM to shutdown a source, provided that the shutdown shall go into effect within one hour of the original determination unless overruled by the CPM before that time.

Verification: At least 30 days prior to site mobilization, the project owner/operator shall provide the CPM with a copy of the FDMP for approval. Site mobilization shall not commence until the project owner/operator receives approval of the FDMP from the CPM.

AQ-C3 The project owner shall ensure that the CMM prepares and submits to the CPM for approval, a Diesel Construction Equipment Mitigation Plan (DCEMP) that will specifically identify diesel engine mitigation measures that will be employed during the construction phase of the main and related linear construction sites. The project owner shall ensure that the CMM will be responsible for directing implementation of and compliance with all measures identified in the DCEMP. The DCEMP shall address, at a minimum, the following mitigation measures:

- Catalyzed diesel particulate filters (CDPF)
- CARB certified ultra low sulfur diesel fuel, containing 15ppm sulfur or less (ULSD)
- Diesel engines certified to meet EPA and/or CARB 1996 or better off-road equipment emission standards
- Restricting diesel engine idle time, to the extent practical, to no more than ten minutes

The DCEMP shall include the following:

1. A list of all diesel-fueled, off-road, stationary or portable construction-related equipment to be used either on the main or the related linear construction sites. This list will initially be estimated and then subsequently be updated as specific contractors become identified. Prior to a contractor gaining access to the main or related linear construction sites, the project owner shall ensure that the CMM submits to the CPM for approval, an update of this list including all of the new contractor's diesel construction equipment.

2. Each piece of construction equipment listed under item #1 of this condition must demonstrate compliance according to the following mitigation requirements, except as noted in items #3, #4 and #5 of this condition:

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

3. If the construction equipment is intended to be on-site for ten days or less, then none of the mitigation measures identified in item #2 of this condition are required.

4. The CPM may grant relief from the mitigation measures listed in item #2 of this condition for a specific piece of equipment if the CMM can demonstrate that they have made a good faith effort to comply with the mitigation measures and that compliance is not possible.

5. Any implemented mitigation measure in item #2 of this condition may be terminated immediately if one of the following conditions exists, however the CPM must be informed within ten working days of the termination:

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

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

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

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

6. All contractors must agree to limit diesel engine idle time on all diesel-powered equipment to no more than ten minutes, to the extent practical.

Verification: The project owner shall ensure that the CMM submits a DCEMP to the CPM for approval at least 30 days prior to site mobilization. The CMM will update the initial DCEMP (if necessary), no less than ten days prior to a specific contractor gaining access to either the main or related linear construction sites. The project owner shall ensure that the CMM notifies the CPM of any emergency termination within ten working days of the termination.

AQ-C4 In addition to the above mitigation measures, the following additional mitigation measures shall be employed, as practical, during construction:

- Stepwise operation, with not all of the equipment operating at the same time wherever feasible and practical
- Construction management techniques to minimize emissions will be employed and may include the following:
- Increasing distance between emission sources;
- Phased schedule for construction activities ;
- Utilizing existing power poles rather than temporary internal combustion engine power generators; and
- Equipment may employ high pressure fuel injection system or engine timing retardation

The above mitigation measures are in addition to AQ-C2 and AQ-C3. These measures should only be used when they do not conflict with the requirements of AQ-C2 and AQ-C3, and/or to the extent that they provide additional emissions mitigation beyond that required by AQ-C2 and AQ-C3.

Verification: The project owner shall include a discussion of the implementation of these and any other emission reduction methods not specified in AQ-C2 and AQ-C3

with the Construction Fugitive Dust Mitigation Plan and the Diesel Construction Equipment Mitigation Plan as appropriate (see Verification for AQ-C2 and AQ-C3).

AQ-C5 The project owner shall ensure that the CMM submits directly to the CPM for approval (and a copy to the project owner) a report of all compliance actions taken germane to Conditions of Certification **AQ-C2**, **AQ-C3** and **AQ-C4**. The report shall include, at a minimum, the following elements::

Fugitive Dust Mitigation Monthly Report
(see Condition of Certification AQ-C2 and AQ-C4)

- A summary of each of the operation(s) planned for the following two months which may result in the generation of fugitive dust. Each description shall include a schedule, on-site location details and a list of proposed fugitive dust mitigation measures.
- A summary of all mitigation activities implemented for each fugitive dust generating operation identified in a previous report. This report should provide a summary description of the operation, the mitigation measures implemented and the estimated effectiveness of each mitigation measure.
- Details of all operation(s) requiring fugitive dust mitigation that are not identified in the previous report or the FDMP. Details shall include (at a minimum) a description of the operation, the date, duration, mitigation measures implemented, and an explanation for not reporting the operation in a previous report (or in the FDMP).
- Identification of any failures of mitigation measures and details of the actions taken to reduce the identified impacts and prevent future failures of those mitigation measures.
- Identification of any observation by the CMM of dust plumes beyond the property boundary of the main construction site or beyond an acceptable distance from the linear construction site and what actions (if any) where taken to abate the plume.

Diesel Construction Equipment Mitigation Monthly Report
(see Condition of Certification AQ-C3 and AQ-C4)

- Identification of any changes, as approved by the CPM, to the Diesel Construction Equipment Mitigation Plan from the initial report or the last monthly report including any new contractors and their diesel construction equipment.
- A Copy of all receipts or other documentation indicating types and amounts of fuel purchased, from whom, where delivered and on what date for the main and related linear construction sites.
- Identification and verification of all diesel engines required to meet EPA or CARB 1996 off-road diesel equipment emission standards.
- The suitability of the use of a catalyzed diesel particulate filter for a specific piece of construction equipment is to be determined by a qualified mechanic or engineer who must submit a report through the CMM to the CPM for approval. The identification of any suitability report initiated or pursued, or the completed report, should be included in the monthly report (in the month that it was completed) as

should the verification of any subsequent installation of a catalyzed diesel particulate filter.

- Identification of any observation by the CMM of exhaust plumes emanating from diesel-fired construction equipment beyond the property boundary of the main construction site or beyond an acceptable distance from the linear construction site and what actions (if any) where taken to abate the plume or future expected plumes.

Verification: The project owner shall ensure that the CMM submits directly to the CPM for approval (and a copy to the project owner), a monthly report of all compliance actions taken germane to Conditions of Certification **AQ-C2**, **AQ-C3** and **AQ-C4**. The report is due within ten working days after the end of each reporting month.

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS

1,787 MMBtu/hr Gas Turbine (ID No. D4) (A/N 386305) No. 1 GE Model PG7241FA with Dry Low NO_x combustors connected directly to a 181.1 MW Electric Generator (ID No. B5) and Heat Recovery Steam Generator (ID No. B7) with 583 MMBtu/hr Duct Burners (ID No. D6) connected to a 142 MW Steam Turbine (ID No. B8). Selective Catalytic Reduction (ID No. C10) (A/N 386306) with 1,100 cubic feet of total volume, 67 feet height, 1.33 feet long, 26 feet wide with an ammonia injection grid (ID No. B11) and CO oxidation catalyst (ID No. C9) with 360 cubic feet of total volume connected to an exhaust stack (ID No. S12) (A/N 386306) No. 1.

AQ-1 The project owner shall limit the fuel usage for the duct burner to no more than 572 MM cubic feet per year.

Verification: The project owner shall submit the fuel use data to the District and the CPM in Quarterly Operation Reports.

AQ-2 The project owner shall limit the fuel usage for the duct burner to no more than 6.86 MM cubic feet per day.

Verification: The project owner shall submit the fuel use data to the District and the CPM in Quarterly Operation Reports.

AQ-3 The project owner shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH_3).

The project owner shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-4 The project owner shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor. The project owner shall also install and maintain a device to continuously record the

parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-5 The project owner shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column. The project owner shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-6 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant	Method	Averaging Time	Test Location
NO_x	District Method 100.1	1 hour	Outlet of the SCR
CO	District Method 100.1	1 hour	Outlet of the SCR
SO_x	District Approved Method	District Approved Avg. Time	Fuel Sample
ROG	District Approved Method	1 hour	Outlet of the SCR
PM	District Approved Method	District Approved Avg. Time	Outlet of the SCR
NH_3	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of the SCR
Acetaldehyde	District Approved Method	District Approved Avg. Time	Outlet of the SCR
Benzene	District Approved Method	District Approved Avg. Time	Outlet of the SCR
Formaldehyde	District Approved Method	District Approved Avg. Time	Outlet of the SCR
PAH	District Approved Method	District Approved Avg. Time	Outlet of the SCR

The test shall be conducted after District approval of the source test protocol, but no later than 180 days after initial startup. The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine and steam turbine generating output in MW.

The test shall be conducted in accordance with a District approved source test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the District before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted for all pollutants 1) when the gas turbine and duct burner are operating simultaneously at 100 percent of maximum heat input and 2) when the gas turbine is operating alone at 100 percent of maximum heat input. In addition, tests shall be conducted when the gas turbine is operating alone at loads of 75 and 50 percent of maximum heat input for the NO_x, CO, VOC and NH_3 tests.

Verification: The project owner shall submit the proposed protocol for the initial source tests 45 days prior to the proposed source test date to the AQMD engineer, and also to the California Energy Commission Compliance Project Manager (CPM) for approval. The project owner shall notify the District and the CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-7 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant	Method	Averaging Time	Test Location
NH_3	District Method 207.1 and 5.3 or EPA Method 17	1 hour	SCR Outlet

The test shall be conducted and the results submitted to the District within 60 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NO_x concentration, as determined by the certified CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable or not yet certified, a test shall be conducted to determine the NO_x emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

Verification: The project owner shall submit test results to the District and CPM no later than 60 days following the source test date and notify the District and CPM no later than 7 days prior to the source test date and time.

AQ-8 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant	Method	Averaging Time	Test Location
SO_x	District Approved Method	District Approved Avg. Time	Fuel Sample
ROG	District Approved Method	1 hour	SCR Outlet
PM	District Approved Method	District Approved Avg. Time	SCR Outlet

The test(s) shall be conducted at least once every three years.

The test shall be conducted and the results submitted to the District within 60 days after the test date. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted 1) when the gas turbine and duct burner are operating simultaneously at 100 percent of maximum heat input and 2) when the gas turbine is operating alone at 100 percent of maximum heat input.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limit.

Verification: The project owner shall submit test results to the District and CPM no later than 60 days following the source test date and notify the District and CPM no later than 10 days prior to the source test date and time.

AQ-9 The project owner shall provide to the District a source test report in accordance with the following specifications:

- Source test results shall be submitted to the District no later than 60 days after the source test was conducted.
- Emission data shall be expressed in terms of concentration (ppmv), corrected to 15 percent oxygen (dry basis), mass rate (lbs/hr), and lbs/MM cubic feet. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.
- All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).
- All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.
- Source test results shall also include the oxygen levels in the exhaust, the fuel flow rate (CFH), the flue gas temperature, and the generator power output (MW) under which the test was conducted.

Verification: The project owner shall submit test results to the District and CPM no later than 60 days following the source test date.

AQ-10 The project owner shall vent this equipment to the CO oxidation and SCR control whenever this equipment is in operation. This condition shall not apply during the turbine commissioning period.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-11 The project owner shall limit emissions from this equipment as follows:

Contaminant	Emissions Limit
CO	7,988 LBS IN ANY 1 MONTH
PM_{10}	10,080 LBS IN ANY 1 MONTH
VOC	3,638 LBS IN ANY 1 MONTH
SO_x	1,039 LBS IN ANY 1 MONTH

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from the gas turbine and duct burner.

The project owner shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM_{10} with duct firing 7.89 lbs/MMscf, PM_{10} without duct firing 6.86 lbs/MMscf, VOC with duct firing 2.63 lbs/MMscf, VOC without duct firing 2.62 lbs/MMscf, VOC startups 30 lbs/event, VOC shutdowns 17 lbs/event, SO_x 0.75 lbs/mmscf.

Duct burner fuel usage shall not exceed 222 MMscf per month and 618 MMscf per year. Written records of duct burner operation and fuel usage shall be maintained and made available upon request from AQMD.

The project owner shall calculate the emission limit(s) for CO, during the commissioning period, using fuel use data and the following emission factors: 228 lbs/MMscf during the no load and part load tests when the turbine is operating at or below 60 percent load, and 14 lbs/MMscf during the mid load and full load tests when the turbine is operating at greater than 60 percent load.

The project owner shall calculate the emission limit(s) for CO, after the commissioning period and prior to the CO CEMS certification, using fuel use data and the following emission factors: 500 lbs/event for cold startups, 300 lbs/event for warm startups, 285 lbs/event for hot startups, 120 lbs/event for shutdowns, and 4.58 lbs/MMscf for all other operations.

The project owner shall calculate the emission limit(s) for CO, after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated in accordance with the approved CEMS plan.

Verification: The project owner shall submit the monthly fuel use data and emissions calculations to the District and the CPM in Quarterly Operation Reports.

AQ-12 The project owner shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Natural gas fuel use during the commissioning period.

Natural gas fuel use after the commissioning period and prior to CEMS certification.

Natural gas fuel use after CEMS certification.

Verification: The project owner shall report natural gas fuel use to the District and CPM in Quarterly Operation Reports.

AQ-13 The project owner may, at his discretion, chose not to use ammonia injection if any of the following requirement(s) are met:

The inlet exhaust temperature to the SCR is 450 degrees F or less, not to exceed 4 hours during a cold startup, 2.1 hours during a warm startup, 1.5 hours during a hot startup, and 0.5 hours during a shutdown.

Verification: The project owner shall submit the ammonia injection data to the District and the CPM in Quarterly Operation Reports.

AQ-14 The project owner shall install and maintain a CEMS to measure the following parameters:

- CO concentration in ppmv.

- Concentrations shall be corrected to 15 percent oxygen on a dry basis.
- The CEMS will convert the actual CO concentrations to mass emission rates (lbs/hr) and record the hourly emission rates on a continuous basis.
- The CEMS shall be installed and operated, in accordance with an approved AQMD Rule 218 CEMS plan application. The project owner shall not install the CEMS prior to receiving initial approval from AQMD.
- The CEMS shall be installed and operated to measure CO concentration over a 15 minute averaging time period.
- The CEMS shall be installed and operating no later than 90 days after initial startup of the turbine.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-15 The project owner shall install and maintain a CEMS to measure the following parameters:

- NOx concentration in ppmv.
- Concentrations shall be corrected to 15 percent oxygen on a dry basis.
- The CEMS shall be installed and operating no later than 12 months after initial startup of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial startup and the provisional certification date of the CEMS, the project owner shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3). Within two weeks of the turbine startup date, the project owner shall provide written notification to the District of the exact date of startup.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission. The project owner shall provide written notification of startup date to the District and CPM within 14 days of the turbine startup date.

AQ-16 The 2.0 PPM NO_x emission limit(s) shall not apply during turbine commissioning, startup, and shutdown periods. Startup time shall not exceed 4 hours per startup and the number of startups shall not exceed one per day. Shutdown time shall not exceed 30 minutes per shutdown and the number of shutdowns shall not exceed one per day. The commissioning period shall not exceed 636 operating hours from the date of initial startup. The project owner shall provide the AQMD with written notification of the startup date. Written records of commissioning, startups, and shutdowns shall be maintained and made available upon request from AQMD.

Verification: The project owner shall maintain records of NO_x emission limits during commissioning, startups, and shutdowns for inspection by representatives of the District, CARB, EPA and the Commission. The project owner shall provide written notification of startup date to the District and CPM within 14 days of the turbine startup date.

AQ-17 The 2.0 PPM CO emission limit(s) shall not apply during turbine commissioning, startup, and shutdown periods. Startup time shall not exceed 4 hours per startup and the number of startups shall not exceed one per day. Shutdown time shall not exceed 30 minutes per shutdown and the number of shutdowns shall not exceed one per day. The commissioning period shall not exceed 636 operating hours from the date of initial startup. The project owner shall provide the AQMD with written notification of the initial startup date. Written records of commissioning, startups, and shutdowns shall be maintained and made available upon request from AQMD.

Verification: The project owner shall maintain records of CO emission limits during commissioning, startups, and shutdowns for inspection by representatives of the District, CARB, EPA and the Commission. The project owner shall provide written notification of startup date to the District and CPM within 14 days of the turbine startup date.

AQ-18 The 37.15 LBS/MMCF NO_x emission limit(s) shall only apply during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from the initial startup date.

Verification: The project owner shall report the turbine loading conditions (as a percent of maximum), duration of loading conditions (hours), and total NO_x emissions during loading conditions (lbs) from initial commissioning to the District and CPM no later than 10 days following the termination of initial commissioning period. The project owner shall submit total NO_x emissions reports to the District and CPM in Quarterly Operation Reports.

AQ-19 For the purpose of the following condition number(s) continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

- Condition **AQ-3**
- Condition **AQ-4**

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-20 For the purpose of the following condition number(s) continuously record shall be defined as recording at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

- Condition **AQ-5**

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-21 This equipment must be fully and legally operational at the rated capacity within three years of the Permit to Construct issuance date, unless extended in writing by the Executive Officer, or otherwise the PM_{10} ERCs in the amount of 336 lbs/day shall revert back to the AQMD Priority Reserve account and the project owner shall not operate this equipment until PM_{10} ERCs are provided by the project owner to the AQMD in the amount of 403 lbs/day.

Verification: Within 15 days prior to becoming fully and legally operational, the project owner shall submit to the District and CPM documentation substantiating that the date of becoming fully operational will be within 3 years of obtaining the Permit to Construct; or shall otherwise provide the required PM_{10} ERCs to the District, and documentation of these ERCs to the CPM prior to becoming fully and legally operational.

AQ-22 The 2.0 PPMV NO_x emission limit is averaged over 3 hours at 15 percent oxygen, dry.

Verification: The project owner shall submit to the District and CPM CEMS data and emissions calculations to demonstrate compliance for the NO_x limits in Quarterly Operation Reports.

AQ-23 The 2.0 PPMV CO emission limit is averaged over 1 hour at 15 percent oxygen, dry.

Verification: The project owner shall submit to the District and CPM CEMS data and emissions calculations to demonstrate compliance for the CO limits in Quarterly Operation Reports.

AQ-24 The 5 PPMV NH_3 emissions limit is averaged over 1 hour at 15 percent oxygen, dry.

Verification: The project owner shall submit to the District and CPM emissions calculations to demonstrate compliance for the NH_3 limits in Quarterly Operation Reports.

AQ-25 The 2.0 PPMV VOC emission limit is averaged over 60 minutes at 15 percent oxygen, dry.

Verification: The project owner shall submit to the District and CPM emissions calculations to demonstrate compliance for the VOC limits in Quarterly Operation Reports.

AQ-26 The project owner shall install, operate, and maintain an approved Continuous Emission monitoring Device, approved the Executive Officer, to monitor and record ammonia concentrations, and alert the project owner (via audible or visible alarm) whenever ammonia concentrations are near, at, or in excess of the permitted ammonia limit of 5 ppmv, corrected to 15% oxygen. It shall continuously monitor, compute and record the following parameters;

Ammonia concentration, uncorrected in ppmv.

Oxygen concentration in percent.

Ammonia concentration in ppmv, corrected to 15% oxygen.

Date, time, extent (in time) of all excursions above 5 ppmv, corrected to 15% oxygen.

The Continuous Emission Monitoring Device described above shall be operated and maintained according to a Quality Assurance Plan (QAP) approved by the Executive Officer. The QAP must address contingencies for monitored ammonia

concentrations near, at or above the permitted compliance limit, and remedial actions to reduced ammonia levels once an exceedance has occurred.

The Continuous Emission Monitoring Device may not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia.

The Continuous Emission Monitoring Device shall be installed and operating no later than 90 days after initial startup of the turbine.

Verification: The project owner shall submit to the District and CPM emissions calculations to demonstrate compliance for the VOC limits in Quarterly Operation Reports.

AQ-27 This equipment shall not be operated unless the project owner demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the project owner demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

Verification: The project owner shall submit to the District and CPM records of all RTCs held for the Magnolia Power Project facility prior to first fire and then annually in the fourth Quarterly Operation Report.

AQ-28 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

Verification: The project owner shall to the District and CPM submit combustion contaminant emissions (concentration and mass rate) in the Quarterly Operation Reports.

The following Conditions of Certification pertain to the following equipment:
12,000 gallon Ammonia Storage Tank (ID No. D1) (A/N 386307)

AQ-29 The project owner shall vent this equipment, during filling, only to the vessel from which it is being filled.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-30 The project owner shall install and maintain a pressure relief valve set at 25 psig.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

The following Conditions of Certification applies to all permit units.

AQ-31 The project owner shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all mitigation measures stipulated in the Final Energy Commission Decision for 01-AFC-6.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

The following Conditions of Certification are Facility Conditions

AQ-32 Except for open abrasive blasting operations, the project owner shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.

AQ-33 Accidental release prevention requirements of Section 112(r)(7):

a) The project owner shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).

b) The project owner shall submit any additional relevant information requested by the Executive Officer or designated agency.

Verification: The project owner shall submit to the District and the CPM the documents listed above in (a) and (b) as part of an annual compliance certification.

STAFF OPERATION CONDITIONS

AQ-34 The project owner shall provide emission reduction credits to offset turbine and duct burner CO, VOC, SO_2 and PM_{10} emissions as specified by the District. Additionally, the project must be fully and legally operational at the rated capacity within three years of the Permit to Construct issuance date, unless extended in writing by the Executive Officer, or otherwise any SO_2 priority reserve ERCs shall revert back to the AQMD Priority Reserve account and the project owner shall not operate this equipment until SO_2 ERCs are provided by the project owner to the AQMD in the amount of 42 lbs/day.

Verification: The project owner shall submit to the CPM records showing that the project's District regulated emission reduction credit requirements have been met 15 days prior to initiating construction for Priority Reserve emission reduction credits, and 30 days prior to turbine first fire for traditional emission reduction credits.

AQ-35 The project owner shall perform quarterly cooling tower recirculating water quality testing for total solids content (total dissolved and undissolved solids).

The project owner shall also provide a flow meter to determine the daily cooling tower circulating water flow.

Verification: The project owner shall submit to the CPM cooling tower recirculating water quality tests and daily recirculating water flow in the Quarterly Operation Reports.

AQ-36 The cooling tower daily PM_{10} emissions shall be limited to 30.25 lbs/day. The project owner shall estimate daily PM_{10} emissions from the cooling tower using the water quality testing data and daily recirculating water flow data. The emission calculation used to show compliance with this condition will be based on the following equation:

DWRR x TSC x 0.000006 drift frac. x 8.34 lbs/gallon / 1,000,000 = Daily PM_{10} Emissions

Where: DWRR = Daily Water Recirculation Rate (gallons)
TSC = Total Solids Content (TSS + TDS in ppm by weight)

Verification: The project owner shall submit to the CPM daily cooling tower PM_{10} emission estimates in the Quarterly Operation Reports.

AQ-37 The project owner shall provide, for CEQA mitigation, an assurance from the City of Burbank, a SCPPA member, that they will not seek to use the emission reductions resulting from the shutdown of the Magnolia 3 and 4 cooling towers in any form other than for the CEQA mitigation for the MPP cooling tower. Additionally, the project owner shall provide documentation assuring that the Magnolia 3 and 4 cooling towers have been removed and not replaced by other cooling tower(s) that would serve the existing City of Burbank power boilers and turbines.

Verification: The project owner shall provide, to the CPM 15 days prior to initiating construction, a letter from the City of Burbank documenting that the Magnolia 3 and 4 cooling towers have been removed from the Magnolia site, that these cooling towers have not been replaced by other cooling tower(s) at the site, and that they will not use the emission reductions resulting from the shutdown from the Magnolia 3 and 4 cooling towers for any other purpose than the CEQA mitigation proposed for the MPP cooling tower.

AQ-38 The project owner shall compile quarterly operating reports containing the operating and emission estimation data as required in Conditions **AQ-1** through **AQ-37**.

Verification: The project owner will submit to the District and the CPM the Quarterly Operation Reports within 30 calendar days of the end of each calendar quarter.

AQ-39 The project owner shall submit to the CPM for review and approval any modification proposed by either the project owner or issuing agency to any project air permit.

Verification: The project owner shall submit any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

REFERENCES

California Air Resources Board, CARB 2000: California Ambient Air Quality Data CD ROM.

California Air Resources Board, CARB 2001: California Ambient Air Quality Data available on CARB Website. http://www.arb.ca.gov/adam/.

Magnolia Power Plant, MPP 2001a: Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Plant, MPP 2001b: Twelve copies of the Air Quality Dispersion Modeling and Health Risk Assessment Files provided on CD. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Plant, MPP 2001f: Data adequacy responses for the Magnolia Power project. Submitted to the California Energy Commission on September 4, 2001.

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Magnolia Power Plant, MPP 2001k: Responses to first round data requests. Submitted to the California Energy Commission on November 5, 2001.

Magnolia Power Plant, MPP 2001o: Supplemental responses to first round of data requests. Submitted to the California Energy Commission on November 26, 2001.

Magnolia Power Plant, MPP 2002a: 01-AFC06 Magnolia Power Plant, Revisions and Comments on the CEC Air Quality Initial Staff Assessment. Submitted to the California Energy Commission on February 11, 2002.

Magnolia Power Plant, MPP 2002b: Revised Commissioning Modeling for Magnolia Power Plant, 01-AFC06. Submitted to the California Energy Commission on February 28, 2002.

Magnolia Power Plant, MPP 2002i. Data Responses for the Supplement to the AFC – Zero Liquid Discharge Option – POS. Submitted to the California Energy Commission on June 28, 2002.

Magnolia Power Plant, MPP 2002l. Supplemental Response to Data Requests #164, 198 and 199 – POS. Submitted to the California Energy Commission July 2002.

South Coast Air Quality Management District, SCAQMD 1993: CEQA Air Quality Handbook. November, 1993 Update.

So. Coast Air Quality Management District, 2002c: FDOC. Submitted to the California Energy Commission on April 9, 2002.

So. Coast Air Quality Management District, 2002d: Revised Draft FDOC. Submitted to the California Energy Commission on July 19, 2002.

United States Environmental Protection Agency, EPA 2000: Compilation of Air Pollutant Emission Factors – AP-42 Fifth Edition, Volume I: Stationary Point and Area Sources. http://www.epa.gov/ttn/chief/, Updated through December, 2000.

BIOLOGICAL RESOURCES

Testimony of Natasha Nelson and Julie Colyer

INTRODUCTION

This section provides the Energy Commission staff's (staff's) analysis of potential impacts to biological resources from the Southern California Public Power Authority's (SCPPA) proposal for the construction and operation of a new combined cycle plant at the City of Burbank (COB) power plant complex that has been in operation since 1941. This analysis is primarily directed toward impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological concern. This analysis presents information regarding the affected biotic community, the potential environmental impacts associated with the construction and operation of the proposed project, and where necessary, specifies mitigation planning and compensation measures to reduce potential impacts to non-significant levels. This analysis also determines compliance with applicable laws, ordinances, regulations and standards (LORS), and the need for conditions of certification.

This analysis is based, in part, on information provided from Southern California Public Power Authority's Application For Certification (AFC) for the Magnolia Power Project (MPP) (MPP 2001a, AFC Section 5.6 and Appendix L), supplemental AFC material submitted September 4, 2001 (MPP 2001f), May 11, 2002 (MPP 2002a), and May14, 2002 (MPP 2002b), staff's October 29, 2001 site visit, and Data Request Responses (MPP 2001k).

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

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

FEDERAL

Endangered Species Act of 1973

Title 16, United States Code, section 1531 *et seq*., and Title 50, Code of Federal Regulations, part 17.1 *et seq*., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat.

Migratory Bird Treaty Act

Title 16, United States Code, sections 703 through 711 make it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird.

Clean Water Act of 1977

Title 33, United States Code, sections 1251–1376, and Code of Federal Regulations, part 30, section 330.5(a)(26), require the permitting and monitoring of all discharges to surface water bodies. Section 404 requires permits from the U.S. Army Corps of Engineers for discharges from dredged or fill materials into waters of the U.S., including

wetlands. Section 401 requires permits from the state's water quality control boards for the discharge of pollutants into the state's waters of the U.S.

STATE

California Endangered Species Act of 1984

Fish and Game Code, sections 2050 through 2098, protect California's rare, threatened, and endangered species. California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3 sections 670.2 and 670.5, list the plants and animals of California that are declared as rare, threatened, or endangered.

Fully Protected Species

Fish and Game Code, sections 3511, 4700, 5050, and 5515, designate certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3, section 670.7).

Nest or Eggs

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

Migratory Birds

Fish and Game Code section 3513 protects California's migratory birds by making it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird.

Significant Natural Areas

Fish and Game Code section 1930 et seq. designate certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Native Plant Protection Act of 1977

Fish and Game Code section 1900 et seq. designate state rare, threatened, and endangered plants.

LOCAL

City of Burbank General Plan

The City of Burbank General Plan includes an Open Space and Conservation Element that focuses on the open space potential of the Verdugo Mountains.

Los Angeles County Significant Ecological Areas

Los Angeles County originally designated 61 Significant Ecological Areas (SEAs) as part of a background study for the 1973 County General Plan (as amended in 1980). The underlying objective of the SEA program is the preservation of biotic diversity. A conditional use permit is required for development in SEAs in order to protect resources contained in SEAs from incompatible development, which may result in or have potential for environmental degradation. Los Angeles County Department of Regional Planning has recently (November 2000) proposed boundary and policy changes to the SEAs as part of its General Plan Update (County of Los Angeles 2000).

City of Glendale General Plan

The City of Glendale General Plan recognizes the Verdugo Mountains as part of its Open Space and Conservation Element.

City of Los Angeles General Plan

Los Angeles Planning and Zoning Code, section 12.04.05, restricts the types of uses that can be permitted in an Open Space zone. Several SEAs are classified as Open Space under the Los Angeles municipal code, including Griffith Park and Verdugo Mountains.

Southern California Association of Governments

The Southern California Association of Governments reviews, pursuant to Public Resources Code Sections 21083 and 21087, Environmental Impact Reports of projects of regional significance for consistency with regional plans. The Growth Management Chapter of the Regional Comprehensive Plan and Guide contains the following policies that are applicable to biological resources:

3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.

3.18 Encourage planned development in locations least likely to cause environmental impact.

3.20 Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.

3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.

SETTING

REGIONAL

Various-sized remnants of native habitats, such as hillside and canyon areas, wetland habitats, beaches and marine habitats, exist in many areas of Los Angeles County. Although these areas may have been modified from their natural conditions, they are still important habitats for wildlife. Habitat values are generally highest in areas with relatively large acreage and those adjacent to outlying areas with similar or compatible habitat systems. Los Angeles County protects important biotic communities as open space under a program known as the Los Angeles County SEA. Two areas near the proposed power plant are currently designated as SEAs: Griffith Park (SEA #37; 1.75 miles to the south) and Verdugo Mountains (SEA #40; 1.5 miles to the northeast). Griffith Park is a combination of natural areas and landscaped park facilities and supports coastal scrub, chaparral, riparian and oak woodland habitats. The Department of Recreation and Parks manages a portion of the Park as a bird sanctuary. The

Verdugo Mountains feature rolling hills with chaparral and southern coast live oak riparian forest within the canyons. The majority of the Verdugo Mountains are undeveloped, but the City of Glendale has proposed a large residential development on the southeast face of the mountain.

The Los Angeles River meanders just outside the southern limits of Burbank in parallel with Highway 134. The majority of the Los Angeles river is a concrete-lined conveyance channel, but retains a few areas of natural and landscaped vegetation in "spreading basins" such as the one found south of the project (1.75 miles) near Mount Sinai Memorial Park. A five-mile stretch of the river from Griffith Park to the Golden State (I-5) and Pasadena (SR-11) Freeway interchange contains a natural bottom.

Most of the wildlife in the Los Angeles Basin is restricted to species that can tolerate and exploit the urban environment (Biological Resources Table 1). Some small mammals and birds have come to depend on the nesting sites and food that an urban environment can provide, and are actually flourishing under these conditions [e.g., house sparrow (*Passer domesticus*)]. Very few commercial or recreational species remain in the Los Angeles Basin except at parks where fish are stocked in artificial lakes and basins. Sensitive species and habitat were not recorded within one-mile of the site, but were recorded in the Verdugo Mountains and Griffith Park in the 1980s (Biological Resources Table 2). Most of the sensitive species occurrences from around the early 1900's have likely been extirpated due to urban development.

LOCAL

The City of Burbank is a mixture of industrial, residential, and commercial districts. The city is bisected by I-5, which traverses from northwest to southeast. The proposed power plant is sited just west of I-5, north of Magnolia Boulevard, and is completely surrounded with industrial and residential uses. The area east of I-5 at Magnolia Boulevard is dominated by the Media Center, a large retail and tourism development. Ornamental plantings line streets and buildings, and form freeway windrows. Isolated ruderal (weedy) patches on roadsides are common throughout the study area.

The entire power plant complex measures approximately 23 acres and contains six operating generation units (Magnolia Units 4 and 5, and Olive Units 1, 2, 3, and 4) and three abandoned or non-operating units (Magnolia Units 1, 2, and 3). The power plant complex does maintain a xeriscape demonstration garden near the administration building (facing Magnolia Boulevard), but this is the limit of native vegetation. On the remainder of the site there is no vegetation, other than an occasional scattered ruderal plant (seen during biological surveys). Personnel from the power complex routinely use herbicides to control vegetation growth.

Biological Resources Table 1: Regionally Occurring Wildlife and Plant Species that were Observed During Reconnaissance Surveys Conducted on the Project Area and Surrounding Area*.
(MPP 2001a and 2002a)

Plant Species	
Horseweed	(*Conyza canadensis)*
Cudweed everlasting	(*Gnaphalium luteo-album*)
Black mustard	(*Brassica nigra*)
Lamb's quarters	(*Chenopodium album*)
Russian thistle	(*Salsola tragus*)
Black walnut (as landscaping)	(*Juglans californica*)
Fremont cottonwood	(*Populus fremontii*)
Nightshade	(*Solanum* sp.)
Date palm	(*Phoenix canariensis*)
Fountaingrass	(*Pennisetum setaceum*)
Wildlife Species	
American kestrel	(*Falco sparverius*)
Western gull	(*Larus occidentalis)*
Pigeon	(*Columba livia*
Mourning dove	(*Zenaida macroura*)
Hummingbird	(*Calypte sp.)*
California towhee	(*Pipilo crissalis*)
House finch	(*Carpodacus mexicanus*)
House sparrow	(*Passer domesticus)*
Western fence lizard	(*Sceloporus occidentalis*)

- List does not include the many species of plants that are part of a xeriscape demonstration garden facing Magnolia Boulevard.

Biological Resources Table 2: Regionally Occurring Special Status Plant and Animal Species with the Potential to Occur.
(MPP 2001a)

Wildlife			
Coastal California gnatcatcher (*Polioptila californica*)	FT/CSC	Coastal sage scrub below 2,500 feet in elevation	Last seen in 1991 at Verdugo Mountain Park in Sun Valley
Southwestern pond turtle (*Clemmys marmorata pallida*)	__/CSC	Permanent or nearly permanent bodies of water below 6,000 feet in elevation	Last seen in 1987 in Los Angeles, possibly extirpated; location suppressed
Plant Species	**Status (Federal/State/ CNPS)***	**Habitat**	**Occurrence**
Davidson's bush mallow (*Malacothamnus davidsonii*)	__/__/1B	Sandy washes	Last seen in 1987 in lower Cabrini Canyon
Nevin's barberry (*Berberis nevinii*)	FE/SE/1B	Occurring in sandy gravelly soil on north chaparral slopes or in sandy washes	Last seen in 1986 at Griffith Park on Vista del Valle Road
Parish's brittlescale (*Atriplex parishii)*	FSC/__/1B	Under vernally-flooded conditions in playa and vernal-pool habitats	Last seen north of Griffith Park; date unknown
San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)	FC/SC/1B	Occurring in sandy soil in coastal scrub	Last seen in 1890 in the vicinity of West Hollywood; possibly extirpated
Slender-horned spineflower (*Dodecahema leptoceras*)	FE/SE/1B	Occurring in alluvial-fan habitats on flood deposited terraces and washes	Last seen in 1916 in the vicinity of La Crecenta; possibly extirpated

*Status:

Federal
FE = Federally listed as Endangered
FT = Federally listed as Threatened
FC = Federal Candidate Species
FSC = Federal Special Concern species

State
SE = State-listed as Endangered
SC = State candidate for listing
CSC = California Special Concern species
__ = No Status

CNPS (California Native Plant Society)
1A: Extinct
1B: Rare

The proposed MPP combined cycle plant would use 3 acres of the power plant complex. The 3-acre site is almost entirely asphalt and concrete surfaces with several buildings and an abandoned power plant. A few ruderal species occur where cracks in the pavement or gravel occur, but weeds are very limited. The expansion of the substation would also occur over an asphalt surface. The current substation uses gravel for a ground cover. Two of the three fuel tanks that would be removed use soil as a ground cover. Overall, there would be no net increase in impervious surfaces and no loss of native vegetation as a result of project construction.

The West Burbank Flood Control Channel (Burbank Western Channel) runs along the northeast edge of the site. This channel is approximately 20 feet deep and 40 feet wide, has a concrete bottom and sides, and empties into the Los Angeles River at a point near Riverside Drive (1.5 miles to the south). Burbank Water Reclamation Plant and the existing Steam Power Plant discharge wastewater and stormwater into the Burbank Western Channel at approximately 4.33 million gallons per day (MPP 2001a). This channel does not provide habitat for sensitive biological resources and water occurrence is intermittent.

The potential parking and staging areas are located in previously paved lots devoid of native vegetation. The parking sites are on Old Front Street near I-5 and on Ontario Street near Fredric Street. The staging area is a one-acre, unpaved lot 200 yards north of the site that is used for overflow parking for the lumber facility and storage for Union Pacific Railroad. These sites are surrounded with commercial, industrial, and residential uses which offer little or no value to biological resources.

ANALYSIS

Direct impacts result at the same time and place as the project. Indirect impacts are cause by the project, but can occur later in time or farther removed distance, but are still reasonably foreseeable and related to the project. Both of these types of impacts will be covered in this section.

STAFF'S CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

The determination of whether a project has a significant effect on biological resources is based on the best scientific and factual data that staff could review on the project. The significance of the activity is in large part dependant on the setting and the existing LORS for the particular site. For example, disturbance during construction in an urban area may not be significant, but this same activity in a rural setting may be significant because of the higher likelihood of biological resources in the area. The City of Los Angeles (which completely surrounds Burbank) has published a draft version of its California Environmental Quality Act (CEQA) thresholds for biological resources impacts (City of Los Angeles 1998) and staff selected these thresholds as an appropriate criteria to evaluate the proposed project. Because the project is located in an area not identified by the City of Los Angeles as "natural open space areas", with the potential to support biological resources, significance is based on responses to the following questions:

1. Do known individuals or populations of a sensitive species use or inhabit the site during one or more seasons of the year according to readily available published accounts, the project proponent and/or property owner?
2. Is the project site immediately adjacent to undeveloped natural open space containing native species or does the site appear to serve as a buffer between existing development and/or more natural habitat areas? Could it be part of a movement corridor for wildlife species or a habitat linkage system?
3. Is a natural water source, such as a lake, river, vernal pool, ephemeral stream, marsh or the ocean present on or adjacent to the site?

A "yes" response to any of the preceding questions indicates a potential for significant impacts to biological resources. A "no" response to all of the preceding questions indicates that there would normally be no significant impact on biological resources from the proposed project.

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES – Would the project or related facilities:				
a) Have an adverse effect, either directly, indirectly, or cumulatively, on any species identified as a candidate, sensitive, or special status species in federal, state, local or regional plans, policies, or regulations (including those by the California Department of Fish and Game, National Marine Fisheries Service, U.S. Bureau of Land Management, U.S. Forest Service, or U.S. Fish and Wildlife Service) or habitat used by the above?			X	
b) Have an indirect or direct adverse effect on any riparian habitat or other sensitive natural community identified in federal, state, local or regional plans, policies, and regulations (including those by the California Department of Fish and Game or U. S. Fish and Wildlife Service)?			X	

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES – Would the project or related facilities:				
c) Have an adverse effect on surface or ocean waters (including those considered by National Marine Fisheries Service as essential fish habitat), or on local aquatic resources, or on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, tidal and freshwater marshes, vernal pools, etc.) either through direct removal, filling, hydrological interruption, pollution (thermal, particulate, or chemical) or other means?			X	
d) Interfere with the movement of any native fish or wildlife species (resident or migratory) or with established native (resident or migratory) wildlife corridors, or limit or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as 1) a tree preservation policy or ordinance, or 2) a native landscape requirement?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?				X
g) Create an adverse change in commercial or recreational species' distribution or population size, or harvesting opportunities for these species?			X	
h) Facilitate the introduction, population growth, or spread of weedy plant species that are difficult to control (such as those classified by the California Department of Agriculture as List A, List B, or Red Alert species) or other invasive or non-native aquatic or terrestrial wildlife species (such as nest parasites)?				X

IMPACT TO SPECIES

Projects in developed areas typically have less of an impact on sensitive biological resources because of the lack of suitable habitat on site. However, such projects are evaluated for the impacts they could have on surrounding areas that remain in natural conditions and support biological resources.

Power Plant

SCPPA is proposing to dismantle and remove the remaining infrastructure of Magnolia Units 1 and 2 (these units were retired in 1982 and 1983) to use this space for the new combined cycle plant.

Power Plant Exhaust Stacks Impacts

Tall structures such as radio and television antennas, power plant and refinery exhaust stacks, and even tall building can pose a threat to birds that might collide with them. The proposed power plant project intends to construct one 150-foot heat recovery steam generation exhaust stack. Although this stack would be higher than the structures proposed for removal, it would be the same height as existing structures (Magnolia Units 3 and 4, 150 feet). There is no information to suggest that the existing MPP tall structures pose a significant collision threat to local or migratory bird populations. When compared to the other existing stacks at the MPP site, the new 150-foot exhaust stack is not expected to be a prominent obstacle for bird species that might collide with them. Therefore, staff concludes that the proposed facilities would not pose a significant bird collision threat to bird populations.

Wastewater Impacts

Burbank Western Channel empties into the Los Angeles River where the beneficial uses include, (but are not limited to), warm freshwater habitat, wildlife habitat, and wetland habitat. During operations, the applicant would use a Zero Liquid Discharge System for disposal of its process water and would dispose of sanitary waste into the sewer, but would allow stormwater to return to the Burbank Western Channel under an existing National Pollutant Discharge Elimination (NPDES) permit issued by the Regional Water Quality Control Board - Los Angeles Region (MPP 2002b, pp. 5.5-36 and -37). The Applicant has proposed sufficient Best Management Practices during construction and operation to ensure that the stormwater is not a threat to aquatic life and wildlife and the release of stormwater to the channel would be a less than significant impact. Please see the **Soil and Water Resources** section of this document for more information on wastewater discharge and permitting.

Air Quality Impacts

The operation of the proposed facility would generate air pollutants from the combustion of natural gas. Modeling of nitrogen deposition from the proposed project estimates that the site would receive 0.102 kg/ha/month (1.224 kg/ha/year), and that deposition levels generally decline with distance away from the site. For example, the nitrogen deposition at 0.8 mile to the northwest is approximately 0.06 kg/ha/month (0.72 kg/ha/yr) (MPP 2001a). The nitrogen deposition rate considered sufficient to affect ecosystem structure and diversity is 3 to 10 kg/ha/yr depending on vegetation type, and Los Angeles valley has a measured nitrogen deposition rate of 25 to 30 kg/ha/yr (Weiss

1999). The proposed plant's nitrogen deposition levels are not expected to create a measurable impact and the applicant has proposed an emissions offset package which reduces the region's overall pollution levels (see **Air Quality** section of this document for more information). In addition, the nitrogen deposition from the proposed power plant would occur over an urban landscape, and would not reach any areas that remain in natural conditions or support sensitive biological resources. Therefore, staff concludes that the air pollutants from the proposed MPP would not cause a significant impact to biological resources.

Light

A slight increase in light and glare at the MPP site is expected to occur as a result of the construction and operation of the MPP facilities. This is expected since the facility would operate continuously and lighting is needed to address worker and public safety concerns. Under certain circumstances lights can disorient migratory birds flying at night, or attract wildlife such as insects and insect-eaters. Surveys conducted by the applicant's biologists did not detect any sensitive wildlife species flying in the area that might be threatened by an increase of lighting at the MPP for the construction and operation of the MPP facilities. Therefore, staff concludes that there would be no significant impacts to sensitive wildlife species from the additional lighting or glare associated with the proposed MPP facility.

Noise

The COB's existing 23-acre site currently generates noise within the area proposed for construction and operation of the MPP facilities. The proposed facility would generate additional noise, especially during construction. The potential impact from this additional noise is considered to be insignificant because the proposed project would be located within an existing developed area, and no sensitive species that would be impacted by additional noise are known to occur in the immediate vicinity.

Other Impacts

The electrical interconnection for the MPP requires the expansion of the existing Olive 69 kV switchyard. The expanded area would measure approximately 118 feet by 93 feet (MPP 2001a). The expansion of the switchyard is wholly within the boundaries of the power plant complex and would occur over an existing asphalt surface. Thus, construction of the substation would not cause biological impacts. During operation, the substation would remain fenced and no biological impacts are expected.

Linear Facilities

The majority of ancillary facilities are already present on the 3-acre project site from the retired Magnolia Units 1 and 2, including water supply and disposal systems, and fuel supply. Electrical lines would need to be installed to connect the proposed combined cycle plant to the electrical grid. The applicant has proposed an underground connection from the steam turbine generator and the combustion turbine generator to the expanded Olive 69 kV switchyard. Both lines would be placed underground in PVC conduit encased in concrete duct banks, and all construction would occur within the boundaries of the existing power plant complex. Disturbance to install these lines would occur within an already developed area with no vegetation. Therefore the linear facilities are not expected to impact biological resources.

Worker Parking and Staging Areas

Parking and equipment staging areas required during the site preparation and construction periods would be located on previously disturbed sites with no known biological resources. These sites are surrounded with urban infrastructure and are unlikely to cause harm to peripheral biological resources. Therefore, these sites avoid impacts to biological resources and no mitigation is necessary.

RIPARIAN HABITAT

The proposed MPP would not be immediately adjacent to any riparian habitat or sensitive natural communities that exist in the region. The Burbank Western Channel is the closest body of water and does not contain riparian vegetation or riparian wildlife species.

WETLANDS

There are no federally protected wetlands, including vernal pools and/or marsh habitat, within or immediately adjacent to the proposed MPP area that may be affected by the project. For a discussion of potential impacts to the Burbank Western Channel, please refer to the wastewater impacts in Biological Resources Section A.

WILDLIFE CORRIDOR

MPP is in a developed area and does not act as a significant wildlife corridor. Please refer to Biological Resources Section A regarding potential migratory bird exhaust stack collisions.

The neighboring Burbank Western Channel is also developed and acts as a flood control channel and therefore does not contain water on a regular basis. This channel does not provide significant habitat for native or sensitive wildlife species. Therefore, the proposed MPP would not interfere with the movement of any native fish or wildlife species (resident or migratory).

LOCAL POLICIES OR ORDINANCES

The proposed MPP does not conflict with any local policies or ordinances protecting biological resources. There are no ordinance or heritage trees on the proposed MPP project site and there are no native landscape requirements for industrial zoned sites.

HABITAT CONSERVATION PLAN

The proposed MPP does not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan because there are no HCPs or NCCPs for this area.

BIOLOGICAL RESOURCES OF COMMERCIAL OR RECREATIONAL VALUE

There are no biological resources of commercial or recreational value on the MPP project site and there are no recreational fish species in the Burbank Western Channel since the water occurrence is only intermittent. Therefore, the proposed MPP would not

create an adverse change in commercial or recreational species' distribution or population size, or harvesting opportunities for these species.

SPREAD OF WEEDS

Native vegetation has been cleared from COB's 23-acre parcel, including the area proposed for the project. Since there is no suitable habitat for vegetation onsite or in the immediate surrounding area (other than the xeriscape demonstration garden), non-native weedy species would not occur. Therefore, non-native species would not spread and impact natural areas. All construction traffic would be using paved roads and would not be spreading weeds as they travel from the staging areas to the site.

CUMULATIVE IMPACTS

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

The location of other power plants under development or with applications near completion in the vicinity of the proposed project include Huntington Beach Unit 4 (under construction), City of Vernon's Malburg Generating Station (proposed), and El Segundo Power Redevelopment Project (proposed). All projects are greater than 15 miles away from MPP. These projects do not use the same water supply or discharge facility and are geographically isolated from the proposed plant, but do contribute air pollutants to the same air basin. In reviewing the projects above, staff does not expect any overlapping, or additive, biological impacts from water pollution, traffic, noise, air pollution, or lighting.

Proposed and current construction in the City of Burbank include the La Dolce Vita Senior Artist Colony, Burbank Empire Center, Burbank Entertainment Village, and the Marriot Residence Inn. None of these construction projects are proposed in the immediate vicinity of the MPP, so no cumulative impacts to biological resources from construction noise and light is expected. Many of these projects are in areas of high urban development, and do not result in incremental losses to habitat or potential taking of species. The projects, when constructed in conjunction with MPP would not cause a significant cumulative impact.

MITIGATION

The applicant has not proposed mitigation for biological resources because of the lack of sensitive biological resources at the site, offsite parking and staging areas, and in the immediate vicinity of these areas. Staff concurs that mitigation is not necessary since there are no biological resources on site and the project would have less than significant indirect or cumulative impacts.

COMPLIANCE WITH LORS

The lack of biological resources and the long-term industrial use of the site precludes the need for consultation with resource agencies.

While sited within two miles of two existing SEAs, the proposed power plant would not cause a change of or a violation of use under the Los Angeles County's adopted General Plan. The proposed 2000 update of the County's General Plan, if approved, would leave permitted uses of the two SEAs up to the cities (Cities of Burbank, Glendale, and Los Angeles for Verdugo Mountains, and City of Los Angeles for Griffith Park). The Cities' General Plans currently designate the SEAs as Open Space with limited permitted uses. The proposed power plant would not cause a change to or violation of approved uses under the three General Plans.

The project is requesting permitting to allow stormwater during construction to enter Burbank Western Channel under a *National Pollutant Discharge Elimination (NPDES) General Permit for Storm Water Discharges Associated with Construction Activities* (MPP 2002b, pp. 5.5-33 and -34). During operations, the facility would discharge stormwater to the Burbank Western Channel under an existing NPDES (MPP 2002b, pp. 5.5-36 and -37), but overall would be a Zero Liquid Discharge Facility for all process water and would return sanitary waste to a sewer. Staff feels the Regional Water Quality Control Board - Los Angeles Region has sufficient regulatory authority and oversight (e.g, periodic testing and monitoring) over NPDES permits to ensure the applicant will stay within the regionally developed pollutant thresholds and the designated beneficial uses for the Los Angeles river will remain unchanged by project inputs.

Staff concludes that the project would be consistent with all state, federal, and local laws, ordinances, regulations, and standards related to biological resources during construction and operation.

FACILITY CLOSURE

The region surrounding the proposed project is industrial and is expected to remain industrial in the future. The closure of the power plant and ancillary features (either temporary or permanent) would not have an impact to biological resources, and no measures are necessary unless surrounding land uses were to change significantly in the future.

CONCLUSIONS AND RECOMMENDATIONS

The Applicant has successfully avoided all construction related impacts to biological resources by siting the proposed combined cycle plant on a site that currently contains no biological resources and is sited more than a mile away from any natural communities. Similarly, the proposed project's parking and staging areas are devoid of biological resources. Staff concludes that impacts to biological resources during operation are undetectable, and mitigation would not be required. Staff finds no

significant impacts from the project when compared to the County of Los Angeles CEQA thresholds for significance.

PROPOSED CONDITIONS OF CERTIFICATION

No biological resource Conditions of Certification are recommended.

REFERENCES

Magnolia Power Plant. MPP 2001a. Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Plant. MPP 2001f. Data adequacy responses for the Magnolia Power project. Submitted to the California Energy Commission on September 4, 2001.

Magnolia Power Plant. MPP 2001k. Responses to first round data requests. Submitted to the California Energy Commission on November 5, 2001.

Magnolia Power Plant. MPP 2002a. Submittal of Revised Offsite Construction Laydown Area; Magnolia Power Project, Docket 01-AFC-6. May 11, 2002.

Magnolia Power Plant. MPP 2002b. Submittal of Suplement to the Application for Certification; Zero Liquid Discharge Option; Magnoila Power Project, Docket 01-AFC06. May 14, 2002.

Weiss, Stuart B. 1999. Cars, Cows and Checkerspot Butterflies. Nitrogen Deposition and Management of Nutrient-Poor Grasslands for a Threatened Species. *Conservation Biology*, Vol. 13, No. 6.

CULTURAL RESOURCES

Testimony of Mary L. Maniery

INTRODUCTION

The cultural resources section discusses potential impacts of the proposed Magnolia Power Plant (MPP) regarding cultural resources, which are defined under state law in the Laws, Ordinances, Regulations, and Standards (LORS) section of this staff assessment. A brief cultural overview of the project is provided, as is analysis regarding selected CEQA checklist items used to assess potential project related impacts. If cultural resources are identified, staff determines whether there may be a project related impact to identified resources. If the resource is eligible for the California Register of Historic Resources (CRHR), staff then recommends mitigation that will reduce the impact to the historical resource to a less than significant level.

There is also a potential that a project may impact a previously unidentified resource or impact an historical resource in an unanticipated manner. Staff also recommends procedures in the conditions of certification that mitigate these potential impacts to a less than significant level.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL

- 36 Code of Federal Regulations, Section 61, Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The State Historic Preservation Office refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.

STATE

- The term "cultural resource" is used broadly to include the following categories of resources that are identified pursuant to California Code of Regulations, Title 14, Chapter 11.5, Section 4852. The categories of potential resources eligible for nomination include:
  (1) Building. A resource, such as a house, barn, church, factory, hotel, or similar structure created principally to shelter or assist in carrying out any form of human activity. 'Building' may also be used to refer to an historically and functionally related unit, such as a courthouse and jail or a house and barn;
  (2) Site. A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished where the location itself possesses historical, cultural, or

archeological value regardless of the values of any existing building, structure, or object. A site need not be marked by physical remains if it is the location of a prehistoric or historic event, and if no buildings, structures, or objects marked it at that time. Examples of such sites are trails, designed landscapes, battlefields, habitation sites, Native American ceremonial areas, petroglyphs, and pictographs;

(3) Structure. The term 'structure' is used to describe a construction made for a functional purpose rather than creating human shelter. Examples of structures included mines, bridges and tunnels;

(4) Object. The term 'object' is used to describe those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed, as opposed to a building or a structure. Although it may be movable by nature or design, an object is associated with a specific setting or environment. Objects should be in a setting appropriate to their significant historic use, role, or character. Objects that are relocated to a museum are not eligible for listing in the California Register. Examples of objects include fountains, monuments, maritime resources, sculptures, and boundary markers; and

(5) Historic district. Historic districts are unified geographic entities which contain a concentration of historic buildings, structures, objects, or sites united historically, culturally, or architecturally. Historic districts are defined by precise geographic boundaries. Therefore, districts with unusual boundaries require a description of what lies immediately outside the area in order to define the edge of the district and to explain the exclusion of adjoining areas. The district must meet at least one of the criteria for significance discussed in California Code of Regulations, Title 14, Chapter 11.5, Section 4852 (b)(1)-(4).

When a cultural resource is determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, it may be considered to be an "historical resource" and eligible for inclusion in the California Register of Historic Resources (CRHR).

If the archaeological resource does not meet the criteria for an historical resource, it may be assessed to determine whether it meets the criteria of a unique resource as defined in the Public Resources Code.

- Public Resources Code, Section 5020.1 defines several terms, including the following: (j) "Historical resource" and (q) "Substantial adverse change," which means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.

- Public Resources Code, Section 5024.1 establishes a California Register of Historic Resources (CRHR). The implementing regulations are Title 14, California Code of Regulations, Chapter 11.5, Section 4850 et seq.

- The California Environmental Quality Act (CEQA) (Public Resources Code, § 21000 et seq.; Title 14, California Code of Regulations, § 15000 et seq.) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.
- Public Resources Code Section 21083.2 states that the lead agency determines whether a project may have a significant effect on "unique" archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the applicant's cost of mitigation; sets time frames for excavation; defines "unique and non-unique archaeological resources"; and provides for mitigation of unexpected resources.
- Public Resources Code Section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a "historic resource" and describes what constitutes a "significant" historic resource.
- Title 14, California Code of Regulations, Section 15126.4(b) prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.
- Title 14, California Code of Regulations, Section 15064.5 defines the term "historical resources," explains when a project may have a significant effect on historic resources, describes CEQA's applicability to archaeological sites, and specifies the relationship between "historical resources" and "unique archaeological resources."
- Penal Code, Section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.
- California Health and Safety Code, Section 7050.5 states that if human remains are discovered during construction, the project owner is required to contact the county coroner.
- Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials. This section also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.
- Public Resources Code Section 5097.99 provides restrictions on the possession of human remains or grave related artifacts. Part (b) specifies exceptions and states a person in violation of this section is guilty of a felony. Part (c) expands the section to say that any person, not under authority of law, who removes Native American artifacts or human remains with an intent to sell or vandalize them is guilty of a felony.

SETTING

The proposed Magnolia Power Plant (MPP) site is located near the southeastern end of the San Fernando Valley in the City of Burbank, Los Angeles County, California. Three temporary off-site laydown/parking areas will also be located in Burbank within two miles of the MPP site. The proposed project area is in an urban industrial environment. The MPP site is developed and is a total built environment. Two of the three proposed use areas are also paved lots. The third is unpaved and may represent fill. No ground disturbance is planned for the laydown/parking areas.

The MPP site is situated near the eastern margin of the San Fernando Valley, on alluvial deposits on the plain near the base of the Verdugo Mountains, a mass that borders the east side of the valley. The Los Angeles plain and ringing coastline has supported continuous cultural occupation for at least the past 8,000 yeas. An Archaic occupation has been identified in the archaeological record that reflects the early emergence of non-agricultural village-based groups in the Los Angeles Basin. Current archaeological evidence suggests that a relatively small population existed in the basin until approximately 2,000 years before present. After that time, populations appear to have expanded considerably into resource-rich coastal and near-shore estuarine environments. Early European visitors to the region reported that some of the large coastal villages had hundreds of occupants. By the late 18th century the Los Angeles environs supported only a small, well-established hunter/gatherer culture (MPP 2001a:5.7-5).

The project area is located within the ethnographic boundaries of the Gabrielino. The group spoke a Shoshonean-based language from the eastern California deserts and probably arrived in the Los Angeles Basin during the late prehistoric period. At the time of Spanish contact as many as 5,000 Gabrielino lived in the San Fernando Valley and the Los Angeles basin as far east as San Bernardino (MPP 2001a:5.7-9 to 5.7-11).

Virtually all settlements of the Gabrielino were situated near watercourses or springs. Primary village sites supported large groups of people who most likely moved into smaller, seasonal camps to better exploit local food resources. The MPP site, located within an original prairie environment, might have supported acorn, deer, sage, yucca, and a variety of marsh animals, plants and birds. Studies of archival and Mission records by King indicate that a village possibly known as Tobpet may have been located in the Burbank vicinity (MPP 2001a:5.7-10). In 1771, Mission San Gabriel Archangel was founded about 20 miles north of the MPP site at the northeast end of the San Fernando Village. In 1797, Mission San Fernando Rey del Espana was founded 20 miles south of the MPP site. These two missions collectively absorbed the local Gabrielino population and by 1832 no there is no evidence of that remaining Native Americans lived on the Los Angeles plain (MPP 2001a:5.7-9 to 5.7-11).

The City of Burbank originally was part of two separate Spanish land grants, the Rancho San Rafael grant to the north and the Rancho la Providencia to the south. American settlers purchased much of the former rancho lands around what was to become Burbank in the 1850s and 1860s. By the late 1860s, the town site of Burbank, surrounded by ranches, vineyards and orchards, had been laid out, partially in response

to the new Santa Fe Railroad line that passed through the town site (MPP 2001a: 5.7-12).

Growth in the new village was slow; when Burbank incorporated as a City in 1911, its populating was only 500. The development of municipal water and electrical facilities (aided by the completion of Hoover Dam), establishment of the movie industry and the building of the Lockheed Aircraft facility spurred development of the city, and by 1930 the population stood at 16,662. In 1941, the City of Burbank constructed a power plant adjacent to the MPP site to act as a backup for power from Hoover Dam because power from Hoover Dam was not sufficient to meet the needs of the growing city (MPP 2001h: 14).

A 1928 aerial photograph of the MPP site shows a major network of paved roads, including Magnolia Boulevard and Olive Avenue. Half of the project area was under cultivation, with a few scattered buildings present onsite. A residence and outbuilding were located in the northeast part of the project site, and a partially channelized stream meandered through the site (MPP 2001m).

The City of Burbank acquired a 23-acre parcel that includes the proposed project site in the 1930s for use as a corporation yard. In 1936, the Work Projects Administration (WPA) built the first structure, a warehouse, for City use. Build up of the site accelerated in 1941 with the construction of the Magnolia steam-operated power plant. Development of the City's power station has continued at a consistent pace into the present. Major projects included expansion of the Magnolia Unit in the late 1940s and early 1950s, construction of a central administration building in 1949, development of the Olive Unit in the late 1950s, expansion of the Olive unit in 1972 and 1982, and shutting down and dismantling Magnolia Units 1 and 2 in the 1980s and Magnolia Units 3 and 4 (shut down only) in 1996. Today, 15 of the 38 buildings and structures on the parcel were built in 1952 or before; the remaining 23 buildings are less than 50 years of age (MPP 2001h).

ENVIRONMENTAL CHECKLIST

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

DISCUSSION OF IMPACTS

A. HISTORICAL RESOURCE

1. A cultural resources records search and check of historic maps and aerial photographs indicated that one National Register-listed structure is present within 1/4-mile of the plant site. It is separated from the proposed site by an elevated freeway (MPP 2001a:5.7-16).
2. The applicant performed a field survey of the power plant site and use areas (MPP 2001h). The City of Burbank's power plant site was identified as containing numerous structures and buildings of historic age. The applicant has evaluated the power station as not eligible for the California Register of Historic Resources (CRHR) (MPP 2001h). Staff concurs with the applicant's evaluation. Since the plant does not meet the criteria for listing on the CRHR, no mitigation is necessary.
3. An archaeological survey of the power plant site resulted in the identification of remnants of a wall built in 1940 by the Works Progress Administration. The applicant evaluated the wall as not eligible for the CRHR (MPP 2001m:12). Staff concurs with the applicant's evaluation. Since the wall does not meet the criteria for listing on the CRHR, no mitigation is necessary.

B. ARCHAEOLOGICAL RESOURCE

1. A cultural resources records search indicated that no below-ground archaeological resources have been identified within 1000 feet of the power plant site or project use areas (MPP 2001a:5.7-16).
2. The applicant carried out a pedestrian survey of the proposed power plant site and temporary laydown/parking areas 1, 2, and 3. Soil surfaces were available for inspection only in use area 2; the power plant parcel and other use areas are paved. The applicant identified the remains of a WPA wall and noted that workers at the site uncovered a small deposit of bottles and tree stumps during previous excavations in the northeast quadrant of the power plant parcel. No other archaeological resources were identified as a result of the literature search or survey over the project site and use areas (MPP 2001a:5.7). However, there is a potential for buried archaeological resources to be located near the banks of the stream channel, previously located in the vicinity of the proposed project.

3. The proposed project will not impact any known archaeological resource. However, buried archaeological resources could be encountered during project construction. The applicant recommended worker training to increase the likelihood that workers will recognize buried cultural material during construction. The applicant also recommended monitoring of subsurface construction activities by an archaeologist for any grading or sub-surface excavation within the project area (MPP 2001m:2). Commission staff agrees that monitoring by an archaeologist is necessary to ensure that any cultural resources that might be encountered during construction will be identified and evaluated before significant impacts could occur. Staff recommends archaeological monitoring, at the discretion of the Cultural Resource Specialist, during initial grading. Staff also recommends monitoring full time in the northeast quadrant of the project site, during ground disturbance. In other areas of the project

site, staff recommends full time monitoring in areas where excavation levels will exceed the level of previous fill. These recommendations are incorporated into proposed Condition of Certification **CUL-7**.

4. In case of an unanticipated discovery, the proposed Conditions of Certification **CUL-1** through **CUL-7** shall apply. Implementation of the proposed Conditions of Certification **CUL-1** through **CUL-7** will reduce impacts to any archaeological resource identified during construction to a level of insignificance.

C. INTERRED HUMAN REMAINS

1. There is no record of interred human remains that would be disturbed by the proposed project. In the event that interred human remains are encountered during project construction, the proposed Conditions of Certification **CUL-1** through **CUL-6** and state law shall apply.

CUMULATIVE IMPACTS

Staff concludes that there are no known cumulative impacts because the project will not affect any known cultural or historical resources. Should any cultural resources be identified during construction, implementation of the proposed Conditions of Certification **CUL-1** through **CUL-7** will reduce cumulative impacts to a level of insignificance.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

No comments have been received from the public or agencies regarding cultural resources.

CONCLUSIONS

Based on the discussion above, it appears that the project will not cause significant impacts to cultural resources provided the following conditions of certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above.

CUL-1 Prior to the start of ground disturbance, the project owner shall submit the resume of the proposed Cultural Resources Specialist (CRS), and one alternate CRS, if an alternate is proposed, to the CPM for review and approval. The CRS shall be responsible for implementation of all cultural resources conditions of

certification and may obtain qualified cultural resource monitors (CRMs) to monitor as necessary on the project.

1. The resume for the CRS and alternate, shall include information that demonstrates that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published by the CFR 36, CFR Part 61 are met. In addition, the CRS shall have the following qualifications:

   a. The technical specialty of the CRS shall be appropriate to the needs of the project and shall include, a background in anthropology, archaeology, history, architectural history or a related field; and

   b. At least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California.

The resume shall include the names and phone numbers of contacts familiar with the work of the CRS on referenced projects and demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance, grading, construction and operation. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed CRS or alternate has the appropriate training and background to effectively implement the conditions of certification.

2. CRMs shall meet the following qualifications:

A BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or

An AS or AA in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or

Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

The project owner shall ensure that the CRS completes any monitoring, mitigation and curation activities necessary; fulfills all the requirements of these conditions of certification; ensures that the CRS obtains technical specialists, and CRMs, if needed; and that the CRS evaluates any cultural resources that are newly discovered or that may be affected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

Verification: The project owner shall submit the resume for the CRS at least 45 days prior to the start of ground disturbance.

At least 10 days prior to a termination or release of the CRS, the project owner shall submit the resume of the proposed new CRS.

At least 20 days prior to ground disturbance, the CRS shall submit written notification identifying anticipated CRMs for the project stating they meet the minimum qualifications required by this condition. If additional CRMs are needed later, the CRS shall submit written notice one week prior to any new CRMs beginning work.

At least 10 days, prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions of certification.

CUL-2

1. Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM.
2. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the CRS and the CPM for approval. Maps shall identify all areas of the project where ground disturbance is anticipated.
3. If construction of the project would proceed in phases, maps and drawings, not previously provided, shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.
4. At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.
5. The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. The project owner shall submit the subject maps and drawings at least 40 days prior to the start of ground disturbance.
2. If there are changes to any project related footprint, revised maps and drawings shall be provided at least 15 days prior to start of ground disturbance for those changes.
3. If project construction is phased, if not previously provided, the project owner shall submit the subject maps and drawings 15 days prior to each phase.
4. A current schedule of anticipated project activity shall be provided to the CRS on a weekly basis during ground disturbance and also provided in each Monthly Compliance Report (MCR).

The project owner shall provide written notice of any changes to scheduling of construction phases within 5 days of identifying the changes.

CUL-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by the CRS, to the CPM for approval. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures.

1. A brief proposed general research design that includes a discussion of research questions and testable hypotheses applicable to the project area. A refined research design shall be prepared for any resource where data recovery is required.
2. A discussion of the requirement that all cultural resources encountered shall be recorded on a DPR form 523 and mapped (may include photos). In addition, all archaeological materials collected as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with The State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.
3. A discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how requirements, specifications and funding shall be met. The name and phone number of the contact person at the institution. Indication the project owner pays all curation fees and that any agreements concerning curation shall be retained and available for audit for the life of the project.
4. A discussion of the proposed Cultural Resource Report (CRR) which shall be prepared according to Archaeological Resource Management Report (ARMR) Guidelines.

Verification: The project owner shall submit the subject CRMMP at least 30 days prior to the start of ground disturbance. Per ARMR Guidelines the author's name shall appear on the title page of the CRMMP. Ground disturbance activities may not commence until the CRMMP is approved. A letter shall be provided to the CPM indicating that the project owner would pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, data recovery).

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall be written by the CRS and shall be provided in the ARMR format. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, DPR 523 forms and additional research reports not previously submitted to the California Historic Resource Information System (CHRIS) shall be included as an appendix to the CRR.

Verification: The project owner shall submit the subject CRR within 90 days after completion of ground disturbance (including landscaping). Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the State Historic Preservation Officer (SHPO) , the CHRIS and the curating institution (if archaeological materials were collected),

CUL-5 A Worker Environmental Awareness Program (WEAP) shall be provided, on a weekly basis, to all new employees starting prior to and for the duration of, ground disturbance. The training may be presented in the form of a video. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. Information that the CRS, alternate CRS, and CRMs have the authority to halt construction to the degree necessary, as determined by the CRS, in the event of a discovery or unanticipated impact to a cultural resource;
4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources find, and shall contact their supervisor and the CRS or CRM; redirection of work would be determined by the construction supervisor and the CRS.
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. An acknowledgement form signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion form of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The CRS, alternate CRS and the CRMs shall have the authority to halt construction if previously unknown cultural resource sites or materials are encountered, or if known resources may be impacted in a previously unanticipated manner. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event resources are found or impacts can be anticipated, the halting or redirection of construction shall remain in effect until all of the following have occurred:

1. the CRS has notified the project owner, and the CPM has been notified within 24 hours of the find description and the work stoppage.;
2. The CRS, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
3. Any necessary data recovery and mitigation has been completed.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and CRMs have the authority to halt construction activities in the vicinity of a cultural resource find, and that the CRS or project owner shall notify the CPM immediately (within 24 hours, and no later than the following morning of the incident or Monday morning in the case of a weekend) of any halt of construction activities, including the circumstance and proposed mitigation measures. The project owner shall provide the CRS with a copy of the letter granting the authority to halt construction

CUL-7 1. The project owner shall ensure that the CRS, alternate CRS, or monitors shall monitor ground disturbance full time in areas where excavation has the potential to exceed previous fill and in the northeast quadrant of the project site. In other areas, monitoring shall occur at the discretion of the CRS, during initial ground disturbance, to ensure there are no impacts to undiscovered cultural resources. In the event that the CRS determines that full-time monitoring is not necessary in the identified locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring.

2. CRMs shall keep a daily log of any monitoring or cultural resource activities and the CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

3. The CRS shall notify the project owner and the CPM, by telephone or e-mail, of any incidents of non-compliance with any cultural resources conditions of certification within 24 hours of becoming aware of the situation. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these conditions of certification.

4. If Native American artifacts are discovered, A Native American monitor shall be obtained to monitor ground disturbance in conjunction with cultural resources monitoring, in areas where Native American artifacts have been discovered or where there is a potential for encountering additional artifacts. Informational lists of concerned Native Americans and Guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored.

Verification

1. During the ground disturbance phases of the project, if the CRS wishes to reduce the level of monitoring occurring at the project, a letter identifying the area(s) where the CRS recommends the reduction and justifying the reductions in monitoring shall be submitted to the CPM for review and approval.

2. During the ground disturbance phases of the project, the project owner shall include in the MCR to the CPM copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained and made available for audit by the CPM.

3. Within 24 hours of recognition of a non-compliance issue, the CRS shall notify the CPM by telephone or e-mail of the problem and of steps being taken to resolve the problem. The initial telephone call or e-mail shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance with conditions of certification. In the event of a non-compliance issue, a report written no sooner than two weeks after resolution of the issue that describes the issue, resolution of the issue and the effectiveness of the resolution measures, shall be provided in the next MCR.

4. No later than one week after obtaining the services of a Native American monitor, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM who shall initiate a resolution process.

REFERENCES

Magnolia Power Plant, MPP 2001a. Application for Certification, Magnolia Power Plant (01-AFC-06). Submitted to the California Energy Commission, May 14, 2001.

Magnolia Power Plant, MPP 2001h. Historical Evaluation of the Magnolia-Olive electric Power Plant, Burbank, Los Angles County, California (01-AFC-06). Submitted to the California Energy Commission, September 11, 2001.

Magnolia Power Plant, MPP 2001c1: Cultural and Paleontological Resources technical reports, applications for confidentiality. Submitted to the California Energy Commission on May 22, 2001.

Magnolia Power Plant, MPP 2001m. E-mail responses to staff Cultural Resources Data Requests, Nos. 25 through 37, Magnolia Power Plant (01-AFC-06). Submitted to California Energy Commission, November 05, 2001.

HAZARDOUS MATERIALS MANAGEMENT

Testimony of Alvin J. Greenberg, Ph.D.

INTRODUCTION

The purpose of this staff analysis is to determine if the proposed Magnolia Power Project (MPP), Application for Certification (01-AFC-6), complies with applicable laws, ordinances, and regulations (LORS), and has the potential to cause significant impact on the public as a result of the use, handling or storage of hazardous materials at the proposed facility. If significant adverse impacts on the public are identified, Energy Commission staff must also evaluate the potential for facility design alternatives and additional mitigation measures to reduce impacts to the extent feasible.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. Staff's **Worker Safety and Fire Protection** analysis describes the requirements applicable to the protection of workers from such risks.

The only hazardous material stored at the Magnolia Power Project in quantities exceeding the reportable amounts defined in the California Health and Safety Code, section 25532 (j), is aqueous ammonia (19 percent ammonia in water). The use of aqueous ammonia significantly reduces the risk that would otherwise be associated with use of the more economical anhydrous form of ammonia. Use of the aqueous form eliminates the high internal energy associated with the more hazardous anhydrous form, which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release, which can rapidly introduce large quantities of the material to the ambient air and result in high down-wind concentrations. Spills associated with the aqueous form are much easier to contain and emissions are limited by the slow mass transfer from the surface of the spilled material.

Other hazardous materials stored in smaller quantities, such as mineral and lubricating oils, corrosion inhibitors and water conditioners, will be present at the proposed facility. However, these materials pose no significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, and/or their environmental mobility. Although no natural gas is stored, the project will also involve the construction and operation of a natural gas pipeline and handling of large amounts of natural gas. Natural gas poses some risk of both fire and explosion; however, the gas line will not be lengthy and will be attached to an existing on-site main. Thus, off-site gas pipeline construction will not be required and the on-site pipeline design is addressed in staff's **Facility Design** analysis.

LAWS, ORDINANCES, REGULATIONS, STANDARDS AND POLICIES

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

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. section 11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.

The Clean Air Act (CAA) of 1990 (42 U.S.C. §7401 et seq. as amended) established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The CAA section on Risk Management Plans, codified in 42 U.S.C. section 112(r), requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of the CAA are reflected in the California Health and Safety Code, section 25531 et seq.

Currently, due to the high volume of petroleum-containing hazardous materials already in place on this site, the applicant is required to have a Spill Prevention Control and Countermeasure Plan (SPCC) in place (Hazardous Waste Contingency Plan Title 40 C.F.R., Part 112.7).

STATE

The California Accidental Release Prevention Program (Cal-ARP), Health and Safety Code, section 25531, directs facility owners storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This program supersedes the California Risk Management and Prevention Plan (RMPP).

Section 25503.5 of the California Health and Safety Code requires facilities which store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case the Los Angeles County Fire Department, Hazardous Materials Division. This Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.

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

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

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

LOCAL AND REGIONAL

The Uniform Fire Code (UFC 1997) contains provisions regarding the storage and handling of hazardous materials in Articles 4 and 79. The most recent version of the UFC was adopted in 1997. The City of Burbank Municipal Code section 15.1-800 and the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program address the enforcement of CCR title 23 standards on petroleum underground storage tank cleanup. The Los Angeles County Fire Department, Hazardous Materials Division regulates hazardous waste generator permits, handling, and storage requirements.

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

SETTING

The proposed MPP project is proposed to be located at the existing City of Burbank (COB) generating plant site that is owned and operated by the City of Burbank Water and Power Department. This site is located within the City of Burbank at 164 West Magnolia Boulevard. The area around the project is zoned for Commercial/Industrial uses. No residential development is anticipated in the project vicinity. See the **Project Description** section of this Final Staff Assessment for more details.

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

- local meteorology;
- terrain characteristics; and
- location of population centers and sensitive receptors relative to the project.

METEOROLOGICAL CONDITIONS

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

Recorded wind speeds and ambient air temperatures are described in the Air Quality Section of the AFC (MPP 2001a, section 5.2). This data indicates that wind speeds below one meter per second and temperatures exceeding 80°F occur in the project area, owing to the temperate nature of the California Coast microclimate. Therefore, staff agrees with the applicant that use of F stability (stagnated air, very little mixing), 1.5 meter/second wind speed, and an ambient temperature of 110° F in its modeling analysis of an accidental release of aqueous ammonia is an extremely conservative scenario and reflects worst case atmospheric conditions.

TERRAIN CHARACTERISTICS

The location of elevated terrain above a hazardous material storage tank is often an important factor to be considered in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations. Modeling of an accidental release of aqueous ammonia at the proposed facility indicates that significant concentrations would be confined to the facility property and that off-site concentrations – even at elevated locations – would be so low as to pose no hazard to the public. The project site and immediate vicinity is mostly level terrain. Because modeling results show impacts are insignificant at the fenceline, elevated terrain is not an important factor affecting the modeled results of accidental releases of aqueous ammonia at this site.

LOCATION OF EXPOSED POPULATIONS AND SENSITIVE RECEPTORS

The general population includes many sensitive subgroups that may be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a large bearing on health risk. The locations of both populated areas and sensitive receptor sites (hospitals, schools, nursing homes and day-care facilities) in the project vicinity are described in Section 5.16 of the AFC (MPP 2001a). The fence closest to the aqueous ammonia storage tank area is 30 meters from the ammonia storage tanks. The nearest public receptor is a school located about 0.4 miles away from the facility.

ENVIRONMENTAL IMPACTS

Staff reviewed and assessed the potential for the handling, and use of hazardous materials to impact the surrounding community. All chemicals and natural gas were evaluated.

METHODOLOGY

In order to assess the potential for released hazardous materials to travel off-site and result in an impact on the public, staff analyzed several aspects of the proposed use of these materials at the facility. Staff recognizes that some chemicals must be used that are toxic. Therefore, staff conducted its analysis by examining the need for hazardous materials, the choice of chemical to be used and its amount, the manner in which the applicant will use the chemical, the manner it will be transported to the facility and transferred to facility storage tanks, and the way the applicant chooses to store the material on-site. Staff reviewed the applicant's proposed engineering controls and administrative controls concerning hazardous materials usage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a spill of hazardous material from occurring or which can limit the spill to a small amount or confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow that will help to prevent accidents or keep them small if they do occur. Both engineering and administrative controls can act as methods of prevention or as methods of response and minimization. In both cases, the goal is to prevent a spill from moving off-site and causing harm to people.

Staff evaluated the applicant's proposed use of hazardous materials as described by the applicant in the AFC (MPP 2001a, section 5.15). Staff's assessment followed the five steps listed below:

- Step 1: Staff reviewed the chemicals and the amounts proposed for use as listed in Table 5.15-1 of the AFC and determined the need and appropriateness of their use.
- Step 2: Those chemicals proposed for use in small amounts or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public were removed from further assessment.
- Step 3: Measures proposed by the applicant to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings and administrative controls such as worker training and safety management programs.
- Step 4: Measures proposed by the applicant to respond to accidents were reviewed and evaluated. These measures also included engineering controls such as catchment basins and methods to keep vapors from spreading and administrative controls such as training emergency response crews.
- Step 5: Staff then analyzed the theoretical impacts on the public from a worst-case spill of hazardous materials even with the mitigation measures proposed by the applicant. If the mitigation methods proposed by the applicant were found to be sufficient, no further mitigation would be required. If the proposed mitigation proposed by the applicant were found to be insufficient to reduce the potential for adverse impacts to an insignificant level, staff would then propose additional prevention and response controls until the potential for causing harm to the public was reduced to an insignificant level. It is only at this point that staff can recommend that the facility be allowed to use hazardous materials.

PROJECT IMPACTS

Small Quantity Hazardous Materials

In conducting the analysis, staff determined in Steps 1 and 2 that some materials, although present at the proposed facility, pose a minimal potential for off-site impacts as they will be stored in a solid form or in smaller quantities or have very low toxicity. These hazardous materials were thus removed from further assessment. For example, solvents, amines (for controlling boiler feedwater pH), and chemicals for controlling feedwater oxygen will be present in small quantities. Staff has determined that the potential for impacts on the public are insignificant if the applicant uses those scale inhibitors and corrosion controllers that contain only the active ingredients on the list (see proposed Condition of Certification **HAZ-1**). See Appendix B for a list of chemicals that will be used at the power plant.

During the construction phase of the project, the only hazardous materials proposed for use include gasoline, fuel oil, lubricants, solvents, adhesives, and paint. Any impact of spills or other releases of these materials will be limited to the site due to the small quantities involved and thus no further analysis of construction phase activities was warranted.

The Zero Liquid Discharge option to be used by the applicant results in only a minor increase in the amount of hazardous materials stored and used at the site from that originally proposed in the AFC (MPP 2001a, MPP 2002b). Staff reviewed this list and found that these small quantities would not add any incremental risk of impact.

After removing from consideration those chemicals that fit into Steps 1 and 2, staff continued with Steps 3, 4 and 5 to review the only remaining hazardous materials: sodium hypochlorite, petroleum fuels, natural gas, and aqueous ammonia.

Large Quantity Hazardous Materials

According to AFC Table 5.15-1, 7,500 gallons of an aqueous mixture of sodium hypochlorite will be stored at the site (MPP 2001a). Sodium hypochlorite has a low potential to affect the off-site public because its vapor pressure is also low and the concentration of hypochlorite is low (12.5 percent). In fact, hypochlorite is used at many such facilities as a substitute for chlorine gas, which is much more toxic and much more likely to migrate off-site because it is a gas and is stored in concentrated form. Thus, the use of a water solution of sodium hypochlorite is much safer to use than the alternative chlorine gas. The chances for accidental spills during transfer from delivery vehicles to the storage tanks should be reduced as much as possible. Thus, measures to prevent transfer spills are extremely important and will be required as an additional section within the required Safety Management Plan for delivery of aqueous sodium hypochlorite (see Condition of Certification **HAZ-3**).

Large quantities of various petroleum-containing hazardous materials will be used on this site. Diesel fuel (2,000 gallons) is of very low volatility and impacts of spills are expected to remain on-site.

Natural Gas

Natural gas poses a fire and/or explosion risk as a result of its flammability. Natural gas is composed mostly of methane, but also contains ethane, propane, nitrogen, butane, isobutane and isopentane. It is colorless, odorless, and tasteless and is lighter than air. Natural gas can cause asphyxiation when methane is ninety percent in concentration. Methane is flammable when mixed in air at concentrations of 5 to 14 percent, which is also the detonation range. Natural gas, therefore, poses a risk of fire and/or explosions if a release were to occur. In particular, gas explosions can occur in the Heat Recovery Steam Generator. However, it should be noted that, due to its tendency to disperse rapidly (Lees 1998), natural gas is less likely to cause explosions than many other fuel gases, such as propane or liquefied petroleum gas. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices during start-up and operation.

The National Fire Protection Association (NFPA 85A) has established controls for gas fired equipment, including 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. Hazardous materials management plans and procedures proposed by the applicant for use and storage of hazardous materials (MPP 2001a, pp. 5.15-19 and 5.15-20) will include the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. Since the proposed facility will not require the installation of any new gas pipelines off-site, impacts from a break in the pipeline are limited to the existing pipelines already in use in the area or in the new pipeline to be installed on-site. The design of the natural gas pipeline is governed by laws and regulations discussed in staff's **Facility Design** analysis. Thus, the only new gas pipelines installed for the proposed project will be placed on-site where the risk of natural gas accidents can be better controlled and minimized. Therefore, the use of natural gas at the proposed facility will not result in adverse off-site impacts.

Aqueous Ammonia

Aqueous ammonia will be used in controlling the emission of oxides of nitrogen (NO_x) from the combustion of natural gas in the facility. The accidental release of aqueous ammonia without proper mitigation can result in hazardous down-wind concentrations of ammonia gas. One 12,000-gallon double walled tank will be used to store the 19 percent aqueous ammonia.

Based on staff's analysis discussed above, aqueous ammonia is one of the hazardous materials that may pose a risk of off-site impacts. The use of aqueous ammonia can result in the formation and release of toxic gases in the event of a spill even without interaction with other chemicals. This is a result of its moderate vapor pressure and the large amounts of aqueous ammonia, which will be used and stored on-site. However, as with aqueous hypochlorite, the use of aqueous ammonia poses far less risk than

would result from the use of the much more hazardous anhydrous ammonia (i.e. ammonia that is not diluted with water).

To assess the potential impacts associated with an accidental release of ammonia, staff typically evaluates where four “bench mark” exposure levels of ammonia gas occur off-site. These include: 1) the lowest concentration posing a risk of lethality, 2,000 ppm; 2) the Immediately Dangerous to Life and Health (IDLH) level of 300 ppm; 3) the Emergency Response Planning Guideline (ERPG) level 2 of 150 ppm (recently changed from the 200 ppm value), which is also the RMP level 1 criterion used by EPA and California; and 4) the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure of 75 ppm. (A detailed discussion of the exposure criteria considered by staff and their applicability to different populations and exposure-specific conditions is provided in Appendix A of this analysis.) If the potential exposure associated with a potential release exceeds 75 ppm at any public receptor, staff will presume that the potential release poses a risk of significant impact. However, staff will also assess the probability of occurrence of the release and/or the nature of the potentially exposed population in determining whether the likelihood and extent of potential exposure are sufficient to support a finding of potentially significant impact.

The AFC (MPP 2001a, section 5.15) provided the results of modeling for a worst case accidental release of aqueous ammonia. The analysis assumed winds of 1.5 meters per second and atmospheric stability category F would exist at the time of the accidental release. An air temperature of 110º F was assumed. The US EPA approved SCREEN air dispersion model was used to estimate airborne concentrations of ammonia. These analyses were designed to predict the maximum possible impacts based on distance from the storage tank without regard to specific direction of transport.

The worst case event assumed an accidental release of 8,000 gallons of aqueous ammonia from the delivery tanker truck during transfer to the storage tanks. The spilled ammonia would flow into an underground containment vault with a 10-inch opening. The aqueous ammonia storage tank would be double walled, which makes the release of ammonia to the atmosphere extremely unlikely. Therefore, the release from the storage tank was not modeled.

The results indicated that concentrations exceeding 75 PPM would be confined within the project site (20 meters from the unloading area for the worst-case) and at the fence line concentrations would be only 12.7 PPM (approximately 36 meters from the unloading area). Therefore, the release of aqueous ammonia used for the project will not cause a significant impact.

Seismic Issues

Hazardous materials spill could also occur during an earthquake, which would cause the failure of a hazardous materials storage tank. The quake could also cause the failure of the secondary containment system (berms and dikes) as well as electrically controlled valves, pumps, and neutralization systems. The failure of all these preventive control measures might then result in a vapor cloud of hazardous materials moving off-site and impacting the residents and workers in the surrounding community. This concern over earthquake safety is heightened by the Loma Prieta earthquake of 1989,

the Northridge earthquake of 1994, and the earthquake in Kobe, Japan in January 1995.

Information obtained after the January 1994 Northridge earthquake showed that some damage was caused to several large storage tanks and smaller tanks associated with the water treatment system of a cogeneration facility. Those tanks with the greatest damage, including seam leakage, were older tanks while the newer tanks sustained displacements and failures of attached lines. Therefore, staff conducted an analysis of the codes and standards, which should be followed in adequately designing and building storage tanks and containment areas to withstand a large earthquake. Staff also reviewed the impacts of the February 2001 Nisqually earthquake near Olympia, Washington, a state with similar seismic design codes as California. No hazardous materials storage tanks were impacted by this quake. Referring to the sections on **`Geologic Hazard`** and **`Facility Design`** in the AFC, staff notes that the proposed facility will be designed and constructed to the applicable standards of the California Building Code for Seismic Zone 4 (MPP 2001a, AFC Section 5.3.4.2), the most stringent code level. Therefore, on the basis of what occurred in Northridge with older tanks and the lack of failures during the Nisqually earthquake with newer tanks, staff determined that tank failures during seismic events are not probable and do not represent a significant risk to the public.

Transportation of Hazardous Materials

Hazardous materials, including aqueous ammonia, sodium hypochlorite, and others will be transported to the facility via tanker truck or other trucks. While many types of hazardous materials will be transported to the site it is staff's belief that transport of aqueous ammonia poses the predominance of risk associated with such transport. The extent of impact in the event of such a release would depend on the location and on the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. The likelihood of an accidental release during transport is dependent on three factors:

1. the skill of the tanker truck driver;
2. the type of vehicle used for transport; and
3. accident rates.

Staff believes that it is appropriate to rely on the extensive regulatory program that applies to shipment of hazardous materials on California Highways to ensure safe handling in general transportation (see The Federal Hazardous Materials Transportation Law 49 USC §5101 et seq., The US Department of Transportation Regulations 49 CFR Subpart H, §172-700, and California DMV Regulations on Hazardous Cargo). These regulations also address the issue of driver competence. See AFC section 7.5.11 for additional information on regulations governing the transportation of hazardous materials (MPP 2001a).

To address the issue of tank truck safety, aqueous ammonia will be delivered to the proposed facility in Department of Transportation (DOT) certified vehicles with design capacity of 8000 gallons. These vehicles will be designed to DOT Code MC-307. These are high integrity vehicles designed for hauling of caustic materials such as ammonia. Staff has therefore proposed a Condition of Certification (**HAZ-5**) to ensure

that regardless of which vendor supplies the aqueous ammonia, delivery will be made in a tanker, which meets or exceeds the specifications described by these regulations. To address the issue of accident rates, staff reviewed the technical and scientific literature on hazardous materials transportation (including tanker trucks) accident rates in the United States and California.

Staff relied on the following references to determine the approach to preparing a hazardous materials transportation accident risk analysis:

Rhyne, W.R. 1994. Hazardous Materials Transportation Risk Analysis. Quantitative Approaches for Truck and Train.
Chapter 2: Transportation Quantitative Risk Analysis
Chapter 3: Databases

Davies, P.A. and Lees, F.P. 1992. “The Assessment of Major Hazards: The Road Transport Environment for Conveyance of Hazardous Materials in Great Britain.” Journal of Hazardous Materials, 32: 41-79.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1990. "Truck Accident Rate Model for Hazardous Materials Routing." Transportation Research Record. 1264: 12-23.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1993. "Procedure for Developing Truck Accident and Release Rates for Hazmat Routing." Journal of Transportation Engineering. 119(2): 189-199.

Vilchez, J.A., Sevilla, S., Montiel, H. and J. Casal. 1995. "Historical Analysis of Accidents in Chemical Plants and in the Transportation of Hazardous Materials." J. Loss Prev. Process Ind. 8(2): 87-96

Pet-Armacost, J.J., Sepulveda, J. and M. Sakude. 1999. "Monte Carlo Sensitivity Analysis of Unknown Parameters in Hazardous Materials Transportation Risk Assessment." Risk Analysis. 19(6): 1173-1184.

National Response Center
Chemical Incident Reports Center, U.S. Chemical Safety Board
National Transportation Safety Board

Staff used this information to determine that the frequency of release for transportation of hazardous materials in the U.S. is between 0.06 and 0.19 releases per million miles traveled on well designed roads and highways. The maximum usage of aqueous ammonia each year of operation of the proposed Magnolia Power Project would require one truck delivery per week. Each truck delivery would travel approximately 1.5 miles from I-5 to the project site along the transportation route (I-5 to Burbank Blvd. to Victory Blvd. to Olive Ave. to the south gate entrance), which results in a total of approximately 78 miles of ammonia delivery truck travel in the project area per year. Staff finds that the risk over this distance is negligible.

Staff therefore believes the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public. The transportation of similar volumes of hazardous materials on the nation's highways is not unique nor an infrequent occurrence. Staff's analysis of the transportation of aqueous ammonia to the proposed facility (along with data from the U.S. DOT) demonstrates that the risk of accident and exposure is less than significant.

CUMULATIVE IMPACTS

Staff reviewed the potential for the operation of the MPP combined with existing light industrial facilities to result in cumulative impacts on the population within the area. Projects that could potentially contribute to cumulative impacts are those located or which will be located in the same geographic area of influence defined as within a one-mile radius of the proposed power plant. Because there already exists a power generation facility on this site, the risks and hazards surrounding the use of hazardous materials has already been addressed for the existing facility and for the surrounding industries. Staff finds that the new power generating facilities at this site would not add significant cumulative impacts to those already encountered and addressed. Staff finds that the facility, as proposed by the applicant and with the additional mitigation measures proposed by the staff, poses a minimal risk of accidental release, which could result in off-site impacts.

APPLICANT'S PROPOSED MITIGATION

The potential for accidents resulting in the release of hazardous materials is greatly reduced by the implementation of a safety management program, which includes the use of both engineering and administrative controls. Administrative controls include the development and implementation of a Safety Management Plan. Elements of facility controls and the safety management plan are summarized below.

ENGINEERING CONTROLS

Engineering controls help to prevent accidents and releases (spills) from moving off-site and impacting the community by incorporating engineering safety design criteria into the design of the facility. The engineered safety features proposed by the applicant for use at this facility include:

- construction of curbs, berms, and/or catchment basins in the hazardous materials storage areas to contain accidental releases that might happen during storage or delivery;
- physical separation of stored chemicals in separate containment areas in order to prevent accidental mixing of incompatible materials which may result in the evolution and release of toxic gases or fumes;
- double walled containment of the 12,000 gallon aqueous ammonia storage tank;
- a sloped and concrete-paved containment pad for the aqueous ammonia tanker truck delivery area that will drain into an underground containment vault with a10-inch opening; and

- process protective systems including automatic shut-off valves, double-wall piping, and fire protection systems.

ADMINISTRATIVE CONTROLS

Administrative controls also help to prevent accidents and releases (spills) from moving off-site and impacting the community by establishing worker training programs and process safety management programs and by complying with all applicable health and safety laws, ordinances and standards.

The worker health and safety program proposed by the applicant for use at this facility will include (but is not limited to) the following elements:

- worker training regarding chemical hazards, health and safety issues, and hazard communication;
- the proper use of personal protective equipment;
- safety operating procedures for operation and maintenance of systems utilizing hazardous materials;
- fire safety and prevention; and
- emergency response actions including facility evacuation, hazardous material spill cleanup, and fire prevention.

At the facility, the project owner will designate an individual who has the responsibility and authority to ensure a safe and healthful workplace. The project health and safety professional oversees the health and safety program and has the authority to halt any action or modify any work practice in order to protect the workers, facility, and the surrounding community or in the event that the health and safety program is violated.

The facility Safety Management Program will include regular inspection and maintenance of equipment, valves, piping, and appurtenances. Additionally, the safety management program requires that only trained facility personnel are assigned to the transfer and handling of hazardous chemicals.

The facility will also prepare a Hazardous Materials Business Plan and a Risk Management Plan (RMP).

In order to address the issue of spill response, the facility will prepare and implement an Emergency Response Plan which includes information on: hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, prevention equipment and capabilities, etc. Emergency procedures will be established which include evacuation; spill cleanup, hazard prevention, and emergency response.

STAFF MITIGATION

Staff proposes five Conditions of Certification. **HAZ-1** ensures that no hazardous material would be used at the facility except those listed in the AFC unless there is prior

approval by the County and the CPM. **HAZ-2** requires that a RMP be prepared and submitted prior to the delivery of aqueous ammonia.

The worst-case accidental release scenario evaluated in the AFC assumed that an accidental spill of aqueous ammonia would occur during transfer of ammonia from a delivery truck to the storage tank. Staff agrees that this is the most likely event, and therefore proposes a Condition of Certification **HAZ-3** that requires development of a safety management plan for the delivery of aqueous ammonia and aqueous sodium hypochlorite . The development of a Safety Management Plan addressing delivery of these materials will further reduce the risk of any accidental release not addressed by the proposed spill prevention mitigation measures and the required Risk Management Plan (RMP). **HAZ-4** requires that the aqueous ammonia storage tank be designed to certain rigid specifications, and the transportation of hazardous materials is addressed in **HAZ-5**.

FACILITY CLOSURE

The requirements for the handling of hazardous materials remain in effect until such materials are removed from the site regardless of facility closure. Therefore, the facility owners are responsible for continuing to handle such materials in a safe manner, as required by applicable laws. In the event that the facility owner abandons the facility in a manner, which poses a risk to surrounding populations, staff will coordinate with the California Office of Emergency Services, City of Burbank Fire Department, and the California Department of Toxic Substances Control (DTSC) to ensure that any unacceptable risk to the public is eliminated. Funding for such emergency action can be provided by federal, state or local agencies until the cost can be recovered from the responsible parties (O.E.S. 1990).

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the Staff Assessment based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above.

HAZ-1 The project owner shall not use any hazardous materials not listed in Appendix B, below, or in greater quantities than those identified by chemical name in Appendix B, below, unless approved in advance by the CPM.

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

HAZ-2 The project owner shall concurrently provide a Business Plan and a Risk Management Plan (RMP) to the Certified Unified Program Authority - CUPA (the Los Angeles County Fire Department) and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). The

project owner shall reflect all recommendations of the CUPA and the CPM in the final documents. Copies of the final Business Plan and RMP, reflecting all comments, shall be provided to the CPM.

Verification: At least 60 days prior to receiving any hazardous material on the site, the project owner shall provide a copy of a final Business Plan to the CPM. At least 60 days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final EPA-approved RMP, to the CUPA and the CPM.

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

Verification: At least 60 days prior to the delivery of aqueous ammonia or aqueous sodium hypochlorite to the facility, the project owner shall provide the plan to the CPM.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 150% of the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM.

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

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only transport vehicles, which meet or exceed the specifications of DOT Code MC-307.

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

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APPENDIX A

HAZARDOUS MATERIAL MANAGEMENT

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

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

Staff has chosen to use the National Research Council's 30 minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. Table 1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75-ppm STPEL. Appendix B provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

HAZARDOUS MATERIAL MANAGEMENT
APPENDIX A TABLE 1
Acute Ammonia Exposure Guidelines

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

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

References for Appendix A, Table 1

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Abbreviations for Appendix A, Table 1

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

Appendix B
[Attach AFC Table 5.15-1]
To help the project secretaries, please note how many pages long this is.

LAND USE

Testimony of David Flores

INTRODUCTION

The land use analysis of the proposed Magnolia Power Project (MPP) focuses on the project's compatibility with existing and planned land uses, and the project's consistency with local land use plans, ordinances, and policies. The project has the potential to create impacts that could result in various types of land use incompatibilities, including impacts in the areas of noise, dust, public health, traffic, and visual resources. These individual resource topics are discussed in separate sections of this Final Staff Assessment (FSA).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The project site is located within the City of Burbank in Los Angeles County, which is situated in the eastern portion of the San Fernando Valley. Land use laws, ordinances, regulations and standards (LORS) applicable to the proposed project are contained in the City of Burbank's General Plan and Zoning Ordinance. In addition, the project is within the South San Fernando Redevelopment Project area. The goals and objectives of the redevelopment project area are also addressed in this analysis.

CITY OF BURBANK GENERAL PLAN

Land uses are controlled and regulated through a series of goals and policies contained in plans adopted by the local jurisdiction that has land use authority over the area (in this case, the City of Burbank). Local agencies with land use authority (i.e., cities and counties) are required to adopt a General Plan for the area within their jurisdiction that sets forth policies regarding land use and other planning topics. The General Plan is the broadest planning document applicable to the site, expressing broad goals and policies to guide local decisions on future growth, development, and conservation. Other local plans, as well as the zoning ordinance that regulates land use, must be consistent with the goals and policies expressed in the General Plan.

The City of Burbank General Plan was adopted in 1988 and has been selectively amended since. In its preface, the Burbank General Plan is described as an official policy document adopted as a guide for making decisions concerning the development of the community according to desired goals. When adopted in 1988, it was intended to shape the future physical development of the city for the next 20 years. The City of Burbank's General Plan Land Use Element designates the project site as General Manufacturing. In addition, the existing power plant, which is owned and operated by the City of Burbank, is designated Public Facility in the Land Use Element. The project's Industrial land use designation promotes the City of Burbank's role as a regional industrial area and as a significant employment center within the Los Angeles region.

The Land Use Element of the General Plan designates the general location and extent of the uses of the land for housing, business, industry, open space, natural resources, recreation and enjoyment of scenic beauty, and other categories of public and private

uses of land. The Land Use Element designates 1,173 acres for industrial purposes. It is the intent of the Land Use Element that industrial sites be attractive, convenient, safe, and that they be located so as to benefit both industry and the community.

The Public Facilities land use designation indicates and provides land for a variety of public and quasi-public facilities. The objective of the Land Use Element in designating Public Facilities sites is to preserve public amenities and necessary public facilities for which alternative sites would be difficult to procure. The City of Burbank is developed to the point where acquisition of additional land for public facilities is not practical. As a result, existing public facility sites will not be relinquished unless it can be demonstrated that they will no longer be necessary to the public. As provided in the AFC (MPP 2001a, p. 5.9-4, section 5.9.1.3), it is the intent of the land use element that public facilities be located in areas of compatible land use and that their location reflect the policy of distributing service facilities equitably throughout the community.

The City of Burbank is currently in the process of preparing a comprehensive revision to its General Plan. As part of the General Plan revision process, the City staff has prepared a series of community events in the coming months for public involvement. It is not anticipated that there will be any changes affecting the proposed project site.

REDEVELOPMENT PLAN

The Redevelopment Agency implements the goals adopted in the Redevelopment Plans for each project area. These include rehabilitating and revitalizing blighted and deteriorated areas via various methods of Redevelopment Agency participation, such as land assemblage, infrastructure upgrades and certain on-site improvements. Removal of blight, creation and retention of jobs, and improvement and preservation of affordable housing are the three primary areas of focus for the Agency.

The City of Burbank adopted a Redevelopment Plan for the South San Fernando Redevelopment Project in June 1997. This area includes the existing City of Burbank power facility, which is owned by the City of Burbank. The City has joined with a number of other Southern California cities to form a municipal utility consortium, the Southern California Public Power Association (SCPPA), which has proposed the new MPP at the existing Burbank site. The MPP will provide economic development in the form of power for the SCPPA members to either use or sell to other utilities in the area. New employment will be generated by the development of the MPP, and the proposed power facility will use a currently underutilized property to provide a more efficient energy facility that will enhance regional energy resources without introducing additional industrial development within the urban area of the City of Burbank.

CITY OF BURBANK ZONING ORDINANCE

Zoning is the specific administrative tool used by a jurisdiction to regulate land use and development, and is one of the primary tools for implementing the goals and policies of the General Plan. Zoning is typically more specific than the General Plan and includes detailed land use regulations and development standards. The City's Zoning Ordinance divides the land in the city into zones that permit different types of uses and imposes development standards appropriate to the uses permitted in each zoning district. **LAND**

USE Figure 1 shows the zoning districts in the area of the proposed project site. The MPP project site is located in the General Industrial (M-2) zoning district.

The “M-2” District (Section 31-808 of the Burbank Zoning Ordinance) is “intended for the development of manufacturing process, fabrication and assembly of goods and materials.” The “M-2 ” District permits a broad array of industrial uses, administrative and professional offices/services, automobile-related uses, personal services, retail commercial uses, and service commercial uses. As indicated earlier in this analysis, the site is designated "Public Facility" which is an allowed use in the M-2 Zoning District.

The Zoning Ordinance (Section 10-1.1645) also includes minimum design and performance standards applicable to the construction of industrial and commercial buildings in the “M-2” District. These include standards for architectural design, fences and walls, landscaping, lighting, outdoor storage, signs, and other design features.

STATE

Warren-Alquist Act (Pub. Resources Code § 25500 et seq.)

The Warren-Alquist Act is the enabling legislation for the California Energy Commission. Section 25525 of the act states:

“The commission shall not certify any facility contained in the application when it finds pursuant to subdivision (d) of Section 25523, that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity. In making this determination, the commission shall consider the entire record of the proceeding, including, but not limited to, impacts of the facility on the environment, consumer benefits, and electric system reliability. In no event shall the commission make any finding in conflict with applicable federal law or regulation. . . .”

SETTING

PROJECT LOCATION

The project site is located in the City of Burbank in Los Angeles County, which is in the eastern portion of the San Fernando Valley. Burbank is bordered by the City of Glendale to the south and east, and the City of Los Angeles to the north and west. Burbank has a population of 100,316 (Census, 2000) and encompasses a land area of approximately 17.155 square miles.

The proposed MPP project site is located in an industrial corridor of the city. This area contains a diverse mix of both small and large light industrial, heavy industrial, and office uses. Although some retail commercial uses and a few residences are interspersed through the area, the vicinity of the project site is predominantly industrial in nature, characterized by manufacturing, processing, and fabricating facilities;

trucking, distribution, and warehouse facilities; contractor yards and construction supply; and miscellaneous industrial and business park developments.

SITE AND VICINITY DESCRIPTION

Proposed Project Site

The proposed MPP site is approximately 23 acres in size and the project will require approximately four of the 23 acres. The project will constructed adjacent to the existing City of Burbank generating facility site, replacing several existing structures with a new combined cycle power facility. Perimeter chain-link fences enclose the 23-acre parcel.

The primary off-site parking area is north of the MPP site on Front Street. Construction personnel can walk to the MPP site from this lot. Approximately 300 parking spaces will available at this site. This area is zoned Automobile Dealership and is paved. The zoning designation does not allow for the site to be used for parking. The second designated parking area is a paved area along San Fernando Boulevard between Hollywood Way and Buena Vista Road along the railroad tracks. Workers will be transported to the project site by shuttle. Approximately 100 parking spaces will be available on this site. This site is zoned Railroad and the use of this site for parking requires a Conditional Use Permit. The City of Burbank did not prepare Use Permit findings to allow these two parking uses, therefore staff reviewed the City's "findings" found in Chapter 31 of the Burbank Municipal Code. These items are presented in the Conditional Use Permit Findings section of this report.

The project will also include one temporary offsite equipment laydown area located along Victory Place adjacent to the railroad tracks, between Empire Avenue and Maria Street. This 2.4-acre site is zoned Railroad and the use of this site for a

LAND USE Figure 1
City of Burbank Zoning Map

LAND USE Figure 2
General Plan Land Use Map

temporary laydown area will also require a Conditional Use Permit. The City of Burbank did not prepare Use Permit findings to allow this use, therefore staff reviewed the City's "findings" found in Chapter 31 of the Burbank Municipal Code. These items presented in the Conditional Use Permit Findings section of this report.

Existing Adjacent Uses

LAND USE Figure 2 shows the existing general plan land uses in the project vicinity. As indicated above, the proposed MPP site is located in a predominantly industrial area. Land uses in the vicinity of the project site include:

- North: Magnolia Boulevard with industrial uses;
- East: Southern Pacific Railroad line, I-5, and mass transportation facilities;
- South: Olive Avenue with mixed commercial; and
- West: Victory Boulevard with mixed commercial uses.

RECREATIONAL FACILITIES

The following neighborhood parks exist in the project's vicinity: George Izay Park and Recreation Center, and Cambridge Park. George Izay Park is located approximately three-quarters of a mile southwest of MPP on West Olive Avenue. Cambridge Park is located approximately one mile northeast from MPP on Amherst Avenue.

ENVIRONMENTAL IMPACTS

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE AND PLANNING – Would the project:				
LAND USE				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		X		
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE AND PLANNING – Would the project:				
RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

DISCUSSION OF IMPACTS

Land Use and Planning

Physical Division of an Existing Community - No Impact

The proposed MPP project has no potential to physically divide an existing community. The site is located in an established industrial and mixed commercial area in the City of Burbank. The power plant would be located entirely on private property and neither the size nor nature of the project would result in a physical division of an established community. No new physical barriers would be created by the project (public access across the site is not currently allowed) and no existing roadways or pathways would be blocked. No new transmission lines, off-site pipelines, or transmission towers associated with the project would be constructed, therefore would not create a new physical barrier. Given its location, the project would not alter existing residential, recreational, commercial, institutional, and other industrial land use patterns in the area. Therefore, there would be no impact.

Conflict with any Applicable Land Use Plan, Policy, or Regulation – Less than Significant with Mitigation Incorporated

The proposed MPP project would comply with the City of Burbank's LORS. The proposed project is appropriately sited in an area designated for industrial development in the General Plan. The City's General Plan policies concerning the Industrial Corridor are generally supportive of new industrial projects for economic development reasons, rather than restrictive or prohibitive. Staff has concluded that the proposed project does not conflict with the any of the relevant land use policies contained in the Burbank General Plan.

Of the various zoning districts in the City's Zoning Ordinance, the "M-2" District in which the project site is located, is the most appropriate zoning district for a power plant. Power plants are specifically listed as permitted in the "M-2" District, and this zoning

district is the City's most intensive industrial zoning category, permitting a range of light and heavy industrial uses, including public utility facilities. The project complies with all of the applicable development standards (lot, and yard requirements) set forth in the Zoning Ordinance for the "M-2" District.

The City of Burbank has determined that the proposed MPP project would be consistent with the City's General Plan and Zoning Ordinance (Burbank City Planning Staff, 2001). This confirms staff's conclusion that the proposed project would comply with the City's LORS.

The proposed project also appears to comply with the minimum design and performance standards applicable to the construction of industrial buildings in the "M-2" District with the exception of the proposed new 150-foot stack which will require a conditional use permit finding of consistency with the local LORS. The maximum height limit is 70 feet in the M-2 Zone District. Some standards are subject to interpretation in the M-2 Zone (e.g., "design elements that are harmonious and in proportion to one another") and others involve details not specifically presented in the AFC (e.g., container size of trees used in landscaping). The project presumably conforms to the architectural design principles included in the "M-2" District's design and performance standards. A condition of certification (**LAND-1**) has been proposed to ensure the project's compliance with the City's industrial design and performance standards for those standards subject to interpretation. In addition, staff has prepared Conditional Use permit findings for stack height allowance, worker parking areas, and a temporary laydown area. These findings are discussed below. For a discussion of the project's effects on views and aesthetic resources, please see the **VISUAL RESOURCES** section of this FSA.

In addition, staff is requiring that proposed project meet the minimum requirements for parking standards (LAND-2), that any new signs erected (either permanent or for construction only) shall comply with the outdoor advertising regulations (LAND-3), and that the requirement for public art display or the payment of an in lieu fee shall conform with the City of Burbank zoning ordinance (LAND-4).

Given the proposed project's consistency with the City of Burbank's applicable land use LORS, impacts will be less than significant if Conditions of Certification **LAND-1** through LAND -4 are implemented.

HABITAT /NATURAL COMMUNITY CONSERVATION PLANS – NO IMPACT

There are no sensitive natural resource areas in the general vicinity of the project site (see the **BIOLOGICAL RESOURCES** section for more information). In addition there are no adopted habitat conservation plans or natural community conservation plans in the vicinity of the proposed project site. Therefore, the proposed project would not conflict with any such plans.

Recreation

Increased Use of Recreational Facilities - No Impact

Physical impacts to public services and facilities such as recreational facilities are usually associated with population migration and growth in an area, which increase the

demand for a particular service. An increase in population in any given area may result in the need to develop new, or alter existing government facilities in order to accommodate increased demand.

As an electric generation project seeking to meet the current demand of MPP customers, the proposed project is not expected to result in an increase in the population of the area. As described in the MPP application, construction of the generation station would require an average of 150 workers, and 318 workers during peak construction (MPP 2001a, p. 5.10-8). Given the availability of local workforce and the temporary nature of construction activities, proposed project construction is not expected to result in population growth. In addition, given the number of operational personnel needed (maximum fifteen personnel increase from current power plant work force), plant operation would only result in a negligible contribution to the area's population. Therefore, it is not expected that the proposed project would increase the use of existing recreational facilities such that a substantial physical deterioration of these facilities would occur.

Two recreation facilities are located within one mile of the MPP site (i.e., George Izay Park located three-quarters of a mile away, and Cambridge Park located one mile away). Given the facilities distance from the site, and the existing industrial/commercial development which acts as a buffer, the MPP will not affect users of these recreational facilities. The project will be compatible with recreation uses in the area. No impacts would occur.

Construction of Recreational Facilities - No Impact

As a power generation project, the proposed project does not include recreational facilities or require the construction or expansion of existing recreational facilities. As described above, the proposed project would not result in an increase in the area's population that would require new or expanded recreational facilities whose construction would in turn lead to an adverse physical effect on the environment. No impacts would occur.

Conditional Use Permit Findings

The conditional use permit findings required for the stack height allowance from 70-feet to 150-feet, off-site parking area, and off-site laydown area are to be made before granting of the permit for the project. The City of Burbank did not prepare findings for these provisions. Therefore, staff reviewed the City's "findings" found in Chapter 31 of the Burbank Municipal Code and presents the following conclusions.

The supporting information (evidence) for the applicable "finding" prepared by staff has been italicized and presented below each of the City's required "findings."

Stack Height Finding:

- Is the structure greater than 500 feet from a residential zone district lot line (R-1, R-1/R-E, R-1-H, R-2, R-3, R-4, R-5) and is the structure located in an adopted specific planning or redevelopment planning area? (Must be found in the affirmative)

Finding: The proposed 150 foot high stack is more than 500 feet from a residential zone district lot line, and is located in the South San Fernando Redevelopment Project Area.

Findings for Off-site worker parking along San Fernando Boulevard and Front Street; and 2) Victory Boulevard off-site laydown area:

- The use applied for at the location set forth in the application is properly one for which a CUP is authorized by this chapter.

- The use is not detrimental to existing uses or uses specifically permitted in the zone in which the proposed use is to be located.

- The use will be compatible with other uses on the same lot and in the general area in which the use is proposed to be located.

- The site for the proposed use is adequate in size and shape to accommodate the use and all of the yards, setbacks, walls, fences, landscaping and other features required to adjust the use to the existing or future uses permitted in the neighborhood.

- The site for the proposed use relates to streets and highways properly designed and improved to carry the type and quantity of traffic generated or to be generated by the proposed use.

- The conditions imposed are necessary to protect the public health, convenience, safety and welfare.

Findings: both off-site temporary parking areas (Old Front Street, zoned Automobile Dealership and San Fernando Boulevard, zoned Railroad) are surrounded by areas zoned Industrial. As a result, the use of these sites for parking and equipment storage is compatible with other uses in the general area.

CUMULATIVE IMPACTS

The proposed project is consistent with the City of Burbank's long-range land use policies for the Industrial Corridor as expressed in the General Plan and the South San Fernando Redevelopment Plan. Conformance with the General Plan and Redevelopment Plan is the primary consideration in determining a project's potential to contribute to adverse cumulative land use impacts. The General Plan and Redevelopment Plan sets forth the City's long-range vision for the physical development of the city and other plans for infrastructure and public services are based on this long-range vision. Therefore, projects that are consistent with the City's long-range land use policies are not viewed as adverse from a cumulative impact perspective. Because the project is consistent with the City's long-range planning policies for industrial development in this area, cumulative land use impacts are not considered significant.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that indicates the minority population is not greater than 50 percent within a six-mile radius of the proposed MPP (please refer to **Socioeconomics Figure 1** in this Staff Analysis). The data for the population income levels within six miles of the MPP indicates that the low income population is also less than 50 percent. Staff's Land Use analysis did not result in any identified unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no environmental justice issues related to this project.

FACILITY CLOSURE

At some point in the future, the proposed facility would cease operation and close down. At that time, it would 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 planned lifetime of the MPP is estimated at 30 years. At least twelve months prior to the initiation of decommissioning, the Applicant would prepare a Facility Closure Plan for Energy Commission review and approval. This review and approval process would be public and allow participation by interested parties and other regulatory agencies. At the time of closure, all applicable LORS would be identified and the closure plan would discuss conformance of decommissioning, restoration, and remediation activities with these LORS. All of these activities would fall under the authority of the Energy Commission.

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 unexpected temporary closure or unexpected permanent closure of the EAEC.

CONCLUSIONS

The project would not physically divide an established community, would not conflict with any applicable land use plan, policy, or regulation, and would not conflict with any applicable habitat conservation plan. Staff has concluded that the MPP will be a compatible land use within the City of Burbank. The proposed use would be consistent with the policies of the City of Burbank's General Plan, and is considered a primary use permitted in the "M-2" District of the Zoning Ordinance. The project appears to conform to the development standards for the "M-2" District and such conformance can be assured with the implementation of recommended condition of certification **LAND-1**. Therefore, the project's land use impacts are either less than significant or can be readily mitigated to a less-than-significant level.

Condition of certification **LAND-2** would require that MPP comply with the City of Burbank's parking standards to ensure compliance with the Zoning Ordinance.

Condition of certification **LAND-3** requires that any additional signs erected by the applicant, shall comply with the City of Burbank outdoor advertising regulations to ensure compliance with the Zoning Ordinance.

Lastly, Condition of certification LAND-4 requires the applicant to comply with the public art requirement as established under the City of Burbank Zoning Ordinance.

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above.

LAND-1 The project owner shall comply with the minimum design and performance standards for the Industrial (M-2) District set forth in the City of Burbank Zoning Ordinance (Division 2, Sec.31-808).

Verification: At least 30 days prior to site mobilization, the project owner shall submit written documentation, including evidence of review by the City of Burbank that the project meets the above referenced requirements and has been reviewed by the City of Burbank.

LAND-2 The project owner shall comply with the parking standards established by the City of Burbank Zoning Ordinance (Division 2, Sec. 21-808).

Verification: At least 30 days prior to site mobilization, the project owner shall submit to the CPM, written documentation, including evidence of review by the City of Burbank that the project conforms to all applicable parking standards. (Title 8, Chapter 82-16).

LAND-3 The project owner shall ensure that any signs erected (either permanent or for construction only) comply with the outdoor advertising regulations established by the City of Burbank zoning ordinance (Article 10, Sec.31-100).

Verification: At least 30 days prior to start of commercial operation, the project owner shall submit written documentation, including evidence of review by the City of Burbank, that all erected signs will conform to the zoning ordinance.

LAND-4 The project owner shall ensure that any public art erected shall comply with the Municipal Code, Chapter 31 regulations established by the City of Burbank zoning ordinance (Section 31-1113.1).

Verification: At least 30 days prior to start of commercial operation, the project owner shall submit written evidence to the CPM that the public art display or the payment of an in lieu fee will conform to the City of Burbank zoning ordinance. The submittal to the CPM shall include evidence of review by the City.

REFERENCES

Magnolia Power Project. MPP 2001a. Application for Certification, Magnolia Power Project (01-AFC-06). Submitted to the California Energy Commission May 14, 2001.

Magnolia Power Project. MPP 2000. Magnolia Power Project Response to Staff Data Requests, Set 1, Magnolia Power Project (01-AFC-06). Submitted to California Energy Commission November 5, 2001.

City of Burbank. Personal conversation with City planning staff on January 9, 2002

City of Burbank. 1988 (as amended). General Plan Policies.

City of Burbank. 1997. South San Fernando Redevelopment Plan.

City of Burbank. 1988. Zoning Ordinance.

NOISE AND VIBRATION

Testimony of Fred Greve

INTRODUCTION

This section evaluates the potential noise and vibration effects associated with the construction and operation of the Magnolia Power Project (MPP), which would be located in the City of Burbank at 164 West Magnolia Boulevard. As described in the AFC (MPP 2001a), the proposed project would be to construct a 328-megawatt (MW) natural gas-fired, combined cycle power generating facility. The project would be located on approximately 3 acres of the existing 23 acre Burbank Water and Power's generating station complex. Site improvements include demolition of some of the older power generating and fuel storage facilities. The proposed project would interconnect on-site to gas, water, and to an existing transformer station. No off-site linear facilities will be constructed.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. NOISE Table 1 lists permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed; assuring that workers are made aware of overexposure to noise; and periodically testing the workers' hearing to detect any degradation. It should be noted that there are no federal laws governing offsite (community) noise.

NOISE Table 1 – OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: OSHA Regulation

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which

is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

California Government Code, section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The Model also contains a definition of a "pure tone" which can be used to determine whether a noise source contains significant annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

Other State laws, ordinances, regulations, and standards (LORS) include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

California Environmental Quality Act

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

a) exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

b) exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;

c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project….

The Energy Commission staff, in applying Item c) above to the analysis of this and other projects, has concluded that a potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 dBA L_{90} or more at the nearest location where the sound is likely to be perceived.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

1. The construction activity is temporary;
2. Use of heavy equipment and noisy activities is limited to daytime hours; and
3. All industry-standard noise abatement measures are implemented for noise-producing equipment.

CAL-OSHA

Cal-OSHA has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

The City of Burbank's General Plan recommends that exterior noise exposures at residential locations should not exceed an L_{dn} of 60 dBA. Areas where the L_{dn} is between 60 dBA and 70 dBA are considered "conditionally acceptable" for residential properties. This means that any new construction or development of residential properties in these areas must include sufficient noise insulation features to meet the acceptable interior noise exposure level of 45 dBA L_{dn}.

Of more relevance to this project are the standards contained in the City of Burbank's Noise Ordinance (Municipal Code, Section 21 Environmental Protection – Article 2. Noise Control, February 21, 1987). Project noise at the plant site boundaries must comply with the Noise Ordinance standards established for residential, commercial and industrial land uses. Burbank's noise ordinance limits noise from an individual source by restricting the amount to which that source increases the ambient noise level at any other property. The ordinance permits an increase of up to five decibels above the "ambient base levels." Even if the measured ambient noise level is higher than the base noise level, it is the base noise level that applies. **NOISE Table 2** lists the ambient base noise levels contained in the Burbank Noise Ordinance.

NOISE Table 2 – City of Burbank Ambient Base Noise Levels (dBA, L_{eq})

Base Noise Level	Time	Zone
45 Dba	Nighttime	Residential
55 Dba	Daytime	Residential
65 dBA	Anytime	Commercial
70 dBA	Anytime	All other zones

The properties adjacent to the project site consist of commercial and industrial uses. Per the City's noise ordinance the maximum permissible total noise (plant plus ambient) for adjacent commercial uses would be 70 dBA (65 dBA ambient plus 5 dBA). Thus, the plant could generate noise levels of 68 dBA L_{eq} for the total noise level to remain under 70 dBA, assuming that the ambient noise level is 65 dBA. Similarly, at industrial areas the MPP noise level (L_{eq}) could not exceed 73.3 dBA, and at residential areas the MPP noise could not exceed 48.3 dBA, to be in compliance with the Burbank Noise Ordinance.

Section 21-209 of the Noise Ordinance states that noise from construction activities is prohibited during the nighttime (10:00 p.m. to 7:00 a.m.) in a residential zone or within a radius of 500 feet from any residential zone. If necessity is shown, a permit can be obtained from the Superintendent of the Building Department to perform construction activities during the nighttime, stating the predetermined hours and days when the work is to be performed.

SETTING

The MPP site is located at 164 West Magnolia Boulevard in Burbank, California. The site is located 500 feet southwest of the Interstate 5. The project will occupy approximately 3 acres on the roughly 23 acre Burbank Water and Power's existing generating station complex. The property is bordered by a Metrolink station and an industrial property to the northeast, a car dealership to the southeast, industrial properties to the southwest, and industrial/commercial properties to the northwest. The nearest residences are located on Moss Street approximately 600 feet west of the proposed MPP and along Glenwood Place approximately 1,300 feet southwest of the MPP site.

Sensitive Receptors

The nearest residences are located on Moss Street approximately 600 feet west of the proposed MPP. These homes are a non-conforming land use in an industrially- zoned area of the City of Burbank. The applicant (Southern California Public Power Authority) has indicated that it plans to buy out these residences and convert them to an industrial conforming use. The next nearest residences are located along Glenwood Place approximately 1,300 feet southwest of the MPP site.

Ambient Noise Levels

The applicant monitored ambient noise levels on February 6 and 7, 2001 at two locations for 25 hours, and conducted short-term measurements (generally 10 minutes) at an additional six sites. Site LT-1 was at the existing nearest residential site at 421 N. Moss Street. This is a residence in an industrially zoned area, and will be converted by the applicant. Site LT-2 is representative of the closest homes that will remain along Glenwood Place. The noise measurements were performed using acceptable sound measurement equipment, and weather included generally clear skies, light breezes, and mild temperatures. Noise levels recorded at these locations are listed in **NOISE Table 3**.

NOISE Table 3 - Long-Term Noise Measurement Summary

Monitoring Location	CNEL, dBA	25 Hour Average L_{90}, dBA
LT-1 Moss Street	64	55
LT-2 Glenwood Place	63	52

Source: URS 2001.

IMPACTS

Noise impacts associated with the project can be created by construction activities, and by normal long-term operation of the power plant. Following is the environmental checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE – Would the project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive ground borne vibration noise levels?				X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the area to excessive noise levels?				X

DISCUSSION OF IMPACTS

A. Noise in Excess of Standards or Ordinances: Less Than Significant with Mitigation Incorporated

Construction Noise

Community Effects

Construction noise is a temporary phenomenon; the construction period for the MPP facility is scheduled to last approximately 23 months (MPP 2001a). Construction of an industrial facility such as a power plant is typically and unavoidably noisier than what is usually permissible under noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement

by local ordinances. The City of Burbank exempts construction from any noise limits as long as it is more than 500 feet from any residential zone. Any construction within 500 feet of residences is prohibited (without a City permit) during nighttime hours (10:00 p.m. to 7:00 a.m.). The nearest residence is located approximately 600 feet from the project site. These residences will be converted prior to construction, and therefore, the nearest residences during construction will be approximately 1,300 feet from the project site. However, consistent with good community noise control practices, staff is recommending construction noise standards of 65 dBA L_{eq} during daytime hours, and 55 dBA L_{eq} during nighttime hours as measured at a residential receptor.

Construction and demolition are planned to typically take place between 7:00 a.m. and 7:00 p.m., Monday through Saturday. During the startup phase, some activities may be performed 24 hours per day, seven days a week. The predicted worst-case hourly construction noise level at the nearest remaining sensitive receptor is 55 dBA. Staff recommends the measures described in the proposed Conditions of Certification **NOISE-1, NOISE-2** and **NOISE-3** to mitigate any potential construction noise impacts to the community.

Worker Effects

Average noise levels during the loudest stage of construction (i.e., finishing) would range up to 89 dBA at a distance of 50 feet from the construction equipment. Therefore, construction workers will be subjected to occasional noise levels above 85 dBA. The State LORS require that, where employee noise exposures exceed 85 dBA, warning signs must be posted, and a Hearing Conservation Program must be implemented. With proper execution of the Hearing Conservation Program, as well as with the implementation of the measures described in proposed Condition of Certification **NOISE-4**, no occupational noise impacts are anticipated from construction noise.

Operational Noise

Community Effects

The applicant has prepared a detailed analysis of noise emissions expected from the proposed facility. The analysis focuses on two key residential locations that are identified as LT-1 and LT-2. LT-1 represents two residences on Moss Street. These residences are the closest residences to the plant, however, they are a non-conforming land use located in an industrially zoned area. The analysis indicates that compliance with the Burbank Noise Ordinance at LT-1 would be very difficult, if not impossible. Subsequently, the applicant has indicated (in writing as a response to data requests, and verbally at the data response workshop) that these residences will be purchased or some agreement made to convert these uses to a conforming (i.e., industrial) land use. Proposed Condition of Certification **NOISE-5** insures that these residences will be properly converted, and that the residential standards contained in the Burbank Noise Ordinance will be moot for this location.

Based upon that analysis, the projected noise level from the MPP power plant at LT-2 (i.e., residences along Glenwood Place) is 48.1 dBA (MPP 2001a). Based on the results of the noise survey on February 6 and 7, 2001, this noise level would be below

the existing ambient noise level conditions, and would cause an increase in ambient noise levels (L_{90}) of less than 2 dBA. Therefore, the CEC criterion of not increasing the ambient noise levels by more than 5 dBA would be met. The predicted noise levels are also in compliance with the standards of the City of Burbank. As a result, noise levels associated with power plant operations would be considered less than significant.

The noise analysis anticipated the following noise controls:

1. Stack silencer on the Heat Recovery Steam Generator (HRSG) exhaust stack;
2. Enclosures for the combustion turbines and generator;
3. Building enclosure for the gas compressor; and
4. Upgraded silencer for the combustion turbine inlets

Staff recommends the implementation of the measures described in proposed Condition of Certification **NOISE-6** to further reduce any potential impacts to the local community associated with plant operations.

Worker Effects

The applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and commits to comply with applicable LORS. A measure to be implemented for noise-related impacts includes a Hearing Conservation Program. With proper execution of the Hearing Conservation Program, as well as the implementation of the measure described in proposed Condition of Certification **NOISE-7**, no occupational safety impacts are anticipated from operational noise.

B. Excessive Vibration: No Impact

The primary source of vibration noise associated with a power plant is the operation of the turbines. It is anticipated that the plant's turbines will be maintained in optimal balance to minimize excessive vibration that can cause damage or long term wear. Consequently, no excessive vibration would be experienced by adjacent land uses.

Another potential source of significant vibration is pile driving during construction. Given the relatively large distances to the nearest sensitive receptors, no vibration effects would be likely if pile driving were to be required.

C. Permanent Increase in Ambient Noise Level: Less Than Significant with Mitigation Incorporated

Construction Noise

As described above, construction of the power plant is a temporary phenomenon; the construction period for the MPP facility is scheduled to last approximately 23 months. As a result, noise generated from construction would not cause a substantial permanent increase in ambient noise levels.

Operational Noise

During the operating life, the MPP facility will represent essentially a steady, continuous noise source when operating. The primary noise sources anticipated from the proposed facility include the gas compressor, combustion turbine generator package steam

turbine and generator, six cooling tower cells, and the heat recovery steam generator (HSRG). Secondary noise sources are anticipated to include auxiliary pumps, ventilation fans, motors, step-up transformers, and valves. The noise emitted by the power plant during normal operations is forecasted to be broadband and steady state in nature.

The noise level from the proposed power plant was modeled to evaluate whether the new plant would contribute an incremental increase in noise levels at the nearest residential receptor. All major pieces of equipment were assumed to operate continuously for the purpose of the modeling analysis. The projected MPP noise level at the closest residential receptor (i.e., LT-2) is 48 dBA L_{eq} (MPP 2001a). Based on the results of the noise survey on February 6 and 7, 2001, this noise level would be below the existing ambient noise level of 52 dBA (L_{90}). The cumulative noise levels would increase by less than 2 dBA.

As a result, noise levels associated with power plant operations would be considered less than significant. Staff recommends the implementation of the measures described in Condition of Certification **NOISE-5** and **NOISE-6** to ensure mitigation of any potential noise impacts to the local community associated with operations.

Linear Facilities

No off-site linear facilities are proposed as part of this project. Thus, there will be no noise impacts associated with linear facilities.

D. Substantial Temporary Increase in Noise Level: Less Than Significant with Mitigation Incorporated

Construction Noise

Community Effects

Construction impacts are generally short-term in nature and usually result from the operation of heavy-duty diesel- and gasoline-powered construction equipment (e.g., backhoes, boom trucks, delivery trucks, compressors). Noise levels were predicted for the construction of the MPP facility using information from a standard reference (Bolt, Beranek, and Newman, Inc., 1971). Staff is recommending construction noise standards of 65 dBA L_{eq} during daytime hours, and 55 dBA L_{eq} during nighttime hours, as measured at a sensitive receptor. The predicted worst-case hourly construction noise level at the nearest sensitive receptor is 55 dBA. This noise level would be within the range of existing ambient noise levels at the receptors. As a result, construction noise would be considered less than significant. Staff recommends the implementation of the measures described in proposed Conditions of Certification **NOISE-1, NOISE-2,** and **NOISE-3** to ensure mitigation of noise impacts to the local community associated with construction activities.

Steam Blows

The highest noise levels that would be generated during the construction of the MPP facility would be associated with steam blows. After erection and assembly of the

feedwater and steam systems, the piping and tubing that comprises the steam path has accumulated dirt, rust, scale and construction debris such as weld spatter, dropped welding rods, etc. If the plant were started up without thoroughly cleaning out these systems, all this debris would find its way into the steam path, and could adversely affect power plant equipment.

In order to prevent this, before the steam system is connected to the turbines, the steam line will have to be temporarily routed to the atmosphere. High-pressure steam would then be and allowed to escape to the atmosphere through the steam piping. This flushing action, referred to as a steam blow, is quite effective at cleaning out the steam system. A series of short steam blows, lasting two or three minutes each, is performed several times daily over a period of two or three weeks. At the end of this procedure, the steam line is connected to the steam turbine, which is then ready for operation.

These steam blows can produce noise as loud as 130 dBA at a distance of 100 feet. This would attenuate to approximately 107 dBA, an exceedingly disturbing level, at the nearest residence (i.e., LT-2), about 1,300 feet away. In order to minimize disturbance from steam blows, the steam blow piping can be equipped with exhaust silencers that will reduce noise levels by 20 dBA (or more), or to a level of 88 dBA at the nearest residence. This is still an annoying noise level; staff proposes that any high pressure steam blows be muffled with an appropriate silencer, and be performed only during restricted daytime hours (see measures described in proposed Conditions of Certification **NOISE-8** and **NOISE-9** below) to minimize annoyance to residents.

Alternatively, the applicant may elect to employ a new, quieter steam blow process, variously referred to as QuietBlow™ or Silentsteam™. This method utilizes lower pressure steam over a continuous period of approximately 36 hours. Resulting noise levels reach only about 80 dBA at 100 feet; noise levels at the nearest residence would thus be 58 dBA, within the range of daytime background noise levels.

Linear Facilities

Construction of linear facilities off-site are not necessary as part of this project. As a result, noise levels associated with construction of the linear facilities would be considered less than significant.

Operational Noise

As described above, the MPP facility will represent essentially a steady, continuous noise source when operating. When the plant is shut down for lack of dispatch or for maintenance, noise levels will decrease. It is not anticipated that the short-term changes in noise levels would cause any significant impacts.

E. Airport Noise Impacts: No Impact

The MPP area is not influenced by aircraft noise associated with public local airports. Therefore, this criterion is not applicable to the proposed project.

F. Private Airstrip Impacts: No Impact

In general, the MPP area is not influenced by aircraft noise associated with local airports. Therefore, this criterion is not applicable to the proposed project.

CUMULATIVE IMPACTS

The nearest currently proposed project is the Olive Peaker Project located at the Burbank Water and Power site. The Olive Peaker Project consists of a LM 6000 turbine generator package with associated gas compressors, and a 75 MVA step-up transformer. The applicant (MPP 2001a, AFC pp. 5.12-5.15a) indicates that an additional 3 dBA of mitigation may be needed so that the combined noise levels of the two power plants will comply with the Burbank Noise Ordinance. Staff recommends the implementation of the measures described in proposed Conditions of Certification **NOISE-10** to ensure mitigation of cumulative noise impacts to the local community associated with cumulative power generation activities. Staff concludes that cumulative impacts will be mitigated to a level less than significant.

ENVIRONMENTAL JUSTICE

Because the project will not result in noise impacts, staff concludes that there will be no significant direct or cumulative impacts related to noise on the minority population. Therefore, there are no environmental justice issues.

CONCLUSION

Staff concludes the Magnolia Power Plant's noise will not significantly impact the public or environment if the proposed mitigation measures and the proposed Conditions of Certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the Staff Assessment based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Conditions, and the modified Conditions are supported by the analysis outlined in the text above.

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and the linear facilities, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement, signed by the project manager, stating that the above notification has been

performed, and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

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

- Use the Noise Complaint Resolution Form (below), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, with the local jurisdiction and the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 Heavy equipment operation and noisy construction work shall be restricted to the times of day delineated below:

Any Day 7 a.m. to 7 p.m.

Noise due to start-up steam blows shall be restricted to the times of day delineated below:

Any Day 8 a.m. to 5 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies. All other construction shall be limited to 20 hours per 24-hour day (6:00 a.m. to 2:00 a.m.), except that the noise levels due to such work that occurs outside the hours of 7 a.m. to 7 p.m. shall not exceed 57 dBA (L_{90}) at residential receivers (i.e., LT-2).

Verification: prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-4 The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall include a Hearing

Conservation Program to be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program. The project owner shall make the program available to Cal-OSHA upon request.

NOISE-5 The project owner shall be responsible for converting residences on Moss Street to a use conforming with the industrial zoning of the area. The residential use shall be discontinued prior to the initiation of construction.

Verification: Prior to ground disturbance, the project owner shall provide evidence to the CPM that the residences on Moss Street have been converted to a land use consistent with the industrial zoning for the area. The evidence shall consist of a letter from the City of Burbank identifying which addresses on Moss Street are being used as residences. Additionally, the evidence should include either agreements with the landowners for those parcels which remove the residential use, or copies of the title showing the project owner as the new owner of these parcels.

NOISE-6 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause resultant noise levels to exceed 57 dBA L_{90} (the ambient background noise level (L_{90}) plus 5 dBA) at residential receivers, and that the noise due to plant operations will comply with the noise standards of the City of Burbank of 50 dBA L_{eq}.

No new pure-tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

A. Prior to initiating construction, the project owner shall conduct short-term ambient noise measurements during day, evening, and night-time hours at one location in the vicinity of Greenwood Place (i.e., Site LT-2).

B. When the project first achieves a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct short-term survey noise measurements at monitoring site (i.e., LT-2). The short-term noise measurements shall be conducted during both day-time (7 a.m. to 10 p.m.) and night-time (10 p.m. to 7 a.m.) periods. In addition, the applicant shall conduct a 25-hour community noise survey at monitoring site (i.e., LT-2). The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

C. If the results from the pre-construction and operational noise surveys indicate that the background noise level (L_{90}) at the most affected receptor has increased due to power plant noise by more than 5 dBA for any given hour during the 25-hour period, or that the noise standards of

the LORS have been exceeded, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

D. If the results from the pre-construction and operational noise surveys indicate that pure-tones are present, mitigation measures shall be implemented to eliminate the pure-tones.

Verification: The short-term survey at Site LT-2shall take place within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity. Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the local jurisdiction, and to the CPM. Included in the post-construction survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the operational noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 Following the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095 through 5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-8 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 110 dBA measured at a distance of 100 feet. The project owner shall conduct steam blows only during the hours of 8 a.m. to 5 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance.

If a low-pressure continuous steam blow or air blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM, who shall review the

proposal with the objective of ensuring that the resulting noise levels will not exceed 50 dBA L_{eq} (the LORS night-time noise standard), and will not exceed 52 (the average night-time hourly L_{90} value) by more than 5 dBA. If the low-pressure process is approved by the CPM, the project owner shall implement it in accordance with the requirements of the CPM.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule.

At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-9 Prior to the first high-pressure steam blow(s), the project owner shall notify all residents or business owners within one mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner.

The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Project owner shall notify residents and businesses at least 15 days prior to the first high-pressure steam blow(s). Within five days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-10 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the combined operation of the Magnolia Power Plant and the Olive Peaker Project will not cause noise levels to exceed the noise standards of the City of Burbank, or to exceed the existing ambient background noise level (L_{90}) at residential receivers by more than 5 dBA.

Protocol: Within 30 days of both projects first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at Site LT-2 used for the ambient noise survey (i.e., housing along Glenwood Place). The Magnolia Power Plant must be running continuously during this period, and the Olive Peaker Project must be running at least 12 hours during the sampling period. If the results from the survey indicate that the combined noise level at the residential location exceeds the standards and requirements cited above, additional mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM and to the City of Burbank. Included in the report shall be a description of any additional mitigation measures necessary to achieve

compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. If additional mitigation measures are necessary within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Magnolia Power Project
(01-AFC-6)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

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

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

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

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

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

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

This information is certified to be correct:

Plant Manager's Signature: _____

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

REFERENCES

Bolt, Beranek, and Newman, Inc., *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances,* prepared for the U.S. Environmental Protection Agency, December 1971.

Code of Federal Regulations (CFR), Title 8, Subchapter 7, Group 15.

City of Burbank, General Plan, Section VI – Noise Element, 1992.

Edison Electric Institute. *Electric Power Plant Environmental Noise Guide*, 1984.

Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment,* PB96-172135, April 1995.

Magnolia Power Plant. MPP 2001a: Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Office of Planning and Research. 1990. State of California General Plan Guidelines. June.

PUBLIC HEALTH

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

The purpose of staff's public health analysis is to determine if toxic emissions from the proposed Magnolia Power Project (MPP) will have the potential to cause significant adverse public health impacts or to violate standards for public health protection. If potentially significant health impacts are identified, staff will evaluate mitigation measures to reduce such impacts to insignificant levels.

Staff addresses potential impacts of regulated or criteria air pollutants in the **Air Quality** section of this Final Staff Assessment (please see **Public Health** Attachment A for a discussion of the health effects of criteria pollutants). Impacts on public and worker health from accidental releases of hazardous materials are examined in the **Hazardous Materials Management** section. Health effects from electromagnetic fields are discussed in the **Transmission Line Safety and Nuisance** section. Pollutants released from the project in wastewater streams to the public sewer system are discussed in the **Soils and Water Resources** section. Plant releases in the form of hazardous and non-hazardous wastes are described in the **Waste Management** section.

METHOD OF ANALYSIS

Public health staff is concerned about toxic emissions to which the public could be exposed during project demolition, construction and routine operation. Following the release of toxic contaminants into the air or water, people may come into contact with them through inhalation, dermal contact, or ingestion of contaminated food or water.

Air pollutants for which no air quality standards have been set are called noncriteria pollutants. Unlike criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide, noncriteria pollutants have no ambient (outdoor) air quality standards that specify levels considered safe for everyone.

Since noncriteria pollutants do not have such standards, a process known as health risk assessment (HRA) is used to determine if people might be exposed to those types of pollutants at unhealthy levels. The risk assessment procedure consists of the following steps:

1. Identify the types and amounts of hazardous substances that the MPP project could emit to the environment;
2. Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
3. Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
4. Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects.

Initially, a screening level risk assessment is performed using simplified assumptions that are intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to project emissions. In reality, it is likely that the actual risks from the power plant will be much lower than the risks that are estimated by the screening level assessment. This is accomplished by examining conditions that would lead to the highest, or worst-case risks, and then using those in the study. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the plant;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are calculated to be the highest;
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- Assuming that an individual's exposure to cancer-causing agents occurs for 70 years.

A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances which could present a health hazard from noninhalation pathways of exposure (see CAPCOA 1993, Table III-5). When these substances are present in facility emissions, the screening level analysis includes the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term). Acute health effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic health effects are those which arise as a result of long term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime (from seven to seventy years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for noncancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be exposed and suffer no adverse health effects (CAPCOA 1993, p. III-36). These exposure levels are designed to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature, and include margins of safety. The margin of safety addresses uncertainties associated with inconclusive scientific and

technical information available at the time of standard setting and is meant to provide a reasonable degree of protection against hazards that research has not yet identified. The margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection is achieved if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety exists between the predicted exposure and the estimated threshold dose for toxicity.

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with California Air Pollution Control Officers Association (CAPCOA) guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact (CAPCOA 1993, p. III-37).

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. In reality, the risk is generally too small to actually be measured. For example, the one in one million risk level represents a one in one million increase in the normal risk of developing cancer over a lifetime, at whatever location is estimated to have the worst-case risk.

Cancer risk is expressed in chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (called “potency factors”, and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for each carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be lower or even considerably lower than those estimated.

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate assessment of potential public health risks.

SIGNIFICANCE CRITERIA

Commission staff determines the health effects of exposure to toxic emissions based on impacts to the maximum exposed individual. This is a person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above.

As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health effects. Significance of project health impacts is determined separately for each of the three categories.

Acute and Chronic Noncancer Health Effects

Staff assesses the significance of non-cancer health effects by calculating a "hazard index". A hazard index is a ratio comparing exposure from facility emissions to the reference (safe) exposure level. A ratio of less than one signifies that the worst-case exposure is below the safe level. The hazard index for every toxic substance that has the same type of health effect is added to yield a total hazard index. The total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one indicates that cumulative worst-case exposures are less than the reference exposure levels (safe levels). Under these conditions, health protection is likely to be achieved, even for sensitive members of the population. In such a case, staff presumes that there would be no significant non-cancer project-related public health impacts.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code, §§ 25249.5 et seq.) for guidance to determine a risk significance level. Title 22, California Code of Regulations, section 12703(b) states that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This level of risk is equivalent to a cancer risk of ten in one million, or 10×10^{-6}. An important distinction is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than that which applies to Proposition 65.

The significant risk level of ten in one million is consistent with the level of significance adopted by the South Coast Air Quality Management District (SCAQMD) pursuant to Health and Safety Code section 44362(b), which requires notification of nearby residents when an air district determines that there is a significant health risk from a facility. In addition, the SCAQMD Risk Management Policy states that a project with an incremental cancer risk of between one and ten in a million is acceptable if best available control technology has been applied to reduce risk. In general, SCAQMD would not approve a project with a cancer risk exceeding ten in one million.

As noted earlier, the initial risk analysis for a project is typically performed at a screening level, which is designed to overstate actual risks, so that health protection can be ensured. When a screening analysis shows cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, exceeds the significance level of ten in one million, staff would require appropriate measures to reduce risk to less than significant. If, after all risk reduction measures had been considered, a refined analysis identifies a cancer risk greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The following federal, state, and local LORS generally apply to the protection of public health. These provisions have established the basis for Energy Commission staff's determination regarding the significance and acceptability of project-related impacts on public health.

FEDERAL

Clean Air Act section 112 (42 U.S. Code § 7412)

Section 112 requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

STATE

California Health and Safety Code sections 39650 et seq.

These sections mandate the Air Resources Board and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code section 41700

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

LOCAL

South Coast Air Quality Management District Rule 1401

This rule requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants that exceed specified amounts.

SETTING

This section describes the environment in the vicinity of the proposed project site from the public health perspective. Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emissions plume from a facility may affect elevated areas before lower terrain areas, due to a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site influence the surrounding population distribution and density which, in turn, affects public exposure to project emissions. Additional factors

affecting potential public health impact include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

The proposed site is located in the San Fernando Valley, between the Verdugo Mountains to the north and the Santa Monica Mountains to the south, on approximately 23 acres of land owned by the City of Burbank in Los Angeles County. The topography of the site vicinity is relatively flat, and the elevation of the project site is about 560 feet above mean sea level. The Los Angeles River is approximately 1.5 miles south of the site and the Burbank Western channel runs along the northeast property boundary of the site. Industrial properties border the site on all sides.

As mentioned above, the location of sensitive receptors near the proposed site is an important factor in considering potential public health impacts. The nearest residence is on Moss Street, about 600 feet northwest of the proposed site. The nearest sensitive receptor is an elementary school located approximately 0.42 miles southwest of the site. AFC Figures 5.16-2 shows the location of sensitive receptors near the facility site (MPP 2001a).

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may be increased.

The climate at the project site is influenced by its proximity to the Verdugo Mountains, which are located less than two miles north of the MPP site. The project site is located in the South Coast Air Basin (Basin), a coastal plain with connecting broad valleys and low hills. The Pacific Ocean lies to the southwest with high mountains around the remaining perimeter of the Basin. The region experiences a semi-permanent high-pressure zone, typical of the eastern Pacific, causing its mild climate and cool sea breezes. Daytime onshore breezes and nighttime offshore breezes characterize the regional wind pattern in the Basin. Periods of extremely hot weather, winter storms, or Santa Ana winds occasionally interrupt this mild climatological pattern. Due to light average wind speeds (with little seasonal variation) the atmosphere has a very limited capacity to disperse air contaminants horizontally within the Basin. Strong, elevated inversions frequently occur in the Basin, created by atmospheric subsidence, especially in late mornings and early afternoons. These inversions severely limit vertical mixing and result in the buildup of air pollutants by restricting their movement out of the Basin.

Atmospheric stability is a measure related to turbulence, or the ability of the atmosphere to disperse pollutants due to convective air movement. Mixing heights (the height above ground level through which the air is well mixed and in which pollutants can be dispersed) are lower during mornings due to temperature inversions and increase during the warmer afternoons. The **Air Quality** section of this FSA presents more detailed meteorological data.

EXISTING AIR QUALITY

The proposed site is within the jurisdiction of the SCAQMD, which includes all or portions of Los Angeles, Orange, Riverside and San Bernardino counties.

In March 2000, SCAQMD published the results of the Multiple Air Toxics Exposure Study II (MATES II) study, a comprehensive study of air pollution in Southern California. The background cancer risk from air toxics calculated by SCAQMD for the Southland was reported to be 1,400 in one million (SCAQMD 2000). The study showed that motor vehicles and other mobile sources contributed about 90% of the cancer risk with industries and stationary sources contributed 10%. Diesel particulate accounted for the majority (71%) of the cancer risk while benzene, 1,3-butadiene, formaldehyde, and acetaldehyde accounted for 18%.

The use of reformulated gasoline in California, as well as other toxics reduction measures, has led to a decrease of ambient levels of toxics and associated cancer risk during the past few years. For example, in 1990 cancer risk was 1,000 in one million in Burbank while in 1999 cancer risk was calculated to be 500 in a million in that city (SCAQMD 1999).

SITE CONTAMINATION

Site disturbances will occur during facility demolition and construction from excavation, grading, and earth moving. Such activities have the potential to adversely affect public health through various mechanisms, such as the creation of airborne dust, material being carried off-site through soil erosion, and uncovering buried hazardous substances.

An Environmental Site Assessment (ESA) was conducted by URS Corporation, in accordance with methods prescribed by the American Society for Testing and Materials (ASTM). This report is included in Appendix O of the AFC. The purpose of an ESA is to determine the potential for the presence or likely presence of any hazardous substances or petroleum products under conditions that may indicate a release or threat of a release from present or past activities. The results of the ESA are summarized in staff's **Waste Management** section. Based on the results of the Phase I ESA, it was recommended by URS Corporation that a Phase II investigation of soil conditions be conducted. A Limited Phase II ESA was prepared by URS (URS 2001) and submitted by the applicant to the CEC on September 30, 2002. Although not conducted according to standard ASTM procedures, the Limited Phase II ESA found some contamination in areas of the site which will be excavated for the proposed power plant. Based upon these results, staff concludes that remedial action will be necessary prior to site mobilization. Accordingly, staff recommends Conditions of Certification in Waste Management which would require the project owner to enter into a Voluntary Cleanup Agreement with DTSC, prepare a Remedial Action Plan, and implement cleanup activities prior to site mobilization.

IMPACTS

PROJECT SPECIFIC IMPACTS

Potential risks to public health may occur during project demolition, construction and operation.

Demolition & Construction Impacts

Potential risks to public health during demolition and construction may be associated with exposure to toxic substances in contaminated soil disturbed during site preparation, as well as from heavy equipment operation. Criteria pollutant impacts from the operation of heavy equipment and particulate matter from earth moving are examined in staff's **Air Quality** analysis.

As described above and in the **Waste Management** section, a Phase I Environmental Site Assessment (ESA) was performed, followed by a Limited Phase II ESA. Since some contamination was found in areas of the site which will be excavated for the proposed power plant, staff has proposed Conditions of Certification in the **Waste Management** section to address this issue and reduce the risks to an insignificant level. The operation of construction equipment will result in air emissions from diesel-fueled engines. Although diesel exhaust contains criteria pollutants such as nitrogen oxides, carbon monoxide, and sulfur oxides, it also includes a complex mixture of thousands of gases and fine particles. These particles are primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust contains over 40 substances that are listed by the U.S. EPA as hazardous air pollutants and by the Air Resources Board (ARB) as toxic air contaminants. Because of the many constituents in diesel exhaust as well as evidence that the particles themselves may have intrinsic toxic and carcinogenic properties, many researchers have used the particles to quantify exposure to whole diesel exhaust.

Exposure to diesel exhaust causes both short- and long-term adverse health effects. Short-term effects can include increased cough, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Long-term effects can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies also strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer.

Based on a number of health effects studies, the Scientific Review Panel on Toxic Air Contaminants (SRP) recommended a chronic REL (see REL discussion in **Method of Analysis** section above) for diesel exhaust particulate matter of 5 $\mu g/m^3$ and a cancer unit risk factor of $3x10^{-4}$ $(\mu g/m^3)^{-1}$ (SRP 1998, p. 6). The SRP did not recommend a value for an acute REL, since available data in support of a value was deemed insufficient. On August 27, 1998, the ARB listed particulate emissions from diesel-fueled engines as a toxic air contaminant and approved SRP's recommendations regarding health effect levels.

Demolition of the existing Magnolia Units 1 and 2 is expected to take four to six months and then construction of MPP is anticipated to take place over a period of 23 months.

As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from seven to seventy years.

AFC Appendix H.3 presents exhaust emissions from demolition and construction activities. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. Worst-case daily exhaust emissions of 10.58 lb/day PM_{10} from construction equipment and 13.6 lb/day PM_{10} from fugitive dust are predicted during onsite construction (MPP 2001a, Table H.3-2). Modeling demolition and construction activities, which are assumed to occur for eight hours per day, gives a 24-hour maximum concentration of 32.5 $\mu g/m^3$ (MPP 2001a, Table H.3-4).

In order to mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, **Air Quality** staff recommends the use of ultra low sulfur diesel fuel or the installation of soot filters on stationary diesel equipment. The catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction is comparable for both mitigation measures in the range of approximately 85 to 92 percent. Such filters will reduce diesel emissions during construction and reduce any potential for significant health impacts.

Operation Impacts

Emissions Sources

The emissions sources at the proposed MPP project include one natural gas-fired combustion turbine, one heat recovery steam generator equipped with a supplementary duct burner, one auxiliary boiler and a cooling tower. During operation, potential public health risks are related to natural gas combustion emissions from the gas turbine and duct burner, and noncombustion emissions from the cooling tower.

As noted earlier, the first step in a health risk assessment is to identify potentially toxic compounds that may be emitted from the facility. All sources have been evaluated in the HRA modeling files dated November 2001, including 100% reclaimed water.

AFC Table 5.16-1lists toxic air contaminants that may be emitted from MPP project emission sources as combustion byproducts (MPP 2001a). Anticipated amounts or emission rates emitted from combustion sources (turbine and boiler) are presented in Table 5.16-2. Table 5.16-3 lists emission rates for cooling tower emissions. Emission factors are obtained from the South Coast Air Quality Management District (SCAQMD) website. AFC Table 5.16-5 lists toxicity values used to characterize cancer and noncancer health impacts from project pollutants. The toxicity values include reference exposure levels, which are used to calculate short-term and long-term noncancer health effects, and cancer unit risks, which are used to calculate the lifetime risk of developing cancer, as published in the California Air Pollution Control Officers Association Guidelines (CAPCOA 1993).

There are inconsistencies in toxicity values between those presented in Section 5.16 of the AFC and those used in the ACE 2588 HRA model. Specifically, the chronic noncancer REL (reference exposure level) for cadmium listed in Section 5.16 is wrong while the correct value, 0.02 ug/m^3, is used in the HRA modeling. With the exception of lead, current OEHHA unit risk and REL values are used in the ACE 2588 modeling. A chronic REL is listed in the AFC for lead and lead is mistakenly included in the ACE 2588 modeling. Additionally, incorrect target organs are evaluated for some substances in the ACE 2588 modeling and, in some cases, not all OEHHA listed target organs are included. Staff has corrected the inconsistencies noted.

PUBLIC HEALTH Table 1 lists combustion-related toxic emissions and shows how each contributes to the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern, but if inhaled, may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

PUBLIC HEALTH Table 1
Types of Health Impacts and Exposure Routes Attributed to Combustion-Related Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	
Acrolein				✓	✓
Ammonia				✓	✓
Benzene			✓	✓	✓
Ethylbenzene			✓		
Formaldehyde			✓	✓	✓
Hexane			✓		
Napthalene				✓	
PAHs			✓		
Propylene				✓	
Toluene				✓	✓
Xylene				✓	✓

Source: AFC Table 5.16-5 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993

Toxic air contaminant emissions from the cooling tower originate from contaminants in the cooling source water that become entrained in liquid water droplets emitted as cooling tower drift. MPP will use reclaimed water from the Burbank Water Reclamation Plant, operated by the Public Works Department, as a makeup water source to the facility's evaporative cooling tower. AFC Table 5.16-4 lists constituents found in the reclaimed water that could be emitted from the cooling tower (MPP 2001a). Emission rates are also presented. **PUBLIC HEALTH** Table 2 lists these substances and shows how each contributes to the health risk analysis.

In addition to the substances identified in **PUBLIC HEALTH** Table 2, there has been public concern that viruses and bacteria could remain in treated wastewater, and that

they could be released to the atmosphere in the cooling tower drift at levels that could affect public health.

The California Department of Health Services (DHS) regulates the use of recycled water in cooling towers under Title 22 of the California Code of Regulations, section 60306.

When recycled water is used in a cooling tower that creates a mist, the regulations would require the following:

- The recycled water used must be disinfected tertiary recycled water (DTRW).
- A drift eliminator shall be used whenever the cooling system is in operation.
- A chlorine, or other biocide, shall be used to treat the recirculating water to minimize the growth of *Legionella* and other micro-organisms.

PUBLIC HEALTH Table 2
Types of Health Impacts and Exposure Routes
Attributed to Cooling Tower Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Chronic Noncancer	Acute Noncancer
Ammonia				✓	✓
Arsenic	✓	✓	✓	✓	✓
BEHP			✓	✓	
Cadmium			✓	✓	
Chloroform			✓	✓	✓
Chromium		✓	✓	✓	
Copper				✓	✓
1,4-dichlorobenzene			✓	✓	
Ethylbenzene				✓	
Lead	✓	✓	✓	✓	
Manganese				✓	
Mercury				✓	✓
Methylene chloride			✓	✓	✓
MTBE			✓	✓	
Nickel			✓	✓	✓
PAH	✓	✓	✓		
PCB	✓	✓	✓	✓	
Phenol				✓	✓
Selenium				✓	
Tetrachloroethylene			✓	✓	✓
Toluene				✓	✓
Zinc				✓	

Source: AFC Appendix Table 5.16-5 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines, October 1993

Cooling Water Treatment

Reclaimed water supplied by the Burbank Water Reclamation Plant (BWRC) operated by the City of Burbank Public Works Department will be used as a makeup water source to the facility's evaporative cooling tower. The MPP is designed to maximize the use of reclaimed water for cooling although potable water will be used as a backup in the event reclaimed water is unavailable. The reclaimed water will be hyperchlorinated prior to direct use as cooling tower makeup.

The regulations define DTRW as a filtered and subsequently disinfected wastewater and specify the degree of disinfection required or the final allowable concentrations of pathogens (e.g., 99.999 percent reduction of virus and mean concentration of coliform bacteria not exceeding 2.2 per 100 milliliters) (Cal. Code Regs., tit. 22, §60301.230). Water meeting these standards is also allowed by the regulations to be used for irrigating food crops, parks and playgrounds, school yards, and residential landscaping.

As noted above, the source for MPP cooling water will be reclaimed water from the Burbank Water Reclamation Plant. Several studies have examined and confirmed the effectiveness of treatment processes conforming to Title 22 requirements in reducing pathogens to safe levels. The Monterey Wastewater Reclamation Study for Agriculture (spanning eleven years from planning and design in 1975 to final project reporting in 1986) examined the safety of irrigating raw-eaten vegetables with recycled water (Sheikh, et al. 1998a). That study found that aerosols generated from sprinkler irrigation did not contain microorganisms of wastewater origin (Sheikh, et al. 1998a, p. 802). Further, during the five-year period of field studies, no in situ viruses were recovered from the treated effluent comprising 114 samples with a volume of over 186,000 liters (Sheikh, et al. 1998a, p. 803).

A follow-up to the Monterey study was conducted in 1997 to determine if additional water-borne pathogens capable of producing gastrointestinal diseases were present in recycled water (Sheikh, et al. 1998b). This more recent study did not detect any of the bacteria *Salmonella*, *Cyclospora*, *E. coli*, or *Legionella*; or the protozoans *Giardia* or *Cryptosporidium* in the recycled water (Sheikh, et al. 1998b, Table 4, p. 6).

The County Sanitation Districts of Los Angeles County operate seven tertiary filtration plants for water reuse. During a ten-year virus monitoring period from 1979 to 1989, only one virus was isolated from samples testing more than 100,000 gallons of disinfected tertiary effluent (Chen et al. 1998, p. 258).

As noted above, water from the BWRP is disinfected using chlorine to reduce pathogenic organisms. Additional routine water treatment at MPP is required during use to minimize bacterial growth, corrosion, and formation of mineral scale. The MPP will employ a chemical feed system to supply conditioning chemicals (sulfuric acid, sodium hypochlorite, a proprietary biocide to control algae) to the cooling water (MPP 2001a, Section 3.4.7.3.2). Such routine water treatment also serves to minimize conditions which are conducive to the growth of pathogenic organisms such as *Legionella* bacteria. These include the presence of other microorganisms which contribute nutritional factors, stagnant water or low flow conditions, the presence of corrosion, scale, and accumulations of sludge and sediment.

Emissions Levels

Once potential emissions are identified, the next step is to quantify them by conducting a "worst case" analysis. Maximum hourly emissions are required to calculate acute (one hour) noncancer health effects, while estimates of maximum emissions on an annual basis are required to calculate cancer and chronic (long-term) noncancer health effects.

Maximum fuel use is combined with emission factors for each toxic air contaminant to estimate hourly and maximum annual emissions from turbine and boiler (MPP 2001a, AFC Table 5.16-2). Emission factors are estimates of the amounts of toxic substances released per unit of fuel burned and were obtained from the South Coast Air Quality Management District website (http://aqmd.gov/permit/comb.html).

The next step in the health risk assessment process is to estimate the ambient concentrations of toxic substances. This is accomplished by using a screening air dispersion model and assuming conditions that result in maximum impacts. Turbine and cooling tower toxic air contaminant emissions used in dispersion modeling are presented in AFC Tables 5.16-3 and 5.16-4, respectively. The screening air dispersion modeling analysis was performed using the U.S. EPA approved ISCST3 dispersion modeling program (please see staff's **Air Quality** section for a detailed discussion of the modeling methodology). Finally, ambient concentrations were used in conjunction with RELs and cancer unit risk factors to estimate health effects which might occur from exposure to facility emissions. Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and ingestion of mother's milk.

The above method of assessing health effects is consistent with the CAPCOA Air Toxics "Hot Spot" Program Revised 1992 Risk Assessment Guidelines (October 1993) referred to earlier, and results in the following health risk estimates.

Noncancer Hazard

Demolition and Construction

AFC Appendix H.3 presents exhaust emissions from demolition and construction activities. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. Worst-case daily exhaust emissions of 10.58 lb/day PM_{10} from construction equipment and 13.6 lb/day PM_{10} from fugitive dust are predicted during onsite construction (MPP 2001a, AFC Table H.3-2). Modeling demolition and construction activities, which are assumed to occur for eight hours per day, gives a 24-hour maximum concentration of 32.5 $\mu g/m^3$ (MPP 2001a, AFC Table H.3-4).

Due to the relatively short period of demolition and construction, only acute (short-term) health impacts are examined. Air dispersion modeling estimated the maximum 24-hour PM_{10} concentration to be 32.5 $\mu g/m^3$.

As noted earlier, the air dispersion modeling and assumptions that form the basis of screening risk analysis are designed to overestimate public health impacts, and actual risks are likely to be much lower than those calculated. Staff concludes that the modeled value of 32.5 $\mu g/m^3$ at the point of maximum impact does not indicate a potential for short-term health impacts strictly from diesel exhaust during demolition and construction. However, as discussed in the **Air Quality** section, the area continues to experience violations of the state 24-hour PM_{10} standard, between 9 and 30 times per year. Therefore, **Air Quality** staff recommends the installation of soot filters on stationary diesel equipment during construction. These catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction is in the range of approximately 85 to 92 percent. Such filters will reduce diesel emissions during construction and further reduce any potential for health impacts.

Operation

The point of maximum offsite impact for cancer risk and noncancer chronic hazard index was located approximately 1.8 km northwest of the project site. This location has an associated chronic hazard index of 0.0181 and a cancer risk of 1.07 in a million.

The screening health risk assessment for the project, including combustion and noncombustion emissions, resulted in a maximum acute hazard index of 0.0688 at the maximum impact location.

As **PUBLIC HEALTH** Table 3 shows, both acute and chronic hazard indices are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected.

PUBLIC HEALTH Table 3
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level
ACUTE NONCANCER	0.0688	1.0
CHRONIC NONCANCER	0.0181	1.0
INDIVIDUAL CANCER	1.07×10^{-6}	10×10^{-6}

Source: AFC Table 5.16-6.

Cancer Risk

As shown in **PUBLIC HEALTH** Table 3, total worst-case individual cancer risk is estimated to be 1.07 in one million. As discussed earlier, this is the risk at the location where long-term pollutant concentrations are calculated to be the highest, and is at the same location as the maximum chronic hazard, about 1.8 km northwest of the proposed site.

MITIGATION

Excavation at the site could disturb contaminated soil that may require mitigation measures to prevent potential public health impacts. Staff has proposed adoption of a condition of certification in the **Waste Management** section that requires the project owner to have an environmental professional on site to inspect locations where potentially contaminated soil is found, determine the need for future action, and potentially contact appropriate agencies for possible oversight.

CUMULATIVE IMPACTS

The maximum cancer risk for the MPP facility is 1.07 in one million, about 1.8 km northwest of the proposed site.

In comparison, SCAQMD estimated the Los Angeles Basin average lifetime cancer risk for inhalation of ambient air to be 1,400 in one million based on 1998-1999 ambient average toxic concentration data (SCAQMD 2000).

The maximum impact location occurs where pollutant concentrations from MPP would theoretically be the highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, and the increase does not represent any real contribution to the ambient risk of 1,400 in one million. Modeled facility-related risks are lower at all other locations, and actual risks are expected to be much lower, since worst-case estimates are based on conservative assumptions, and overstate the true magnitude of the risk expected. Therefore, staff does not consider the incremental impact of the additional risk posed by the MPP project to be either significant or cumulatively considerable

The worst-case long-term health impact from MPP (0.0181 hazard index) is well below the significance level of 1.0 at the location of maximum impact. At this level, staff does not expect any cumulative health impacts to be significant. As with cancer risk, long-term hazard would be lower at all other locations, and cumulative impacts at other locations would also be less than significant.

Even in the unlikely event that worst-case emissions from an existing facility were to coincide both geographically and temporally with MPP emissions at the location of maximum impact, the overall long-term health outlook would not change for anyone. Thus, the MPP project will not result in any significant cumulative cancer or chronic noncancer health impacts.

ENVIRONMENTAL JUSTICE

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

COMPLIANCE WITH APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Staff concludes that demolition, construction and operation of the MPP project will be in compliance with all applicable LORS regarding long-term and short-term project public health impacts.

FACILITY CLOSURE

As noted in the introduction to this section, the scope of staff's public health analysis is limited to routine releases of harmful substances to the environment. During either temporary or permanent facility closure, the major concern would be from accidental or non-routine releases from either hazardous materials or wastes that may be onsite. These are discussed in the sections on **Hazardous Materials** and **Waste Management**, respectively. During temporary closure (periods greater than those required for normal maintenance), it is unlikely that there would be any routine releases of harmful substances to the environment, since the facility would not be operating. For permanent closure, the only routine emissions would be related to facility demolition or dismantling, such as exhaust from heavy equipment or fugitive dust emissions. These would be subject to closure conditions adopted by the Energy Commission once a closure plan is received from the project owner.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

No public or agency comments relating to public health were received.

CONCLUSIONS AND RECOMMENDATIONS

Staff has analyzed potential public health risks associated with construction and operation of the MPP project. As noted, staff does not expect there to be any significant adverse cancer, or short- or long-term noncancer health effects from project emissions. No Conditions of Certification are proposed for **Public Health**.

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ATTACHMENT A - CRITERIA POLLUTANTS

OZONE (O_3)

Ozone is formed when reactive organic gases are mixed with nitrogen oxides in the presence of sunlight. Heat speeds up the reaction, typically leading to higher concentrations in the summer months. Ozone is a colorless, very reactive gas which oxidizes other materials. Oxidation damages living cells and tissues by altering their protein, lipid, and carbohydrate components or products. Such damage leads to dysfunction and death of cells in the lung and in other internal tissues.

The U.S. EPA revised the federal ozone standard on July 18, 1997 (62 Fed. Reg. 38856), based on new health studies which became available since the standard was last revised in 1979. These new studies showed that adverse health effects occur at lower ambient concentrations over longer exposure times than those reflected in the previous standard, which was based on acute health effects associated with heavy exercise and short-term exposures. The U.S. EPA's proposed ozone rule lists health effects which have been attributed to result from short-term (one to three hours) and prolonged (six to eight hours) exposure to ozone (61 Fed. Reg. 65719). However, a 1999 federal court ruling blocked implementation of the ozone 8-hour standard. EPA has asked the U.S. Supreme Court to reconsider that decision.

Acute health effects induced by short-term exposures include transient reductions in pulmonary function, and transient respiratory symptoms including cough, throat irritation, chest pain, nausea, and shortness of breath with associated effects on exercise performance. Other health effects associated with short-term or prolonged O_3 exposures include increased airway responsiveness (a predisposition to bronchoconstriction caused by external stimuli such as pollen and dust), susceptibility to respiratory infection by impairing lung defense mechanisms, increased hospital admissions and emergency room visits, and transient pulmonary inflammation.

Generally, groups considered especially sensitive to the effects of air pollution include persons with existing respiratory diseases, children, pregnant women, and the elderly. However, controlled exposure data on people in clinical settings have indicated that the population at greatest risk of acute effects from ozone exposures are children and adults engaged in physical exercise. Children are most at risk because they are active outside, playing and exercising, during the summer when ozone levels are at their highest. Adults who are outdoors and engaging in activities involving heavy levels of exertion during the summer months are also among those most at risk. Exertion increases the amount of O_3 entering the airways and can cause O_3 to penetrate to peripheral regions of the lung where lung tissue is more likely to be damaged. These individuals, as well as those with respiratory illnesses, such as asthma, can experience a reduction in lung function and increased respiratory symptoms, such as chest pain and cough, when exposed to relatively low ozone levels during periods of moderate exertion.

CARBON MONOXIDE (CO)

Carbon monoxide is a colorless, odorless gas which is a product of inefficient combustion. It does not persist in the atmosphere, but is quickly converted to carbon dioxide. However, it can reach high levels in localized areas, or "hot spots".

CO reduces the oxygen carrying capacity of the blood, thereby disrupting the delivery of oxygen to the body's organs and tissues. Persons sensitive to the effects of carbon monoxide include those whose oxygen supply or delivery is already compromised. Thus, groups potentially at risk to carbon monoxide exposure include persons with coronary artery disease, congestive heart failure, obstructive lung disease, vascular disease, anemia, the elderly, newborn infants, and fetuses (CARB 1989, p. 9). In particular, people with coronary artery disease were found to be especially at risk from carbon monoxide exposure (CARB 1989, p. 9). Tests conducted on patients with confirmed coronary artery disease indicated that exposure to low levels of carbon monoxide during exercise produced significant cardiac effects. These included earlier onset of chest pain (angina) and electrocardiographic changes indicative of effects on the heart muscle (CARB 1989, p. 6). Such changes can limit the ability of patients with coronary artery disease to exert themselves even moderately. Therefore, the statewide carbon monoxide one hour and eight hour standards were adopted in part to prevent aggravation of chest pain. Additionally, however, the standards are intended to prevent decreased exercise tolerance in persons with peripheral vascular disease and lung disease, impairment of central nervous system functions, and increased risk to fetuses (Cal. Code Regs., tit. 17, §70200).

PARTICULATE MATTER (PM)

Particulate matter is a generic term for particles of various substances that occur as either liquid droplets or small solids over a wide range of sizes. Particles having the most potential to adversely affect human health are those 10 micrometers (millionths of a meter) in diameter and smaller, referred to as PM10, which may be inhaled and deposited into the deep portions of the lung. PM10 may originate from anthropogenic or natural sources such as stationary or mobile combustion sources or windblown dust. Particles may be emitted directly to the atmosphere or may be the result of physical and chemical transformation of gaseous emissions such as sulfur oxides, nitrogen oxides, and volatile organic compounds. PM10 includes elements such as carbon, lead, and nickel; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust and soil. The size, chemical composition, and concentration of ambient PM10 can vary considerably from area to area and from season to season within the same area.

PM10 can be grouped into two general sizes of particles, fine and coarse, which differ in formation mechanisms, chemical composition, sources, and potential health effects. Fine-mode particles are those having a diameter of 2.5 micrometers or less (PM2.5), while the coarse-mode fraction of PM consists of particles ranging from 10 micrometers down to 2.5 micrometers in diameter (PM10-2.5).

PM2.5 is derived from (1) combustion by-products that have volatilized and condensed to form primary PM2.5 and (2) precursor gases reacting in the atmosphere to form secondary PM2.5. Fine particles include nitrates, organic compounds, sulfates,

ammonium, and trace elements (including metals) as well as elemental carbon, such as soot. Major sources of fine particles are fossil fuel combustion by electric utilities, industry and motor vehicles, vegetation burning, and the smelting or other processing of metals. Dry deposition of fine mode particles is slow and such particles may have long lifetimes in the atmosphere (days to weeks) and travel hundreds to thousands of kilometers. They tend to be uniformly distributed over urban areas and larger regions and are removed from the atmosphere primarily by forming cloud droplets and falling out in raindrops.

Coarse-mode PM10-2.5 is formed by crushing, grinding, and abrasion of surfaces, breaking large pieces of materials into smaller pieces. Coarse particles consist mainly of soil dust containing oxides of silicon, aluminum, calcium, and iron; as well as fly ash, particles from tires, pollen, spores, and plant and insect fragments. Coarse particles normally have shorter lifetimes (minutes to hours) and only travel short distances (less than tens of kilometers). They tend to be unevenly distributed across urban areas and have more localized effects than fine particles.

Because PM10 includes many different types of particles with widely divergent chemical characteristics, potential health effects depend upon the type of PM10 to which persons may be exposed.

The size of the inhaled particles determines where they are deposited in the respiratory system. Coarse particles are deposited most often in the nose and throat. Fine particles are deposited most often in the bronchial tubes and in the air sacs, with the greatest percentage being deposited in the air sacs. Particles deposited in the air sacs are removed more slowly by the body than particles in either the nose and throat or the bronchial tubes. Because of the longer residence time, they have a greater opportunity to cause adverse health effects.

Many epidemiological studies have shown that exposure to particulate matter is associated with a variety of health effects, including premature mortality, aggravation of respiratory and cardiovascular disease, changes in lung function and increased respiratory symptoms, changes to lung tissues and structure, and altered respiratory defense mechanisms. Based on their review of a number of such community epidemiological studies published after 1987, when the federal standards were last revised, the U.S. EPA concluded that the 1987 standards were not sufficiently stringent to prevent the occurrence of adverse public health effects. Therefore, federal PM standards were revised on July 18, 1997 (62 Fed. Reg. 38652) by adding new annual and 24-hour PM2.5 standards to the existing annual and 24-hour PM10 standards. The U.S. EPA's review concluded that fine particles were a better surrogate for those components of PM most likely linked to mortality and morbidity effects at levels below the previous standards, while high concentrations of coarse fraction particles are linked to effects such as aggravation of asthma. The U.S. EPA intends the new standards to provide increased protection against a wide range of PM-related health effects, including premature mortality and increased hospital admissions and emergency room visits, primarily in the elderly and individuals with cardiopulmonary disease; increased respiratory symptoms and disease in children and individuals with cardiopulmonary disease such as asthma; decreased lung function, particularly in children and

individuals with asthma; and alterations in lung tissue, structure, and respiratory tract defense mechanisms.

California has had 24-hour and annual standards for PM10 in place since 1982. The 50 micrograms per cubic meter (ug/m^3) 24-hour standard and 30 ug/m^3 annual standard were established to prevent exacerbation of symptoms in sensitive patients with respiratory disease, declines in pulmonary function (especially in children), and excess mortality from short-term exposure (Cal. Code Regs., tit. 17, sec. 70200). These standards were based on studies indicating a significant association between particulate pollution and excess mortality, increased symptoms of respiratory disease in persons with chronic bronchitis and asthma, respiratory functional impairment, and increases in respiratory illness among schoolchildren.

In December, 2000, CARB determined that the existing PM10 standards may not adequately protect public health, finding that health effects may occur in infants, children, and other groups of the population exposed to PM10 at or near levels corresponding to the current standards (CARB and OEHHA, 2000). On June 20, 2002 CARB proposed to revise the PM standards. It proposed to retain the 24-hour PM10 standard, lower the annual PM10 standard from 30 to 20 ug/m^3, and create a new annual PM2.5 standard of 12 ug/m^3.

The PM10 standards are intended to prevent excess mortality, illness (including respiratory symptoms, bronchitis, asthma exacerbation, emergency room visits and hospital admissions for cardiac and respiratory diseases), and restrictions in activity from both short- and long-term exposures (proposed amendments to Cal. Code Regs., tit. 17, sec. 70200). The new PM2.5 standard is intended to prevent excess mortality and illness (including respiratory symptoms, asthma exacerbation, and hospital admissions for cardiac and respiratory diseases) from long-term exposures.

NITROGEN DIOXIDE (NO_2)

Nitrogen dioxide is formed either directly or indirectly when oxygen and nitrogen in the air combine during combustion processes. It is a relatively insoluble gas that is able to penetrate deep into the lungs, its principal site of toxicity. Its toxicity is thought to be due to its capacity to initiate free radical reactions and to oxidize cellular proteins and other biomolecules (CARB 1992, Appendix A, p. 4).

Sublethal exposures in animals produce inflammation and various degrees of tissue injury characteristic of oxidant damage (Evans in CARB 1992, Appendix A, p. 5). The changes produced by low-level acute or subchronic exposure appear to be reversible when animals are allowed to recover in clean air.

Health effects of particular concern in relation to low-level nitrogen dioxide exposure include: (1) effects of acute exposure on some asthmatics and possibly on some persons with chronic bronchitis, (2) effects on respiratory tract defenses against infection, (3) effects on the immune system, (4) initiation or facilitation of the development of chronic lung disease, and (5) interaction with other pollutants (CARB 1992, Appendix A, p. 5).

Several groups who may be especially susceptible to nitrogen dioxide related health effects have been identified (CARB 1992, Appendix A, p. 3). These include asthmatics, persons with chronic bronchitis, infants and young children, cystic fibrosis and cancer patients, people with immune deficiencies, and the elderly.

Studies using controlled brief exposures on sensitive groups have shown an increase in bronchial reactivity or airway responsiveness of some asthmatics, and decreased lung function in some patients with chronic obstructive lung disease (CARB 1992, Appendix A, p. 2). In general, bronchial hyperreactivity (an exaggerated tendency of the airways to constrict) is markedly greater in asthmatics than in nonasthmatics upon exposure to respiratory irritants (CARB 1992a, p. 107). At exposure concentrations relevant to the current one hour ambient standard, there appears to be little, if any, effect on respiratory symptoms of asthmatics (CARB 1992a, p. 108).

SULFUR DIOXIDE (SO_2)

Sulfur dioxide is formed when any sulfur-containing fuel is burned. SO_2 is highly soluble and consequently absorbed in the moist passages of the upper respiratory system. Exposure to sulfur dioxide can cause changes in lung cell structure and function that adversely affect a major lung defense mechanism known as mucociliary transport. This mechanism functions by trapping particles in mucus in the lung and sweeping them out via the cilia (fine hair-like structures) also in the lung. Slowed mucociliary transport is frequently associated with chronic bronchitis.

Exposure to sulfur dioxide can produce both short- and long-term health effects. Therefore, California has established sulfur dioxide standards to reflect both short- and long-term exposure concerns. Based on controlled exposure studies of human volunteers, investigators have found that asthmatics comprise the group most susceptible to adverse health effects from exposure to sulfur dioxide (CARB 1994, p. V-1).

The primary short-term effect is bronchoconstriction, a narrowing of the airways which results in labored breathing, wheezing, and coughing. The short-term (one hour) standard is based on bronchoconstriction and associated symptoms (such as wheezing and shortness of breath) in asthmatics and is designed to protect against adverse effects from five to ten minute exposures. In the opinion of the California Office of Environmental Health Hazard Assessment, the short-term ambient standard is likely to afford adequate protection to asthmatics engaged in short periods of vigorous activity (CARB 1994, Appendix A, p. 16).

Longer-term exposure is associated with an increased incidence of respiratory symptoms (e.g., coughing and wheezing) or respiratory disease, decreases in pulmonary function, and an increased risk of mortality (CARB 1991a, p. 12). The long-term (24 hour) standard is based upon increased incidence of respiratory disease and excess mortality. The standard includes a margin of safety based on epidemiological studies which have shown adverse respiratory effects at levels slightly above the standard. Some of the studies indicate a sulfur dioxide threshold for effects, whereby "no adverse effects" are expected from exposures to concentrations at the state standard (Ibid.).

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SOCIOECONOMICS

Testimony of Negar Vahidi

INTRODUCTION

This staff socioeconomic impact analysis evaluates the potential project-induced changes on community services and infrastructure, including schools, medical and protective services, and related community issues such as environmental justice. The analysis discusses the potential direct and cumulative impacts of the proposed Magnolia Power Project (MPP) on local communities, community resources, and public services.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

STATE

California Government Code, Sections 65996-65997

As amended by SB 50 (Stats. 1998, ch. 407, sec. 23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

14 California Code of Regulations, Section 15131

Economic or social effects of a project shall not be treated as significant effects on the environment.

Economic or social factors of a project may be used to determine the significance of physical changes caused by the project.

Economic, social and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether

changes in a project are feasible to reduce and or avoid the significant effects on the environment.

REGIONAL

Southern California Association of Governments (SCAG)

The Southern California Association of Governments (SCAG) developed the Regional Comprehensive Plan and Guide (RCPG) to disclose issues related to future development in the Southern California Region, which includes Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties. The RCPG is a composition of plans for the Southern California Region and serves as a guide for development within the Southern California Region. When preparing the RCPG, SCAG reviewed the applicable plans and policies of all local jurisdictions within the SCAG region to develop regional goals and policies. While no specific RCPG goals or policies are directly applicable to the MPP, compliance with the RCPG as a whole will ensure the RCPG goal of guiding development within the Southern California Region.

LOCAL

There are no local LORS applicable to socioeconomics. The **Land Use** section of the Staff Assessment provides a detailed discussion of local LORS applicable to the proposed MPP.

SETTING

POPULATION

Within the study area, the City of Burbank and the County of Los Angeles are considered areas that may be potentially affected by potential population inmigration resulting from the proposed project. In addition, data for the nearby Cities of Glendale and Los Angeles are also presented. Historic, recent, and projected population figures for Los Angeles County and the City of Burbank are summarized in **SOCIOECONOMICS TABLE 1**.

SOCIOECONOMICS TABLE 1
Recent and Projected Population Figures for the Study Area

Area	Year				
	1980[1]	1990[1]	2000[1]	2010[2]	2020[2]
Los Angeles County	7,477,421	8,901,987	9,757,500	10,604,452	11,575,693
City of Burbank	88,744	93,649	106,500	N/A	N/A
City of Glendale	169,889	180,038	194,973	N/A	N/A
City of Los Angeles	3,265,726	**3,485,398**	3,694,820	N/A	N/A

Sources:
[1] US Census*: 1980 – 2000.*
[2] Historical and Projected Population Figures from California Department of Finance, Demographic Research Unit, *County Population Projection with Race/Ethnic Detail, Estimated July 1, 1990-1996 and projections from 1997 through 2040*.
N/A – Not Available

Demographic Characteristics

SOCIOECONOMICS TABLE 2 provides minority population percentages for the State, County of Los Angeles, City of Burbank, and a six-mile radius of the proposed project. The six-mile radius is used in staff's Environmental Justice screening analysis, described in the Impacts section of this analysis. The six-mile radius includes an area larger than the City of Burbank, and also encompasses the jurisdictions of Los Angeles and Glendale. The ethnic/racial profile is based on 2000 Census data. Within the six-mile radius, 49.1 percent of the population is white, while the remaining 50.9 percent is comprised of minority population. **SOCIOECONOMICS FIGURE 1** presents the census blocks within a six-mile radius of the proposed project with 50 percent or more minority population. As shown in **SOCIOECONOMICS FIGURE 1,** several census blocks within the six-mile radius located within the City of Los Angeles have a total minority population above 50 percent. One census block in particular has a total minority population of 70.9 percent with 29.6 percent of the persons considered low-income. However, this pocket of minority population is located more than four miles south of the project site.

Socioeconomics Table 2
Demographic Profile of Proposed Project Area, 2000

Race/Ethnicity	Population
State of California	
Total Population	**33,871,648**
White (Non-Hispanic) Population	**15,816,790 (46.7%)**
People of Color* (Minority Population)	**18,054,858 (53.3%)**
Los Angeles County	
Total Population	**9,519,338**
White (Non-Hispanic) Population	**2,959,614 (31.1%)**
People of Color* (Minority Population)	**6,559,724 (68.9%)**
City of Burbank	
Total Population	**100,316**
White (Non-Hispanic) Population	**59,590 (59.4%)**
People of Color* (Minority Population)	**40,726 (40.6)**
Six-Mile Radius of MPP Site	
Total Population	**759,188**
White (Non-Hispanic) Population	**372,914 (49.1%)**
People of Color* (Minority Population)	**386,274 (50.9%)**
***People of Color includes Black, Asian, Hispanic, and American Indian** **Source: 2000 US Census Data.**	

Low-Income Population

Because certain year 2000 economic census data remains unavailable at the census block level, **SOCIOECONOMICS TABLE 3** summarizes the low-income population from 1990 census blocks within a six-mile radius of the proposed project.

SOCIOECONOMICS TABLE 3

Low-Income Population Within Six-Mile Radius of Proposed Project, 1990

	Six-Mile Radius
Total Population	**853,300**
Low-Income Population	**122,033 (14.3%)**
***Low-Income defined as those with annual income less than $26,754 (US Census, 1990).** Source: US Census 1990	

Within the local project area, a household is considered low-income if its income is less than 80 percent of the median for that area (California Department of Finance, 2000). Based on the 1990 Census, the median household income for the City of Burbank was $35,959 and the median household income for Los Angeles County was $34,965 annually. The Census indicates that the annual median income for households located within a six-mile radius of the project site was $33,559 in 1989.

According to 1990 Census data, approximately 14.3 percent of the population within a six-mile radius of the proposed power plant site is considered low-income. However, the Census data also indicates that the study area contains 8 census blocks in which 30 percent or more of the population is considered low-income. The percentage of the low-income population in these blocks is considered meaningfully greater than that of the overall study area. **SOCIOECONOMICS FIGURE 2** shows the low-income percentages within a six-mile radius of the proposed project.

EMPLOYMENT

The study area (affected area), as defined in the socioeconomics section of the Application for Certification (AFC, MPP 2001a), includes Los Angeles, Orange, Riverside, and San Bernardino Counties. The study area identified in the AFC was identified per the Electric Power Research Institute's report titled "Socioeconomic Impacts of Power Plants," which states that construction workers will commute as much as two hours to construction sites from their homes rather than relocate. Additionally, the report states operational workers will commute as much as one hour to a power plant site from their homes rather than relocate. Although northern San Diego County is within a one- to two-hour commute of the project site, and can provide a potential source of labor, it has been excluded from evaluation, because Los Angeles, Orange, Riverside and San Bernardino Counties have a sufficient labor pool for construction and operation of the project.

SOCIOECONOMICS TABLE 4 identifies labor force characteristics for the four-county study area (Los Angeles, Riverside, Orange, and San Bernardino Counties) for the year 1999. The statistics for Los Angeles and Riverside Counties indicates a civilian labor force with an unemployment rate above the state's unemployment rate of 5 percent (CA EDD, 2001). Adjacent Orange and San Bernardino Counties show an unemployment rate below that of the entire State of California. The civilian labor force represents all residents between 18-55 years of age and currently employed.

Socioeconomics Table 4
Labor Force Characteristics of Four-County Study Area and City of Burbank, 1999

	Los Angeles County	Riverside County	Orange County	San Bernardino County	City of Burbank
Civilian labor force	4,658,600	687,800	1,471,600	754,600	55,820
Unemployment	274,857 (5.9%)	37,829 (5.5%)	39,733 (2.7%)	36,220 (4.8%)	2,065 (3.7%)
Agriculture	9,317	27,512	7,358	5,282	310
Construction	139,758	55,024	88,296	37,730	3,628
Manufacturing	745,376	82,536	250,172	98,098	7,256
Transportation/public utilities	279,516	20,634	58,884	52,822	2,232
Trade	698,790	165,072	367,900	191,196	10,605
Finance/insurance	279,516	27,555	73,128	22,638	4,465
Services	1,490,752	192,584	421,189	188,650	13,396
Government	652,204	123,804	147,160	152,902	5,023
Other	363,371	48,047	57,073	5,282	8,905
Source: California Employment Development Dept., March 1999 benchmark.					

SOCIOECONOMICS TABLE 4 indicates that services employ the highest proportion of any sector, while trade and manufacturing accounts for the second highest proportion of employment. The construction sector employs approximately 320,800 workers in the four-county study area, while the City of Burbank employs 3,628 workers within the construction fields. Los Angeles County has the larger number of workers within the construction trades, containing 44 percent of the construction workers within the four-county study area.

The February 2001 unemployment rate for the City of Burbank was 3.7 percent (California Employment Development Department, 2001), lower than the Los Angeles County-Wide average rate of 5.4 percent during the same time period. Since 1990, the unemployment rate for the City of Burbank has decreased overall. Historically, the unemployment rate for the City of Burbank has ranged between six and 11 percent, with a steady decrease in the unemployment rate since 1995 (California Employment Development Department, 2001).

HOUSING

SOCIOECONOMICS TABLE 5 summarizes the housing unit totals for the Cities of Burbank, Glendale, and Los Angeles and Los Angeles County as of January 1, 2000. As of January 2000, there were approximately 3.2 million total housing units in Los Angeles County, with 43,001 total housing units within the City of Burbank. These totals include single-family, multi-family, and mobile home residences. Los Angeles County had a vacancy rate of 5.51 percent, while the City of Glendale had a vacancy rate of 4.33 percent. The vacancy rate for the City of Burbank is below the federal housing standard of 5 percent, while the vacancy rate of Los Angeles County is slightly above 5 percent. Furthermore, based on information obtained from the City of Burbank Redevelopment Agency (2001), there are more than 1,300 hotel rooms available locally.

Socioeconomics Table 5
Los Angeles County and City of Burbank Housing Units, 2000

		Single-Family		Multi-Family					
	Total	Detached	Attached	2-4	5+	Mobile Home	Occupied	% Vacant	Persons Per Household
City of Burbank	43,001	19,551	1,554	4,790	17,054	52	40,976	4.71%	2.578
City of Glendale	73,713	25,204	2,268	7,981	36,267	85	71,805	2.6%	2.68
City of Los Angeles	1,337,706	464,761	25,619	114,671	668,859	1,502	1,275,412	4.70%	2.83
Los Angeles County	3,270,909	1,242,945	196,254	359,359	1,439,199	33,152	3,094,154	5.51%	2.983
Source: 2000 US Census									

UTILITIES, EMERGENCY, AND OTHER PUBLIC SERVICES

Natural Gas

The project will be fueled by natural gas. Natural gas is available at the site delivered by the Southern California Gas Company (SoCalGas), a California Public Utility. A new fuel gas valve and metering station(s) will be located onsite by SoCalGas.

Electricity

Electricity is delivered to the project site and the City of Burbank via the existing Magnolia Power Plant. The project will connect to the City of Burbank Olive Switchyard via two short 69 kilovolt (kV) underground transmission lines across the Magnolia/Olive project site. Major upgrades to the Olive switchyard will be performed in conjunction with the proposed project.

Sewer

Wastewater from the existing operations at the MPP site is discharged to the Burbank Western Channel located at the northern boundary of the site. The Burbank Western Channel is a tributary to the Los Angeles River. Currently, approximately 4.33 million gallons per day (MGD) of wastewater is discharged to the Burbank Western Wash. Sanitary wastes are discharged to the sanitary sewers operated by the City of Burbank. The City of Burbank operates a reclaim water treatment plant that produces water of sufficiently clean quality to discharge into the Burbank Western Wash. The treatment plant has a capacity of 27 acre-feet per day, but currently averages about 19 acre-feet per day.

Water

Water services for the City of Burbank are provided by the City of Burbank Water and Power (BWP) Department. Primary domestic and firefighting water needs within the City limits are provided by three sources: local groundwater, Colorado River, and the State Water Project. The Colorado River and the State Water Project are imported supplies the City purchases from the Metropolitan Water District of Southern California (MWD). MWD operates treatment facilities for these surface water supplies before delivering it to Burbank. For the year 2000, 43 percent of the Burbank water supply

came from the State Water Project and 5 percent came from the Colorado River Aqueduct, the remaining 52 percent was supplied by local groundwater.

Water will be supplied to the MPP via the City of Burbank potable water distribution system and the Burbank Water Reclamation Plant operated by the Burbank Public Works Department. The reclaimed water will be used as a makeup water source to the facility's evaporative cooling tower. Water for use in the Fire Protection System will also be provided by the City of Burbank from the City water system.

Police Protection

Police protection for the project area is provided by the Burbank Police Department. The Burbank Police Department shares the responsibility for policing the City of Burbank, where the project site and the existing Magnolia Power Plant is located, with private guards employed by the City of Burbank. The Burbank Police Department is within approximately ½-mile of the MPP site (located on Palm Avenue), and has 168 sworn officers. According to the Community Outreach division, the Police Department projects a one-minute response time to the Magnolia Power Plant (Ryburn, 2001).

Schools

The site is located within the boundaries of the Burbank Unified School District (BUSD). The closest schools to the site include John Burroughs High School, located at 1920 Clark Avenue, David Starr Jordan Middle School, located at 420 South Mariposa, and William McKinley Elementary School, located at 349 West Valencia Avenue. All three schools are located less than one-mile from the plant site. **SOCIOECONOMICS TABLE 6** identifies the current enrollment for schools within the BUSD.

Socioeconomics Table 6
Burbank Unified School District Enrollment, 2001

Schools	Number of Schools	Enrollment	Capacity
Elementary (K-5th)	12	6,730	At capacity
Middle (6th-8th)	3	3,453	Below Capacity
Senior High (9th-12th)	3	4,428	Below Capacity
Special Education (K-12th)	2	312	Not included in projections
Total Enrollment		**14,923**	
Source: Burbank Unified School District, February 2001			

Other Public Services

Other public services in the community include hospitals, emergency medical, and libraries. Major hospitals serving the project site within the City of Burbank include Kaiser Permanente and Cedars Sinai within the City of Los Angels. Emergency medical service (i.e., ambulance service) is provided by the City of Burbank Fire Department (MPP, 2001a). The closest fire station is Station 15 located less than one mile away from the project site near the intersection of Verdugo Avenue and Olive Avenue. This fire station contains emergency response personnel and ambulance service 24 hours a day. The City of Burbank Public Library (located at 110 North Glenoaks Boulevard) serves the project area.

FISCAL

The Magnolia Power Plant is owned by the City of Burbank, a public agency, and is therefore not subject to taxation by any local agency. Revenues from the sale of power will be distributed to the City for purposes of debt service, and to cover operating expenses. The proposed project will supply power under power sales contracts to participating SCPPA members, which are also public agencies. The applicable local agencies with taxing powers include the City of Burbank and Los Angeles County. Their current and projected revenues are indicated in **SOCIOECONOMICS TABLE 7** below.

Socioeconomics TABLE 7
Burbank and Los Angels County Annual Budget

	2000-2001	2001-2002
City of Burbank	$363.1 Million	$579.4 Million
Los Angeles County	$15.3 Billion	$16.011 Billion*

*Proposed Budget
Source: City of Burbank Department of Financial Services; County of Los Angeles 2001

EMPLOYMENT AND ECONOMY

SOCIOECONOMICS TABLE 8 provides total earnings, by County, for the study area as a whole for 1996 and 1997. Within Los Angeles County, which includes the City of Burbank, the majority of employment earnings are generated in the service, retail, manufacturing and government industries. Services and manufacturing are important industries, together accounting for over 50 percent of all employment earnings. Construction employment represents approximately 4.5 percent of total employment earnings within the study area, and is concentrated primarily around residential and commercial development.

Socioeconomics Table 8
Non-Farm Earnings for the Study Area 1996 – 1997*

Industry	San Bernardino	Riverside	Los Angeles	Orange	Four-County Total	Percent of Four-County
Services	4,359,801	3,846,167	69,720,311	17,656,717	95,582,996	34.9
Wholesale Trade	1,038,327	564,054	12,741,333	5,418,342	19,762,056	7.2
Retail Trade	2,139,676	1,739,828	15,134,083	5,346,569	24,360,156	8.9
Manufacturing	2,283,124	1,721,409	28,928,996	10,636,397	43,569,926	15.9
Government	3,335,280	2,751,353	21,793,746	5,265,875	33,476,254	12.2
Transportation & Public Utilities	1,411,494	608,509	13,100,568	3,060,636	18,181,207	6.6
Construction	1,212,587	1,357,784	6,446,561	3,308,447	12,325,379	4.5
Finance, Ins. & Real Estate	936,703	754,351	16,159,000	6,435,627	24,285,681	9.0
Agriculture	118,652	295,091	621,876	419,715	1,455,334	0.5
Mining	46,834	28,483	465,141	83,826	624,284	0.3
Total	17,212,478	13,667,029	185,111,615	57,632,151	273,623,273	100

Source: Economic Development Department (EDD), Regional Economic Information System, 1999
* In thousands of dollars.

IMPACTS

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
SOCIOECONOMICS: POPULATION, HOUSING, AND ECONOMIC (FISCAL AND NON-FISCAL)-- Would the project:				
a) Have substantial non-fiscal effects on local employment and economy (income)?				X
b) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
c) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
d) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
e) Have substantial fiscal effects on local government expenditures, property and sales taxes?				X
f) Have a significant minority or low-income population within a six-mile radius that may be subject to disproportionate adverse effects of the project?			X	
Public Services – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, the construction of which could cause significant environmental impacts, or result in an inability to maintain acceptable service ratios, response times, or other performance objectives for the following:				
g) Police protection?				X
h) Schools?				X
i) Medical and other public services and facilities?				X

DISCUSSION OF IMPACTS

A. Employment and Economy: No Impact

Upon completion of the MPP, existing staff currently operating the existing Magnolia Power Plant will control the operations of the improvements and additions proposed by the MPP. The proposed project would not result in any permanent long-term employment generation. While additional employment and related spending are not expected as long-term effects of the MPP, the increase in power generated and distribution throughout the Southern California Region is considered beneficial to overall employment and business development.

B. Induced Population Growth: No Impact

SOCIOECONOMICS TABLE 9 shows the maximum number of craftworkers who would be employed at one time by the proposed project during construction. The maximum number of workers for each trade would not occur onsite simultaneously. During the site preparation and construction periods of approximately 24-months, average employment at the proposed project site would be 366 workers, consisting of craft workers and contractor staff.

SOCIOECONOMICS TABLE 4, displayed earlier, shows a strong construction sector and strong labor force in Southern California as whole. Therefore, problems are not expected in finding an adequate available labor force within daily commuting distance, to supply the work force associated with construction of the proposed project. Because few, if any, workers are expected to relocate to the area, no new housing is needed as a result of the proposed project.

TABLE 9
NUMBER OF WORKERS, BY CRAFT

Trade	Total Workers Available In Los Angeles County – 2004[1]	Maximum Number of Workers Needed[2]	Average Number of Workers Needed	Possible Months at Maximum
Specialized Insulation Workers	150	23	17	9
Boiler Makers/Iron Workers	31,640	67	44	3-7
Carpenters	20,200	75	52	7-9
Electricians	13,570	46	31	4-8
Laborers	16,640	75	44	2-9
Millwrights	780	17	12	1-7
Operating Engineers	8,190	24	17	6-9
Painters	9,730	17	12	2-7
Pipe Fitters	8,020	113	70	6-7
Plasterers	9,730	6	4	5-8
Sheetmetal Workers	5,180	126	44	1-7
Field Staff	6,130	12	10	1-7
Teamsters	30,550	12	9	9
TOTAL	160,510	613	366	

[1] Data from the State of California, Employment Development Department, Labor Market Information, Table 6, Occupational Employment Projections 1997-2004. Total workers calculated from the 1995 EDD estimated workforce for Los Angeles County. (EDD 2000)
[2] The maximum number of workers by each craft would be needed at different points in time during project construction.

It is estimated that the majority of the construction labor needed for the MPP project would be drawn from Los Angeles and Orange Counties. Based on the information summarized in **SOCIOECONOMICS TABLE 9**, there are enough construction workers/laborers available within these counties to meet the demands of project construction. As a result, the demand for housing within the study area is not expected to increase appreciably as a result of the proposed project because the vast majority of the work force is expected to commute from within a two-hour distance of the project site.

A small percentage of construction workers may choose to commute on a weekly basis. Based on information provided in Table 5, there is approximately a 4.7 percent vacancy rate in the City of Burbank, and a 5.5 percent vacancy rate in Los Angeles County. The

4.7 percent housing vacancy in the City of Burbank would provide approximately 2,000 housing units within the City limits should the need arise. As noted earlier, there are adequate hotel/motel and recreational vehicle parks and campgrounds within the local project vicinity to accommodate these workers. It is not anticipated that project construction activities would contribute to a significant increase in the population of the project area during project construction, including the four- to six-month demolition period.

Upon completion of the MPP, existing staff currently operating the existing Magnolia Power Plant will control the operations of the improvements and additions proposed by the MPP. The proposed project would not result in any permanent long-term employment generation, which would result in population increase. Therefore, no impact to local housing availability will result from project operations.

C. Displacement of Housing: No Impact

Construction of the proposed MPP will not displace existing housing. Construction and operation would occur at the existing Magnolia Power Plant site. No residences are located on the project site. In addition no replacement housing would have to be constructed as a result of the proposed project. The proposed project would entail demolition and construction within the existing site only; therefore, no additional land would be required and no displacement of the occupants of existing residential properties would occur. Staff concludes that the proposed project would not result in displacement or replacement housing impacts.

D. Displacement of People: No Impact

As described in Section B above, no housing will be displaced by the project. Similarly, no people will be displaced by the proposed project, resulting in no project impacts.

E. Fiscal Effects: No Impact

The MPP would be a municipal power producer. Therefore, there is no direct source of tax revenue attributable to the project, including property tax (MPP, 2001a). The only source of taxes associated with the project would be sales and use taxes to the extent that construction materials and supplies would be purchased within the City of Burbank. Construction income and purchase of material associated with the proposed project would benefit the City of Burbank and Los Angeles County economically, but this benefit would not be significant given the size of the local and regional economies.

Project construction and operational revenue would create a beneficial impact on both the study area's economic base and fiscal resources through employment of both local and regional workers, as well as through the purchases of local and regional construction materials.

F. Minority and Low-Income Populations (Environmental Justice Screening Analysis): Less Than Significant

The purpose of the screening analysis is to determine whether there exists a minority and/or low-income population within the potential affected area of the proposed project.

Minority and/or low-income populations, as defined by the U.S. Environmental Protection Agency's April 1998 Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, are identified where either:

The minority population of the affected area is greater than fifty percent of the affected area's general population; or

The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Energy Commission staff has determined the potential affected area as a six-mile radius of the proposed HEP site. The six-mile radius is consistent with the radius used for staff's cumulative air quality analysis. When a minority or low-income population is identified per the above, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics and transmission line safety and nuisance consider possible impacts on the minority/low-income population as part of their analysis. This "environmental justice" (EJ) analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact if an unmitigated significant impact has been identified. Staff's environmental justice approach includes providing notice (in appropriate languages) of the proposed project and opportunities for participation in public workshops to minority and/or low-income communities, and providing information on staff's EJ approach to minority and/or low-income persons who attend staff's public workshops.

According to the 2000 census block data shown in **SOCIOECONOMICS TABLE 2**, the minority population within the six-mile radius of the project site comprises 50.9 percent of the total population. This is higher than the 40.6 percent minority population in the City of Burbank, considerably lower than 68.9 percent for Los Angeles County, and slightly lower than 53.3 percent minority population for the State of California.

According to the 1990 Census, 14.3 percent of the population within a six-mile radius of the proposed MPP site was below the poverty level. Under the 2000 Census figures expected to be available later this year, this percentage is not expected to exceed 50 percent.

Although the minority population within the six-mile radius represents 50.9 percent of the total population, staff has determined that the project will not result in significant adverse socioeconomic impacts. Because there are no significant adverse socioeconomic impacts, staff concludes that there are no environmental justice issues in the area of Socioeconomic Resources.

G. Police Protection: No Impact

Given the availability of the local workforce and the temporary nature of construction activities, proposed project construction is not expected to result in population growth. Project operations will not result in any population increase. Because the proposed project would have private security service, and the existing police protection personnel, equipment and response times are considered adequate, the proposed project would

not increase demand for police protection services. In addition, as described above in Item B, no significant population increase requiring new services would result from implementation of the proposed project. Therefore, it is not expected that the proposed project would increase the use of existing police facilities such that a substantial physical deterioration, alteration, or expansion of these facilities would occur. No significant impacts would occur.

H. Schools: No Impact

A sufficient labor pool exists within the study area and it is anticipated that construction and operations workers are expected to commute to the project site rather than relocate. No project-induced population increase is expected. Therefore, no impacts to schools are expected from the project.

As provided for by the State Education and Government Codes, the City of Burbank will pay a one-time School Impact Fee to the Burbank Unified School District as part of the project based on habitable space constructed at the MPP site. However, because the Magnolia Power Plant is a publicly owned utility, the proposed MPP is exempt from paying the one-time school impact fee. Staff concludes that there would be no project-induced population growth impacts that could affect school capacity in the project area.

I. Other Public Services: No Impact

The project will not directly or indirectly induce substantial population growth in the area. Any short-term increase in population due to construction activities is considered to be minimal, with adequate numbers of construction workers currently residing within the project area. Physical impacts to public services and utilities are usually associated with population inmigration and growth in an area, which increase the demand for a particular service leading to the need for expanded or new facilities. An increase in population in any given area may result in the need to develop new, or alter existing, government facilities in order to accommodate increased demand. As an electric generation project seeking to meet the current demand of customers, the proposed project is not expected to result in an increase in the population of the area.

Electricity, natural gas, water, and wastewater connections to the proposed project will be supplied via new onsite infrastructure within the capacity of existing service providers. Furthermore, no constraints would be placed on any current public services providers as a result of the proposed project. No adverse physical impacts associated with the provision of public facilities (new or altered) would occur. The applicant has prepared and will ensure worker compliance with its standard worker health and safety program designed to minimize the occurrence of construction-related accidents. However, in the event that emergency services are required, adequate facilities are available within a reasonable distance of the project site.

CUMULATIVE IMPACT

Since the proposed project would not result in any significant adverse socioeconomic impacts on population, housing and public services, it is not expected to contribute to cumulative socioeconomic impacts in the southern California region.

CONCLUSIONS

Staff believes that the MPP would not cause a significant adverse direct or cumulative impact on housing, schools, employment, public finance, or public services. The proposed project would not induce significant population growth in the area, nor would it involve the displacement of housing or people. In addition, the project will not significantly impact schools or public services. Therefore, the project will not result in any significant socioeconomic impacts to population, housing, schools, or public services. In addition, the MPP is compatible with the City of Burbank General Plan (See the **Land Use** section of this assessment for more detail).

Although minority and low-income populations exist in the vicinity of the proposed power plant site, staff has not identified any significant unmitigated adverse socioeconomic effects associated with the proposed project. Therefore, there are no socioeconomic environmental justice issues.

PROPOSED CONDITIONS OF CERTIFICATION

There are no significant socioeconomic impacts related to the MPP and no conditions of certification are necessary at this time.

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TRAFFIC AND TRANSPORTATION

Testimony of James Fore

INTRODUCTION

The staff assessment of the Traffic and Transportation Section provides an independent analysis of the Magnolia Power Plant (MPP). Potential impacts related to traffic operation and safety hazards resulting from the construction and operation of the project are discussed.

The analysis includes an evaluation of the influx of construction workers, the associated construction truck traffic, and the traffic associated with the workforce to operate the facility.

Staff has analyzed the information provided in the Application for Certification (AFC) and from other sources to determine the potential for the MPP to have significant traffic and transportation effects, and has assessed the availability of mitigation measures that could reduce or eliminate the significance of those effects. Proposed conditions of certification are included to implement the appropriate mitigation measures and to ensure that the project complies with the applicable laws, ordinances, regulations and standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

The federal government addresses transportation of goods and materials in Title 49, Code of Federal Regulations:

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

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials, and rights-of-way. In addition, the California Health and Safety Code address the transportation of hazardous materials. Provisions within the California Vehicle Code are:

- Section 353 defines hazardous materials. Sections 31303 to 31309 regulate the highway transportation of hazardous materials, the routes used, and restrictions thereon.

- Sections 31600 to 31620 regulate the transportation of explosive materials.
- Sections 32000 to 32053 regulate the licensing of carriers of hazardous materials and include noticing requirements.
- Sections 32100 to 32109 establish special requirements for the transportation of inhalation hazards and poisonous gases.
- Sections 34000 to 34121 establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.
- Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5 to 7, 34506, 34507.5 and 34510 to 11 regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.
- Section 25160 et seq. addresses the safe transport of hazardous materials.
- Sections 2500 to 2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- Sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, the possession of certificates permitting the operation of vehicles transporting hazardous materials is required.
- California Streets and Highways Code, Sections 117 and 660 to 72, and California Vehicle Code, Sections 35780 et seq., require permits for the transportation of oversized loads on county roads.
- California Street and Highways Code, Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, regulate right-of-way encroachment and the granting of permits for encroachments on state and county roads.

All construction within the public right-of-way will need to comply with the “Manual of Traffic Controls for Construction and Maintenance of Work Zones“ (Caltrans, 1996).

LOCAL

City of Burbank Municipal Code

Each of the following City of Burbank (COB) code sections is relevant to the MPP construction phase, which will affect traffic and transportation resources in Burbank.

COB Municipal Code Chapter 29 “Vehicles and Traffic, Article 13 Truck Routes and Streets Prohibited to Commercial Vehicles” designates Burbank streets and parts of streets that are to be used as truck routes for commercial vehicles with three or more axles. This Code also specifies streets that prohibit vehicles having three or more axles. MPP construction will require use of trucks with three or more axles.

COB Municipal Code, Chapter 29 “Vehicles and Traffic, Article 25 Overloads” requires a permit for the moving of a vehicle exceeding weight, width, length, size, or height of load limitations as set forth in Division 15 of the State Vehicle Code.

COB Municipal Code, Chapter 31, Article 15 “General Off Street Parking Standards, Section 31-1407 Use of Vacant Lots in Residential and Commercial Zones for Parking Vehicles” allows, if permitted by the building Director, for vacant lots to be used for temporary off street parking during construction or special events.

COB Municipal Code, Chapter 13 Excavation, Article 2 “Excavation and Installation in Public Streets” prohibits any person from making changes under, adjacent to, or on public streets without first obtaining either an Excavation/Construction permit or a Street Use permit.

COB Municipal Code, Chapter 26 Streets, Article 5 “Repair of Sidewalks and Curbs” gives the property owner five days to make repairs to damaged sidewalks or curbs adjacent to their property after receiving a written notice from the city.

COB Municipal Code, Chapter 26 Streets, Article 7 “Encroachment on City Property” states that no person can encroach on, in, under, or over any property without applying for a permit.

City of Burbank General Plan Circulation

The COB has established a standard for traffic level of service (LOS). This LOS standard calls for a LOS D or better for the circulation system in Burbank. If the project affects the LOS such that it degrades to a LOS below D, it must be mitigated to the COB standard.

Los Angeles County Regional Transportation Plan and Congestion Management Plan

The project is located in Los Angeles County. Los Angeles County is part of the Southern California Association of Governments (SCAG). SCAG is required by federal and state mandates to develop the Regional Transportation Plan (RTP), which outlines transportation goals, objectives, and policies for the SCAG region. Los Angeles County also has the Congestion Management Plan (CMP), which provides goals and policies in regards to traffic operation on the transportation system in Los Angeles County. The SCAG RTP (SCAG, 1998) and Los Angeles County CMP (amended 1990) contain the guiding policies used in the operational analysis for this project.

SETTING

REGIONAL DESCRIPTION

The MPP is a proposed 328-megawatt (MW) natural gas combined cycle fired electrical generating facility. The generating plant will be located at the site of the existing Magnolia Power Station in the City of Burbank. The City has operated a power plant at this location since 1941. The MPP will require approximately 4 acres of the 23-acre site. The site is in an industrial area that is bordered by industrial properties. The MPP is one-eighth of a mile west of Interstate 5 (I-5) at 164 West Magnolia Boulevard.

The MPP is located in the southwest portion of the San Fernando Valley. It has a rail yard located to the northeast, Olive Avenue to the southeast, Lake Street to the

southwest and Magnolia Boulevard to the northwest. The primary access to the site will be from Magnolia Avenue through an existing gate, and through a South Gate entrance off of Olive Avenue. The facility also has additional emergency ingress/egress through three gates located along Lake Street.

Freeways and Local Roadways

A description of some the critical roads and highways in the study area are provided below (see **TRAFFIC AND TRANSPORTATION FIGURE 1, Area Transportation Network)**.

U.S Interstate 5 (I-5), also known as the Golden State Freeway - I-5 is located one eighth of a mile east of the project site. I-5 is a north-south freeway providing access to northern California and south to the coastal communities located on the West Side of Los Angeles. It is an eight-lane freeway

Magnolia Boulevard - Magnolia Boulevard is a major arterial composed of four-lanes plus a center left turn lane that provides northeast-southwest access through the COB. Magnolia Boulevard contains both commercial and retail business. On-street parking is available on both sides of the street until the overpass for I-5 and the train tracks. Magnolia Boulevard is adjacent to the northwest side of the MPP, and provides plant access through the north entrance.

Burbank Boulevard - Burbank Boulevard is a major four lane northeast-southwest arterial that is approximately one mile north of the project.

Olive Avenue - Olive Avenue provides northeast-southwest access through the COB. This avenue is a five lane (4 lanes plus a center left turn lane) arterial with commercial and retail business. On-street parking is available on both sides of the street, except that no on-street parking is available at the Olive Avenue overpass for I-5 and the train tracks. Olive Avenue is adjacent to the southeast side of the MPP and provides plant access through the south entrance.

Lake Street - Lake Street is adjacent to the west side of the MPP. It is a two-lane collector street with parking allowed on both sides of the street.

First **Street** - First Street is a collector street that runs northwest southeast. It is a five-lane roadway located three blocks northeast of the project site on the East Side of I-5. This street traverses the downtown area of Burbank and serves mainly office and commercial users. First Street allows access to I-5 via Verdugo Avenue, Olive Avenue, and Orange Grove.

TRAFFIC AND TRANSPORTATION Figure 1
Area Transportation Network

Victory Boulevard - Victory Boulevard is a five-lane arterial providing northwest-southeast access through the COB. This street contains commercial and retail business and has on street parking available on both sides of the street. It is located one block southwest of the MPP site.

Existing Truck Traffic and Truck Routes

Traffic volumes in the area of the MPP are heaviest on I-5 where truck traffic makes up approximately 10.5 percent of the total traffic volume, as shown in **TRAFFIC AND TRANSPORTATION Table 1 Existing Roadway Information and LOS**. On the streets in the vicinity of the MPP truck traffic varies from six percent to less than 1 percent. Most of the trucks traveling in the local area are serving existing industries adjacent to the site.

The designated truck routes within the COB primarily follow the arterial street system. The COB uses the vehicle height, width, length, size, and load limitations that are set forth in Division 15 of the State Vehicle Code. Therefore, California Vehicle Code limits apply to all study roadways (including state routes). These limits are 20,000 pounds per axle and 10,500 pounds per wheel or wheels, on one end of the axle. The front steering axle load is limited to 12,500 pounds.

The truck routes go through a mixture of industrial and commercial areas. The major intersections along the routes are controlled by automatic traffic stoplights. Specific truck routes that will be used by the MPP are described in the Construction Phase section under the Truck Traffic heading.

Railroads

Area rail service is provided by Union Pacific Railroad. MPP will have an off-site laydown area located adjacent to the railroad tracks approximately one block north of the project site. The applicant plans to transport heavy equipment and materials to the laydown area by rail, which will then be transported by trucks to the project site.

PUBLIC TRANSPORTATION

Public transportation via bus, rail, or airline is available within or near the MPP. The Regional Intermodal Transportation Center (RITC) at 201 North Front Street is located approximately one block east of the proposed facility. The RITC serves as the COB transportation hub. It is accessible from Olive Avenue from the west, Verdugo Avenue from the east, and Burbank Boulevard from the north. This center serves as a central location for the community's public transportation with access to regional and local bus routes, and to the Metrolink train service.

BUS ROUTES

The following Bus Routes serve the area around the MPP. Routes along Olive Avenue are 152, 183, and 96 (SCPPA 2001Res1). Bus Route 183 travels along Victory Boulevard. These routes and their associated bus stops are not expected to be affected since the MPP will not involve offsite construction activity.

TRAFFIC AND TRANSPORTATION Table 1
Existing Roadway Information and LOS

Roadway Segment	Classification	Existing Lanes	Existing Roadway Capacity (Vehicles Per Day)	Existing Average Daily Traffic (ADT) (1998) (1)	Peak Hour (2)	Existing Percentage of Trucks (3)	LOS
I-5 (Golden State Freeway)							
Alameda to Olive	Freeway	**8 Lanes**	**110,000**	**216,000**	**NA**	**10.5**	**F**
Olive to Burbank	Freeway	**8 Lanes**	**110,000**	**200,000**	**NA**	**10.5**	**F**
Burbank to Victory	Freeway	**8 Lanes**	**110,000**	**186,000**	**NA**	**10.5**	**F**
Victory to Buena Vista	Freeway	**8 Lanes**	**110,000**	**169,000**	**NA**	**10.5**	**F**
Buena Vista to Hollywood	Freeway	**8 Lanes**	**110,000**	**170,000**	**NA**	**10.5**	**F**
Olive Avenue							
Victory to Lake	Major Arterial	**4 Lanes**	**25,000**	**NA**	**2,100**	**<1**	**-**
Lake to Front	Major Arterial	**4 Lanes**	**25,000**	**23,800**	**2,000**	**<1**	**E**
Front to San Fernando	Major Arterial	**4 Lanes**	**25,000**	**21,234**	**1,500**	**<1**	**D**
Magnolia Boulevard							
Victory to Front	Major Arterial	**4 Lanes**	25,000	19,200	NA	NA	C
Front to San Fernando	Major Arterial	**4 Lanes**	25,000	17,423	NA	NA	B
Burbank Boulevard							
Victory to Front	Major Arterial	4 Lanes	25,000	24,600	2,800	<1	E
Front to San Fernando	Major Arterial	**4 Lanes**	25,000	37,730	2,600	1.4	F
Victory Boulevard							
Olive to Magnolia	Major Arterial	4 Lanes	25,000	26,600	2,200	1.5	F
Magnolia to Burbank	Major Arterial	4 Lanes	25,000	24,800	2,200	4.0	E
Victory Place							
Burbank to Empire	Arterial	4 Lanes	25,000	7,300	550	6.1	A
Empire to San Fernando/ Buena Vista	Arterial	4 Lanes	25,000	5,800	NA	NA	
First Street/ Grinnell Drive							
San Fernando to Magnolia	Collector	4 Lanes	10,000	17,423	1,100	1.5	F
Magnolia to Verdugo	Collector	4 Lanes	10,000	18,084	750	1.4	F
Flower Street							
Alameda to Olive	Collector	2 Lanes	<4,000	3,230	NA	NA	D

Source: MPP 2001a Table 5.11-2, page 5.11-4

(1) Counts provided by the COB, 1998 data. I-5 data is 1999 by Caltrans

(2) Based on February 2001 peak hour counts by Accutel. .

(3) Level of Service, determined on basis of Volume to Capacity (V/C) Ratio, describes operating conditions on the roadway. LOS "A" is generally free flowing, LOS E indicates that the roadway limit has reached its capacity. LOS C and D are typical in urban conditions. LOS F represents severe congestion.

NA – Not available.

PASSENGER RAIL

Metrolink is located east of the MPP at the RITC. It provides passenger rail service to the local community and regional service to southern California.

AIRPORTS

The MPP is located approximately three miles southeast of the Burbank, Glendale, Pasadena Regional Airport. This is a major regional airport serving passengers throughout California.

BICYCLE FACILITES

There are several planned or existing bicycle routes in the vicinity of the MPP. Bicycle routes in the vicinity of the MPP are shown in **TRAFFIC AND TRANSPORTATION Table 2, Area Bicycle Routes**.

TRAFFIC AND TRANSPORTATION TABLE 2
Area Bicycle Routes

Bike Route Location	Bike Route Classification
Verdugo (6th to the RITC)	III
Chandler (Valley to Mariposa) – To be Constructed	I
Chandler (Mariposa to Victory) – To be Constructed	III
Victory (Chandler to Olive) – To be Constructed)	III
Olive (Victory to RITC)	III

Source: SCPPA 2001a Table 5.11-3, page 5.11-6.

PLANNED ROADWAY AND TRANSIT IMPROVEMENTS

The California Department of Transportation (Caltrans) has redevelopment projects planned at the Western Avenue access ramps along I-5 approximately 1.25 miles south of the project, and at the San Fernando Road Off ramp along State Route 134 approximately 3 miles south of the project. Construction is expected to start in 2003 and be completed by 2005. These planned redevelopment projects will not affect access to the MPP.

LINEAR FACILITIES

No off-site construction for linear facilities will be required for this project. Plant access, natural gas, water, power, wastewater and sewer, underground transmission lines and facilities will not require improvements outside of the MPP site. Therefore, the linear facilities will not result in traffic impacts.

ANALYSIS

ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC – Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?			X	
g) Create a significant hazard to the public or the environment through the routine transportation of hazardous material?			X	

Increase in Traffic

LOS For Area Roadways And Intersections

In assessing the MPP's potential impact on the local transportation system, level of service (LOS) measurements are used as the foundation for analytic evaluation. The LOS measurements represent the flow of traffic and range from A, free flowing traffic, to F, which is heavily congested and can result in substantial delays.
The existing LOS for area roadways that could be affected by the MPP is represented in TRAFFIC AND TRANSPORTATION Table 1, Existing Roadway Information and LOS. As shown in Table 1 many of the roadways in the vicinity of the MPP are operating at a LOS that indicates roadway congestion. They are I-5, Olive Avenue (Lake to Front),

Burbank Boulevard (Victory to San Fernando), Victory Boulevard (Olive to Burbank), and First Street/Grinnell Drive (San Fernando to Verdugo). During field visits to the site, staff observed that traffic flow on the local roadways around the MPP was much lighter during off peak hours.
In an urban area with heavy traffic flow the LOS associated with the intersections is also a critical element of the roadway system to assure adequate travel capacity, maximizing safety and minimizing environmental impacts. The LOS based on the present operating conditions of the roadway intersections around the proposed MPP are shown in TRAFFIC AND TRANSPORTATION Table 3, Summary of Existing Intersection LOS.

The applicant evaluated the LOS for intersections around the MPP site selected based on the project location, expected construction traffic routes, and discussion with the COB staff. For these intersections the COB supplied the average daily traffic volumes. Accutek collected the peak hour traffic data in February 2001. The level of service for these intersections was calculated using the 2000 Highway Capacity Manual methodologies and software.

TRAFFIC AND TRANSPORTATION TABLE 3
Summary of Existing Intersection LOS

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
Burbank Boulevard/Victory Boulevard	F	F
Burbank Boulevard/Front Street	A	A
Olive Avenue/Victory Boulevard	D	D
Olive Avenue/First Street	C	C
Verdugo Avenue/First Street	B	C

Source: MPP 2001a Table 5.11-1, page 5.11-3.

Construction Phase

Commute Traffic

The MPP construction will take approximately 24 months and the construction workforce will average 145 workers over this period. The workforce will peak in the fifteen month at 319 workers. The construction schedule calls for the workforce to work a six-day, 12-hour/day workweek. The work hours are expected to be from 7:00 a.m. to 7:00 p.m.

For the traffic analysis, staff has been assumed that all workers will drive alone (i.e., no carpooling and no public transit use) to and from the site during peak hours. This would result in a worst case estimate of 638 employee daily commute trips.

The Burbank/Los Angeles area population is substantial and the available labor pool is diverse. The workforce for construction is expected to come from communities around the MPP. The preferred commuting route will depend on the location of the construction workers' residences. Based upon the overall population distribution of the communities in the vicinity of the plant site, the applicant has made the following assumption for the distribution of the workforce:

- 20 percent of the project construction workforce will be commuting from the north;

- 20 percent from the west;
- 30 percent from the east; and
- 30 percent from the south.

Truck Traffic

Trucks will be used to deliver heavy equipment, construction materials (such as concrete, wire, pipe, cable, and fuels), and hazardous materials to be used during project construction. This traffic will be required to comply with all vehicle size and weight limits (see condition of certification **TRANS-1**). For trucks hauling hazardous material for the project, they must obtain all permits and/or licenses required for its transport (see condition of certification **TRANS-2**).

Truck deliveries will be spread through out the day and are expected to occur between 6:00 a.m. and 6:00 p.m. The applicant has identified construction truck routes that it expects to use, to minimize the impact of truck traffic on local roadways and neighborhoods. Truck traffic is expected to enter the MPP site through the south gate yard entrance off of Olive Avenue.

Trucks delivering materials to the construction site will be using I-5. Those trucks coming from the north will exit I-5 at Burbank Boulevard, and make a left turn onto Victory Boulevard going south. At the intersection of Victory Boulevard and Olive Avenue, the trucks will turn left and proceed east on Olive Avenue to the MPP South Gate. Trucks coming from the south will exit I-5 at Alameda Avenue. At the intersection of Alameda Avenue and Flower Street these trucks will turn right on to Flower Street and travel north to Olive Avenue. At the Flower Street/Olive Avenue intersection, the trucks will make a right turn on to Olive Avenue and proceed east to the MPP South Gate.

Rail/Truck Activity

Area rail service is provided by Union Pacific Railroad. The project plans to use this rail service for the delivery of heavy equipment and some materials to a laydown area located next to the Union Pacific tracks. This laydown area is located between Magnolia Boulevard to the south, the Burbank Western Channel to the east, and the Union Pacific Railroad tracks to the west and north. The project owner will be required to make all necessary arrangement for the use of this site, as required by condition of certification TRANS-5.

Equipment and supplies delivered to the laydown area would then be transferred from the laydown area to the MPP site by truck. Trucks transferring equipment and supplies from the laydown area to the MPP would leave the laydown area traveling west on the dead end road located under the Magnolia Boulevard overpass to Varney Street. Trucks would turn left on to Varney Street. At the intersection of Varney Street and Magnolia Boulevard, traffic would make a right turn, proceed west on Magnolia Boulevard to Victory Boulevard. At the Magnolia Boulevard/Victory Boulevard intersection, the trucks would make a left turn on to Victory Boulevard and proceed south to Olive Avenue. At the Victory Boulevard/Olive Avenue intersection, the trucks will turn left and proceed east on Olive Avenue to the MPP South Gate.

SUMMARY – TRUCK TRAFFIC

Truck traffic for the project will be greatest during the first year of construction as material and equipment is delivered to the project site, as shown in **TRAFFIC AND TRANSPORTATION Table 4, Total Vehicle Trips**. The truck trips peak in the eighth month at 320 truck trips for the month or approximately 26 vehicle trips (to and from the site) per day.

Commute and Truck Traffic Impact

As Shown in **TRAFFIC AND TRANSPORTATION Table 4, Total Vehicle Trips**, the combination of the construction workforce commute and the delivery of construction material and equipment will result in a maximum of 642 trips. The construction schedule for the expected workforce and truck deliveries indicates that this volume will peak in the fifteenth month.

The applicant used the expected maximum traffic volume associated with construction to determine its impact on the area roadways during the a.m. and p.m. peak periods (**TRAFFIC AND TRANSPORTATION Table 5, Summary of LOS for Existing Plus Project Construction Traffic At Intersections Affected by MPP)**. The traffic analysis associated with the intersections evaluated resulted in no decrease in the LOS to levels that are unacceptable to the COB. The only decrease occurred at the intersection of Verdugo Avenue/First Street during the a.m. peak hours, where the LOS decreases from a B to a C. As noted earlier, staff observed much lighter traffic volumes around the MPP facility during off-peak hours. Therefore, to ensure that the impacts of construction trips on the community are minimized the applicant needs to schedule the project-related trips so that they do not occur during the ambient peak traffic periods. The ambient peak traffic periods for weekdays in the area are 7:00 to 9:00 a.m. in the morning and 4:00 to 6:00 p.m. in the evening.

The LOS of F for the intersection of Victory/Burbank Boulevards would normally not be an acceptable level of service and would require mitigation. However, this intersection was reconfigured earlier in 2001 with the intersection of Victory Boulevard being moved approximately one block west of the original intersection. The COB has not taken new traffic counts since this has occurred in order to establish the current LOS. This reconfiguring was done in order to relieve the current congestion at the intersection. According to the COB Traffic Department the traffic associated with the construction of the MPP would not present a negative traffic impact at this intersection (Johnson, 2001).

TRAFFIC AND TRANSPORTATION Table 4

Total Vehicle Trips

Month of Construction	Workforce (1)	Workforce Total Vehicle Trips Per Day	Truck Deliveries Per Month (2)	Average Truck Trips Per Day	Total Vehicle Trips Per Day
1	4	8	0	0	8
2	29	38	31	4	42
3	91	182	68	6	188
4	239	478	156	14	492
5	269	538	159	14	552
6	290	580	243	20	608
7	228	456	269	22	478
8	178	356	320	26	384
9	146	292	279	22	314
10	115	230	233	20	250
11	110	220	189	16	236
12	104	208	133	12	220
13	196	392	115	12	404
14	291	582	73	6	588
15	319	638	41	4	642
16	281	562	36	4	566
17	199	398	26	2	400
18	122	244	26	2	246
19	80	160	12	2	162
20	51	102	0	0	102
21	43	86	0	0	86
22	39	78	0	0	78
23	15	30	0	0	30
24	27	54	0	0	54

(1) Workforce source is from the MPP 2001a, Table 3.8-1, page 3.8-2
(2) The truck deliveries are from MPP 2001Res1, Data Response 49, page Traffic-3.

TRAFFIC AND TRANSPORTATION TABLE 5
Summary of LOS At Intersections Affected by MPP for Existing Plus Project Construction Traffic and Without Project Construction Traffic

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
Victory Boulevard/Burbank Boulevard	F (F)[1]	F ()
Burbank Boulevard/Front Street	A (A)	A ()
Olive Avenue/Victory Boulevard	D (D)	D (D)
Olive Avenue/First Street	C (C)	C (C)
Verdugo Avenue/First Street	C (B)	C (C)

Source: MPP 2001a, TABLE 5.11-1, PAGE 5.11-3Table 5.11-4, page 5.11-9.
1 ( ) Existing LOS before construction activity.

As shown in **Traffic and Transportation Table 6, Additional Vehicle Volumes Due To Construction Related Activities,** the increase in passenger vehicles on the local roadways as a result of the MPP's construction workforce is less than one percent. For the related truck traffic it is less than one percent except for Victory Place and Flower Street where the increases are 3 to 7 percent. The construction workforce and associated truck traffic should not result in a significant impact on the area. The

construction traffic related to the workforce and truck deliveries can be limited to off-peak traffic periods to reduce its impact. Furthermore the heavy truck traffic will occur during a short period with deliveries scheduled at off-peak times to minimize traffic impact.

To ensure that the construction traffic does not significantly affect the area traffic, the owner will be required to develop a traffic control plan, as required by condition of certification **TRANS-4**.

Roadway Conditions

Construction activities associated with the MPP have the potential to damage the surface of local roadways affected by traffic flow. The applicant needs to establish the condition of the local roadways prior to the start of construction, as required in condition of certification **TRANS-6**. This road condition inventory should include the potential truck routes for the delivery of equipment, supplies and material for construction.

Construction Phase Summary

Traffic control mitigation measures such as requiring workforce arrival/departure at off peak times and the corresponding proposed conditions of certification are discussed later in the Mitigation section and the Proposed Conditions of Certification. These conditions are needed to ensure that the traffic counts, LOS and physical condition of the area roadways and intersections will not become worse as a result of the MPP. Implementation of Condition of Certifications **TRANS-1**, **TRANS-2**, **TRANS-3,** and **TRANS-4** will guarantee that any increase in traffic related to MPP construction activity will result in a less than significant impact.

TRAFFIC AND TRANSPORTATION TABLE 6
Additional Vehicle Volumes Due To Construction Related Activities

Roadway Segment	Additional Passenger Vehicle Per Day	Additional Passenger Vehicle Percent of ADT	Additional Trucks Per Day	Additional Truck Percent of ADT
I-5 (Golden State Freeway)				
Alameda to Olive	96	<1%	215	<1%
Olive to Burbank	32	<1%	215	<1%
Burbank to Victory	32	<1%	215	<1%
Victory to Buena Vista	32	<1%	215	<1%
Buena Vista to Hollywood	32	<1%	215	<1%
Olive Avenue				
Victory to Lake	0	0 %	215	<1%
Lake to Front	0	0 %	215	<1%
Front to San Fernando	32	<1%	0	
Magnolia Boulevard				
Victory to Front	8	<1%	0	
Front to San Fernando	0		0	
Burbank Boulevard				
Victory to Front	96	<1%	215	<1%
Front to San Fernando	320	<1%	0	<1%
Victory Boulevard				
Olive to Magnolia	215	<1%	215	<1%
Magnolia to Burbank	225	<1%	215	<1%
Victory Place				
Burbank to Empire	8	<1%	215	2.9%
Empire to San Fernando/Buena Vista	80	1.4%	215	3.7%
First Street/Grinnell Drive				
San Fernando to Magnolia	0	<1%	0	<1%
Magnolia to Verdugo	32	<1%	0	<1%
Flower Street				
Alameda to Olive	0	<1%	215	6.7%

Source: MPP 2001a, Table 5.11-5, page 5.11-11.

Operational Phase

The proposed MPP is expected to have a operational workforce of 30 full-time employees. A slight increase in truck traffic would be associated with deliveries to the project site for on-going maintenance and operation of the new generation units. The change in the number of delivery trips to the plant site is expected to be minimal and will generally occur during non-commute periods. Therefore, the resulting LOS on local roadways would remain unchanged from the existing LOS, and the project would not have a significant impact.

Vapor Plumes Contributing To Ground Level Fog

AFC Section 5.13.2.4.1 indicates that the potential exists for vapor plumes to be vented from the heat recovery steam generator (HRSG) exhaust stack and the cooling towers. If vapor plumes were to reach ground level the resulting fog could affect traffic safety on the surrounding roadways. The major impact would be expected to occur on roadways

adjacent to the facility (i.e. Olive Avenue, Magnolia Boulevard, Lake Street, and Interstate 5). Staffmodeled five years of operation. Staff's modeling indicated that Olive Avenue would experience the greatest impact. The modeling predicted that ground level fogging on Olive Avenue would occur for approximately two hours out of 43,774 hours. For other roadways the modeling predicted the following:

- Vapor plumes ground level fogging did not persist for a distance far enough to reach Interstate 5.
- In the direction of Lake Street the modeling predicted one hour of ground level fogging at a distance of 100 meters, 0.7 hours at 200 meters and 0.4 hours at 300 meters. Lake Street located approximately 260 meters from the cooling tower. Therefore vapor plume ground level fogging was not predicted to impact Lake Street.
- In the direction of Magnolia Boulevard, no vapor plume ground level fogging was predicted by the model.

From the modeling results, staff concluded that the impact of ground level fogging from the facility when it is operating, would be insignificant for traffic. Magnolia Boulevard and Olive Avenue are elevated roadways in the area of the MPP. Therefore cooling tower plumes do not have to be at ground level in order to result in fogging impact for these roadways. To ensure that any potential impact from ground level fogging does not result in a hazard for the elevated portion of roadway traffic, mitigation and condition of certification **TRANS-7** are proposed in this analysis.

Levels of Service (LOS)

The LOS for some of the roadways and intersection around the MPP are operating at unacceptable levels (i.e. E and F). The level of traffic associated with the construction of the MPP does not result in an unacceptable decrease for the LOS for any of the area roadways or intersections. To ensure that the MPP construction does not worsen the LOS of the area roadways and intersections, the project needs to have a traffic control plan (i.e., condition of certification **TRANS-4**) that is not limited to, but addresses the following issues:

- Establishment of construction work hours outside of peak traffic periods;
- Maintaining access to adjacent residential and commercial property;
- Off street employee parking in designated parking lots;
- Timing of heavy equipment and building materials;
- Signing, lighting and traffic control device placement;
- Temporary travel lane closure; and
- Emergency access.

Mitigation measures and conditions of certification have been proposed to ensure that the traffic associated with the MPP construction and operation do not worsen the LOS for area roadways.

Change In Air Traffic Patterns

The MPP is located approximately three miles southeast of the Burbank, Glendale, Pasadena Regional Airport. The Federal Aviation Administration (FAA) in Title 14, Code of Federal Regulations, Sections 77.21, 77.23, and 77.25 established standards for determining obstructions in navigable airspace. The MPP stack height of approximately 150 feet will not impact navigable air space.

Vapor plumes Affecting Air Traffic

Vapor plumes during operation would be emitted from both the cooling tower and the exhaust stack. Staff has modeled the anticipated exhaust stack plumes and has concluded that the plumes would fall below staff's frequency threshold for a potential significant impact. Therefore, traffic safety would not be affected.

Similarly staff's modeling indicates that cooling tower plumes would not be expected to be of sufficient size to affect air traffic. To ensure that the vapor plumes do not create a visual impairment staff has recommended a condition of certification in the **Visual Resources** section to require the project owner to design the project to limit the plume size.

Increase In Road Hazards

There are no traffic hazards such as sharp left turns, dangerous intersections[1] or sensitive receptors such as schools in the MPP vicinity. Given the fairly high level of traffic congestion in the Burbank area, staff has concluded that the MPP's construction phase truck traffic presents the greatest potential for hazards (see Truck Traffic discussion in section **A. INCREASE IN TRAFFIC**). Staff's recommended Conditions of Certifications **TRANS-1**, **TRANS-2**, and **TRANS-4** will reduce road hazards associated with truck traffic to an insignificant level.

Most of the truck traffic will occur early during the construction phase. Truck traffic peaks in the eighth month at 320 truck deliveries for the month. This would be approximately 13 truck deliveries per day or 26 truck trips. When the construction workforce peaks in the fifteenth month at a workforce of 319 workers the truck trips are forecast to be 41 truck trips per month or 2 truck deliveries per day.

Transportation of equipment that exceeds the load size and limits for certain roadways will require special permits from the City of Burbank and/or Caltrans. Mitigation measures and Conditions of Certification that ensure this compliance are discussed later in this analysis.

Emergency Access

If roadways affected by construction are maintained at an LOS acceptable to Caltrans and the City of Burbank the project should have adequate emergency access. The Burbank Fire Department provides both fire protection and emergency medical services from the main fire station. This station is located less than a mile east of the site on

[1] The three-way intersection of Victory Boulevard, Burbank Boulevard and Victory Place was a significant safety hazard until it was improved earlier in 2001.

Palm Avenue. Palm Avenue is between Magnolia and Olive Avenues, which provide direct access to the facility. Condition of Certification **TRANS-4** requires that the traffic control plan ensure access for emergency vehicles.

Parking Capacity

The MPP site does not have sufficient space for the construction workforce to park on site. Therefore, the construction workforce will be required to park in designated off-site areas. MPP has two off-site parking areas designated for construction workers' parking. These lots have a combined capacity of 400 parking spaces. Condition of Certification **TRANS-3** requires the project owner to enforce a policy that all project parking will be in designated on-site or off-site parking areas.

The larger lot is located on Old Front Street. From this lot the workers can walk to the MPP site. This parking lot has 300 spaces. Since this lot is close to the plant site, it is anticipated that most workers will use this lot.

The smaller site is a paved parking area along San Fernando Boulevard between Hollywood Way and Buena Vista beside the railroad tracks. This lot has approximately 100 spaces. This lot is located approximately 2.5 miles from the work site. Workers using this lot will be transferred to the MPP site by shuttle buses or vans.

The offsite parking locations will provide sufficient parking for the construction workforce. There should be no impact to local parking lots or on street parking in the area due to the construction workforce.

Plant operation will require 30 full time employees. These workers will be spread over three shifts, which will necessitate no more than nine new parking spaces. The existing plant has ample room to accommodate the additional parking spaces.

Transportation Of Hazardous Material

The construction and operation of the plant will require the transportation of various hazardous materials, including aqueous ammonia. The handling and disposal of hazardous substances are addressed in Waste Management, Worker Safety and Fire Protection, and Hazardous Materials Management sections of this report.

The transportation and handling of hazardous substances associated with the project can increase roadway hazard potential. During operations there will be truck deliveries of aqueous ammonia once a week. The trucks will use I-5 in traveling to the facility. Trucks coming from the south (northbound) can exit either at First Street or Alameda Avenue. For trucks that exit I-5 at First Street they come to an intersection at Orange Grove that is governed by a stop sign. The truck would then turn right and travel on Orange Grove to the intersection of First Street and Orange Grove. This intersection is governed by a four-way automated traffic stoplight. The truck would then turn left, and pass through the intersection of Palm and First Street before reaching the Magnolia and First intersection. Both intersections are governed by a four-way traffic stoplight. The truck would then turn left on Magnolia Boulevard and proceed southwest to Lake Street where it would turn left and enter the MPP facility from Lake Street. If the truck exits I-5 at Alameda Avenue it would travel southwest on Alameda and turn right at the

intersection of Alameda Avenue and Lake Street. It would then travel northwest along Lake Street to the plant site.

Trucks coming from the north on I-5 (southbound) can exit at San Fernando Road or Burbank Boulevard. The San Fernando Road off ramp ends at the intersection of San Fernando and Buena Vista. The truck would then turn right and travel on Buena Vista to North Victory Place, which is controlled by a four-way traffic stoplight. The truck will travel south on North Victory Place to the intersection of Burbank Boulevard and Victory Place, which is controlled by a four-way traffic stoplight. After passing through the intersection the road changes to Victory Boulevard. The route continues south on Victory Boulevard to Magnolia Boulevard. The truck would then turn left at the intersection that is controlled by a four-way traffic stoplight and travel east to Lake Street where its makes a right turn on Lake Street in order to enter the plant site.

No sensitive receptors or traffic hazards are located on the routes discussed. The routes pass through mostly light industrial development into a mixture of industrial and commercial areas.

The delivery of hazardous material to the plant can be mitigated to insignificance by compliance with Federal and State standards established to regulate the transportation of hazardous substances. Mitigation measures and Condition of Certification **TRANS-2** that ensure this compliance are discussed under their respective subsection later in this analysis.

CUMULATIVE IMPACTS

Based on the current and future traffic characteristics of the area, congestion associated with the operation of the project is nominal and regional and local roadways will have adequate capacity to accommodate project construction traffic.

Section 5.18 of the AFC identifies projects that could potentially create a cumulative impact on the area if combined with project traffic. The list of projects included in Table 5.18-1 of the AFC represents projects located within a five-mile radius of the project site and projects of potential regional significance. Of the 22 projects located in the five-mile radius only eight are in the vicinity of the MPP. Most of these projects are located east of I-5, so they should have minimal impact on the roadways used by the MPP. With respect to the MPP's potential for cumulative traffic impacts on I-5, staff has concluded that the impact will be insignificant since MPP construction workers will be required to travel at off-peak times. Also, the impacts associated with the construction phase of the project are short-term and the operational phase impacts will be insignificant due to the slight increase in employees (i.e., 15 new full-time employees) above current conditions, thus significant impacts are not expected under cumulative conditions.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that indicates the minority population is not greater than 50 percent within a six-mile radius of the proposed MPP (please refer to **Socioeconomics Figure 1** in this Staff Analysis). The data for the population income levels with in six miles of the MPP indicates that the low-income population is also less

than 50 percent. Staff's Traffic and Transportation analysis did not show any identified unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project. Therefore, there are no environmental justice issues related to this project.

The major traffic impact on the area will occur during the construction period. This impacted is expected to be greatest for approximately ten months out of the 24 month construction schedule when the workforce exceeds 150 people. The travel and transportation routes that are expected to be used will avoid direct movement through much of the area included within the six-mile radius of the project. The majority of traffic is expected to use I-5 thereby minimizing travel on surface streets in the vicinity of the plant site. The major travel on surface streets in the area will be from the offsite laydown area to the MPP site. The route from the laydown area will follow North Victory Boulevard to Olive Avenue and Olive Avenue to the MPP South Gate entrance. This route is lined with commercial/retail business.

FACILITY CLOSURE

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

PLANNED CLOSURE

The minimum design life of the power plant is expected to be 30 years. At least 12 months prior to the proposed decommissioning, the applicant shall prepare a closure plan for submission to the Energy Commission for review and action. At the time of closure all then-applicable laws, ordinances, regulations, and standards (LORS) will be identified and the closure plan will address how these LORS will be complied with. The effects of closure for the MPP on traffic and transportation will be similar to those discussed for the construction of the project. Closure will create traffic levels that are similar in intensity and duration to those expected during facility construction.

UNEXPECTED TEMPORARY CLOSURE

Unexpected temporary closure occurs when the facility is closed suddenly or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster, or an emergency. From the perspective of traffic and transportation issues, in the event of temporary facility closure, the applicant would have to comply with all applicable policies contained in the LORS section of this report regarding transportation permits for hazardous materials and equipment.

UNEXPECTED PERMANENT CLOSURE

Unexpected permanent closure occurs if the project owner closes the facility suddenly 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 temporary closure, the effects on traffic and transportation would be similar to those for normal operation of the power plant facility. 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 commuter traffic. In either instance, the roadway systems within the vicinity of the project should be able to handle traffic without significantly affecting the current level of service of the area.

MITIGATION

The applicant has indicated that the project will meet or exceed all applicable LORS. Staff will require that all LORS be followed as this will result in truck traffic safety and reduce the potential significance of truck traffic affects on the area roadways around the project. For traffic and transportation the applicant will need to comply with all LORS relating to:

- the transport of hazardous materials **TRANS-2**;
- the transport of oversized loads TRANS-1; and
- all COB Municipal Codes **TRANS-4**.

Staff also recommends that the applicant implement the following traffic and transportation mitigation measures to ensure that the affects of traffic from the project are minimized:

- enforce a policy that all project-related parking occurs in designated parking areas TRANS-3;
- repair any damage to adjacent roadway sections incurred during construction to the road's pre-project construction condition **TRANS-6**. Any repair work needed shall occur outside of the traffic peak periods for the COB.
- prepare a Transportation Management Plan subject to review by the City of Burbank and the County of Los Angeles TRANS-4. The Transportation Management Plan should include measures to ensure that project-related traffic occurs outside of the peak hours.
- post warning signs for the motorists traveling by the MPP on Magnolia Boulevard and Olive Avenue which would alert them to the possibility of ground fog **TRANS-7**.

CONCLUSIONS AND RECOMMENDATIONS

Staff has concluded that the intersections and roadways that are operating at acceptable LOS (LOS of D or better) will not see a decline in their LOS to unacceptable levels.

If the proposed mitigation measures are properly implemented, no significant traffic impacts are likely to occur. Further, if the conditions of certification proposed by staff

are observed and properly implemented, the MPP will be in compliance with applicable laws, ordinances, regulations, and standards.

If the Energy Commission certifies the MPP, staff recommends that the Commission adopt the proposed conditions of certification listed below.

PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1 The applicant shall comply with California Department of Transportation (Caltrans) and other relevant jurisdictions' limitations on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any 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-2 The project owner shall ensure that all permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.

Verification: The project owner shall include in its Monthly Compliance Reports, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-3 During construction of the power plant and all related facilities, the project shall develop a parking and staging plan for all phases of project construction to enforce a policy that all project-related parking occurs on-site or in designated off-site parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to the City of Burbank for review and comment, and to the CPM for review and approval.

TRANS-4 The project owner shall consult with the City of Burbank and County of Los Angeles and prepare and submit to the CPM for approval a construction traffic control plan and implementation program which addresses the following issues:

- Timing of heavy equipment and building materials deliveries;
- Redirecting construction traffic with a flagperson;
- Signing, lighting, and traffic control device placement if required;
- Need for construction work hours and arrival/departure times outside of peak traffic periods;
- Ensure access for emergency vehicles to the project site;
- Temporary travel lane closure;
- Establishment of construction work hours outside of peak traffic periods; and
- Access to adjacent residential and commercial property during the construction of all linears.

Verification: At least 30 days prior to site mobilization, the project owner shall provide to the CPM a copy of the referenced documents.

TRANS-5 Prior to the use of the laydown, area the project owner shall make all necessary arrangements to allow the use of the existing rail line for delivery of construction material and heavy equipment.

Protocol: The project owner shall reach an agreement with the owner of the rail line to permit the use of the line for the purpose described above.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall reach an agreement with the owner of the rail line for use of the line for the purpose described above.

TRANS-6 Following construction of MPP project, the project owner shall meet with the CPM and the COB to determine if any action is necessary and develop a schedule to complete the repair of any roadways damaged due to project construction.

Prior to start of construction, the project owner shall photograph, videotape or digitally record images of the roadways directly adjacent to the project site and between the laydown area and project site. This would include the following roadway segments: Olive Avenue between Victory and San Fernando Boulevard, Magnolia between Victory to San Fernando, and Victory Boulevard between Magnolia Boulevard and Olive Avenue. The project owner shall provide the Compliance Project Manager (CPM) and the City of Burbank with a copy of these images. Prior to start of construction, the project owner shall also notify the City of Burbank about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction related activities associated with other projects.

Verification: Within 30 days after completion of the project, the project owner shall meet with the CPM and the City of Burbank to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near original condition as possible. Following completion of any regional road improvements, the project owner shall provide to the CPM a letter from the City of Burbank stating their satisfaction with the road improvements.

TRANS-7 Before start up of MPP, the applicant shall meet with the CPM, the COB, and other relevant jurisdictions to determine the type and placement of warning signage to inform motorists about the possibility of ground level fog on Olive Avenue and Magnolia Boulevard.

Verification: At least 30 days prior to plant start up, the project owner shall meet with the CPM, the City of Burbank and other relevant jurisdictions to determine and receive approval for the placement of warning signage and the installation date to inform motorists about the possibility of ground level fog.

REFERENCES

Magnolia Power Project, MPP 2001a. Application for Certification, Magnolia Power Project (01-AFC-06). Submitted to the California Energy Commission May 14, 2001.

Magnolia Power Project, MPP 2001 Res1. Southern California Public Power Authority (SCPPA) response to staff Data requests, Set 1, Magnolia Power Project (00-AFC-06). Submitted to California Energy Commission November 5, 2001.

Johnson, Ken. 2001. City of Burbank Department of Public Works, Phone Conversation with James Fore (California Energy Commission), November 15, 2001.

Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington D.C., 1997.

Los Angeles County Metropolitan Transportation Agency, Congestion Management Plan (as amended), 1990.

Southern California Association of Governments (SCAG), Community Link 21 2001 Regional Transportation Plan, April 2001.

TRAFFIC AND TRANSPORTATION
APPENDIX A

Testimony of William Walters and Lisa Blewitt

COOLING TOWER VISIBLE PLUME / FOGGING MODELING ANALYSIS

The Applicant's AFC (MPP 2001a) and Data Request Response #151 (MPP 2001k) and revised Data Response #151 (MPP 2001o) were evaluated and an independent dispersion modeling analysis was performed to determine the impacts of ground level fogging from the Magnolia Power Project on the surrounding roadways. The Seasonal/Annual Cooling Tower Impact (SACTI) model was used to determine the frequency and distance of ground level fogging during duct firing (328 MW) and non-duct firing (250 MW) operation. A five-year (1996 to 2000) Burbank Airport meteorological data set was used in the modeling analysis.

The Southern California Public Power Authority (SCPPA) proposes to construct and operate the MPP on the property of the existing City of Burbank (COB) generating facilities. The project site is located at 164 Magnolia Boulevard and is surrounded by the following major roadways/transportation arteries:

- Golden State Freeway (I-5) runs from the northwest to southeast near the project site at the following approximate distances from the new cooling tower.
    - 270 meters north,
    - 190 meters north-northeast,
    - 170 meters northeast,
    - 200 meters east-northeast,
    - 290 meters east,
    - 600 meters east-southeast,
    - and 1,100 meters southeast from the new cooling tower.
- Olive Avenue to the southeast is located approximately 150 meters from the new cooling tower.
- Lake Street to the southwest is located approximately 260 meters from the new cooling tower.
- Magnolia Boulevard to the northwest is located approximately 110 meters from the new cooling tower.
- The Metrolink rail line is located parallel and inside of the I-5 and the Burbank Metrolink station is located approximately 220 meters east of the new cooling tower.

The areas around the facility are commercial/retail and industrial, with some residential areas to the west.

The SACTI modeling analysis results for the cooling tower plume ground level fogging is shown in Table 1 for both duct firing and non-duct firing operation.

Table 1 – Staff Cooling Tower Hours of Plume Fogging

Distance (meters)	Plume Direction					Total (hours)
	E	ESE	SE	SSE	S	
Duct Firing Operation						
All Hours @ 252 MW (43,774 hours modeled)						
100	0.4	1.5	0.6	0.8	0.2	3.4
200		1.4		0.7		2.1
300		0.7		0.4		1.1
**All Daytime Hours @ 251 MW (22,170 hours modeled)*						
100	0.4	1.5	0.4			2.3
200		1.4				1.4
300		0.7				0.7
**All Nighttime Hours @ 251 MW (21,605 hours modeled)*						
100			0.2	0.8	0.2	1.1
200				0.7		0.7
300				0.4		0.4
Non-Duct Firing Operation						
All Hours @ 168.7 MW (43,776 hours modeled)						
100		1.5		0.8		2.3
200		1.0		0.5		1.5
300		0.2		0.1		0.3
All Daytime Hours @ 168.7 MW (22,170 hours modeled)						
100		1.5				1.5
200		1.0				1.0
300	---	0.2	---	---	---	0.2
All Nighttime Hours @ 168.7 MW (21,605 hours modeled)						
100	---	---	---	0.8	---	0.8
200			---	0.5	---	0.5
300	---	---	---	0.1	---	0.1

* Duct Firing Daytime and Nighttime hours were modeled with a total heat rejection rate of 251 MW. The SACTI modeled would not run with a total heat rejection rate of 252 MW.

Non-duct firing operation is expected to occur for the significant majority of hours and is more representative of normal cooling tower operation; however the maximum occurrence of ground level plume fogging occurs during duct firing operation.

During duct firing operation, the modeling predicts 3.4 hours of fogging at a distance of 100 meters from the cooling tower for the entire five year period, 2.1 hours at a distance of 200 meters, and 1.1 hours at a distance of 300 meters. The modeling predicts that ground level fogging will have the greatest impact on Olive Avenue as all estimated hours with ground level fogging are in the direction of Olive Avenue (ENE to SSW). The modeling predicts that ground level fogging conditions may occur infrequently (approximately 2 hours out of 43,774 hours) out to Olive Avenue. In the direction of Interstate 5 (N to SE) there are 2.5 hours of fogging predicted at a distance of 100 meters, 1.4 hours at 200 meters, and 0.7 hours at 300 meters. The modeling predicts that ground level fogging events do not persist for a distance long enough to reach Interstate 5. In the direction of Lake Street (SSE to WSW), there are 1.0 hours of ground level fogging predicted at a distance of 100 meters, 0.7 hours at 200 meters and 0.4 hours at 300 meters. Therefore, the ground level fogging is not predicted to reach Lake Street. In the direction of the Burbank Metrolink Station (E) there are 0.4 hours of ground level fogging predicted to occur at a distance of 100 meters. Therefore, plumes are not predicted to reach the Burbank Metrolink Station. No ground level fogging

events were predicted in the directions from the cooling tower towards Magnolia Boulevard (WSW to NNE).

Applicant provided an estimate of ground level fogging (MPP 2001f); however, their estimate is faulty as the wind equivalence numbers used by the Applicant do not correspond to the wind direction (WD) array used. Therefore, their results are not presented in this analysis.

It should be noted that Magnolia Boulevard and Olive Avenue are elevated roadways, passing over the Metrolink rail line, in the area of the project site. This means that cooling tower plumes do not have to be ground level in order to impact these two roadways. Therefore, the results presented could underestimate plume impacts on these two elevated roadways.

The modeling results presented are based on the cooling tower data provided by the Applicant, the modeling algorithms included in the SACTI model, and the meteorological data used to perform the modeling analysis. There is the potential that the modeling may under predict or over predict the actual ground level fogging events. In general, the cooling tower plumes will be longest, and therefore have a higher potential to impact nearby roadways, when the wind is in the direction of the length of the cooling tower, which are the directions to Magnolia Boulevard and Olive Avenue.

CONCLUSIONS

Based on Staff modeling of ground level fogging for the Magnolia Power Project located at the City of Burbank generating facility, only minor impacts to the surrounding roadways are expected. To mitigate ground level fogging impacts, it might be advisable to place warning signs for motorists in the vicinity of the facility, in both travel directions, on Olive Avenue and Magnolia Boulevard, as is discussed in the **Traffic and Transportation** section of this Final Staff Assessment.

REFERENCES

Magnolia Power Plant. MPP 2001a: Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Plant. MPP 2001f: Data adequacy responses for the Magnolia Power project. Submitted to the California Energy Commission on September 4, 2001.

Magnolia Power Plant. MPP 2001k: Responses to first round data requests. Submitted to the California Energy Commission on November 5, 2001.

Magnolia Power Plant. MPP 2001o: Supplemental responses to first round of data requests. Submitted to the California Energy Commission on November 26, 2001 and various dates in December.

TRANSMISSION LINE SAFETY AND NUISANCE

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

The purpose of this staff analysis is to assess the proposed transmission line construction and operational plan for incorporation of the measures necessary for compliance with the health and safety laws of concern for lines of this type. Staff's analysis will focus on issues relating primarily to the physical presence of overhead and underground lines, or relate secondarily to the physical interactions of line electric and magnetic fields. These issues include:

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

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following federal and state laws and industry practices are intended to ensure implementation of the measures necessary to prevent occurrence of each of the impacts noted.

AVIATION SAFETY

The concern over aviation safety for overhead lines derives from the obstruction hazard to area aircraft from the proposed line's intrusion into the area's air space. The potential for such a hazard is addressed through the following LORS and related requirements.

Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting the Navigation Space." Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant hazards to area aviation.

FAA Advisory Circular (AC) No. 70/460-2H, "Proposed Construction and or Alteration of Objects that may Affect the Navigation Space." This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.

FAA AC No. 70/460-1G, “Obstruction Marking and Lighting.” This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

AUDIBLE NOISE AND RADIO INTERFERENCE

Radio-frequency interference and audible noise are produced from the physical interactions of the line electric fields and the air around the conductor. These impacts are produced through well understood physical mechanisms and are prevented or mitigated through compliance with the following regulations and industry practices:

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25, which prohibit operation of devices or facilities with fields capable of interference with radio-frequency communication in the fields’ impact area. These regulations require all such interference to be mitigated by the operator. The potential for such interference would depend on the distance the source in question.

General Order 52 (GO-52), California Public Utilities Commission (CPUC), which specifies the measures necessary to prevent communication interference as related to power and communication line construction, operation and maintenance.

Regular maintenance, which eliminates the protrusions that enhance the noise-producing impacts of electric field interactions at the conductor surface.

FIRE HAZARDS

Fire hazards from overhead transmission line operation are mostly related to sparks from conductors of overhead lines or direct contact between the line and nearby trees and other combustible objects. Such fires are prevented through compliance with the following regulations:

General Order 95 (GO-95), CPUC, “Rules for Overhead Electric Line Construction,” which specifies tree-trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, “Fire Prevention Standards for Electric Utilities,” which specifies utility-related measures for fire prevention.

SHOCK HAZARDS

All transmission and subtransmission line operations pose a risk of hazardous or nuisance shocks to humans. These hazardous shocks are those from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines. The nuisance shocks by contrast, are caused by current flow at levels generally incapable of physiological harm. They result most commonly from contact with a charged metallic object in the transmission line environment. The following regulations are intended to prevent such shocks:

- GO-95, CPUC, "Rules for Overhead Line Construction," which specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and workers working on or around the line.
- GO-128, CPUC, "Rules for Construction of Underground Electric Supply Communication Systems," which specify uniform statewide requirements for underground line construction regarding clearances, grounding techniques, maintenance, and inspection.
- Title 8, CCR, Section 2700 et seq., "High Voltage Electric Safety Orders," which establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.
- National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines, whose provisions are intended to minimize the potential for direct or indirect contact with the energized line.
- The National Electrical Safety Code and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE), which provide for effective grounding and other safety-related practices.

SETTING

Electricity from the proposed Magnolia Power Project (MPP) will be delivered to the City of Burbank (COB) transmission and distribution system and the Los Angeles Department of Water and Power (LADWP) transmission grid though two new underground 69 kV lines. These lines are proposed to run between the project's steam turbine generator and combustion turbine generator and the 69 kV Olive Switchyard used for the COB Power Plant complex in which MPP will be located. As more fully discussed by the applicant, the Southern California Public Power Authority (SCPPA), these new underground lines will be routed entirely within the existing COB Power Plant complex in a way that avoids existing structures and underground facilities (MPP 2001a, page 3.6-1 through 3.6-3). The line from the Olive Switchyard to the combustion turbine generator to will be 1,380 feet while the line to the steam turbine generator will be 1, 240 feet.

The proposed project's location in the City of Burbank is in a four-acre parcel within the existing 23-acre COB Power Plant complex whose constituent generating units have been listed in the information from the applicant (MPP 2001a, page 1.3-1). The site of this power generation complex facility is bordered by industrial properties on all sites and has been used since 1941 for electricity production. The area that the proposed line will traverse is an area with a variety of electricity generating facilities and related equipment including gas-fired generating units, switchyards, and overhead and underground transmission and subtransmission lines (MPP 2001a, page 3.6-11). Since this area is away from residences and inaccessible to the general public, the long-term residential magnetic field exposure of the present health concern would be insignificant during MPP operations. The only exposure of potential significance would be the short-term on-site exposure to plant workers or permitted project visitors. These types of exposures are well understood as not significantly related to the present health concern.

ANALYSIS

ENVIRONMENTAL CHECKLIST

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
TRANSMISSION LINE SAFETY AND NUISANCE – Would project operation:				
a) Pose an aviation hazard to area aircraft?				X
b) Lead to interference with radio-frequency communication?				X
c) Pose a hazardous or nuisance shock hazard?		**X**		
d) Pose a fire hazard?				**X**
e) Expose humans to higher electric and magnetic field levels than justified by existing knowledge?		**X**		

DISCUSSION OF IMPACTS

a) Aviation Hazard: No Impact

Since the proposed MPP line is an underground line that would not protrude into the navigation space, it would not pose a collision hazard to area aircraft.

b) Audible Noise and Radio Frequency Interference: No Impact

The electric fields from the proposed and all underground lines cannot penetrate the soil and other materials (unlike the companion magnetic fields) to mediate the interference with radio-frequency interference. Therefore, such interference would not occur during project operation.

c) Fire Hazard: No impact

Since the proposed line will be located underground away from combustible materials, its operation will not pose a significant fire hazard in the area.

d) Shock Hazards: Less Than Significant with Mitigation Incorporated

The MPP line is proposed for construction according to CPUC GO-128 requirements against hazardous and nuisance shock hazards and would not pose such hazards during operation.

e) Electric and Magnetic Exposure: Less Than Significant Impact

Exposure to power-frequency electric and magnetic fields is considered capable of biological impacts at levels orders of magnitude higher than encountered in the power line environment. The issue of continuing concern is the potential for impacts of potential health significance at levels of normal occurrence around power lines and other sources. Although the potential for such health impacts has not been established,

the CPUC has established specific design and operational requirements for managing such fields.

Undergrounding allows line conductors to be closely placed together to achieve the maximum field cancellation possible without affecting line safety, efficiency and reliability. Therefore, undergounding the proposed project lines would constitute the most effective field exposure mitigation measure possible without the noted impacts of concern. Construction according to GO-128 requirements would constitute compliance with the health and safety LORS of concern to staff. Staff recommends a specific condition of certification (TLSN-1) in this regard, and does not regard mitigation-related validation measurements as necessary during operations.

CONCLUSIONS

Staff has established the underground location of the proposed project line as potentially producing the lowest field strengths possible for lines of the proposed voltage and current-carrying capacity, and does not consider further exposure-related design changes as necessary. Staff recommends a specific condition of certification to ensure the line safety and field strength reduction assumed by the applicant.

PROPOSED CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall built the proposed transmission line according to the requirements of CPUC's GO-128 for underground lines.

Verification: Thirty days before project-related ground disturbance, the applicant shall submit to the Commission's Compliance Project Manager (CPM) a letter from SCPPA stating its intention to ensure compliance with this requirement.

REFERENCES

Magnolia Power Plant. MPP 2001a. Application for Certification and request for a six-month review process. Submitted to the California Energy Commission on May 4, 2001.

Electric Power Research Institute (EPRI) 1982. Transmission Line Reference Book: 345 kV and Above

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

National Institute of Environmental Health Services 1998. An Assessment of the Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. A Working Group Report, August, 1998.

VISUAL RESOURCES

Testimony of William Kanemoto

INTRODUCTION

In the following analysis, staff evaluates potential visual impacts of the Magnolia Power Project (MPP) and its consistency with applicable laws, ordinances, regulations, and standards (LORS).

SUMMARY

Project lighting has the potential to cause significant visual impacts. To mitigate night lighting impacts, staff recommends implementation of Conditions of Certification **VIS-2 and VIS-3**. With these measures night lighting impacts of the project would be less than significant.

Staff's analysis identified no significant visual impacts due to project structures. However, in order to ensure conformance with applicable policies of the City of Burbank (COB) General Plan, South San Fernando Redevelopment Plan, and ordinances of the COB Municipal Code regarding visual appearance of industrial facilities, staff recommends adoption of Conditions of Certification **VIS-1, VIS-2, VIS-3, VIS-4, and VIS-5**. With proper implementation of these measures, the proposed project would be in conformance with applicable COB policies with regard to visual impact and community design.

Predicted visible cooling tower plumes would cause significant visual impacts at both foreground and middleground view areas. These impacts would be reduced to less than significant levels with adoption of staff-recommended Condition of Certification **VIS-6**.

VISUAL ANALYSIS METHODOLOGY

The following discussion describes the methodology employed in the visual resource analysis of the proposed MPP. This methodology was developed by Energy Commission staff and applied on numerous previous power plant siting cases, and is fundamentally consistent with similar professionally accepted visual assessment techniques employed by various government agencies.

In the following analysis the project's visual setting is described in terms of existing visual character and quality. Visual character refers to formal attributes of the visual setting and is descriptive. Visual quality is an evaluative measure that reflects a judgment of a landscape's attractiveness as determined by characteristics broadly recognized as valued and preferred by most viewers. These include the presence of natural features, particularly vegetation and water, and visual attributes typically identified as preferred or valued in various professionally accepted assessment methodologies, such as vividness, distinctiveness, coherence, intactness, variety and interest. Visual quality is rated in the context of the project's broad regional landscape

setting. That is, landscapes that are common within the region are assigned moderate visual quality. Landscapes that are unusually scenic and vivid within the region are given a high visual quality rating. The project setting was delineated into areas or landscape units of contiguous, broadly consistent visual character and quality. Generally, these correspond broadly with land uses as well as typical physiographic characteristics and are also referred to as image types.

Within each landscape type, Key Observation Points (KOPs) were then identified to represent the most critical locations from which the project would be seen. These reflect, in particular, those key sensitive viewer groups most likely to be affected by the project. Assessments of project impact are determined from these KOPs. KOPs are rated for their level of visual sensitivity to impact.

The visual characteristics of the project are then described. Typically, accurate visual simulations of the project as seen from KOPs, accurately representing the perceived scale of the project from these locations, are required, as described further below. These simulations, along with field reconnaissance, are used to evaluate the level of project contrast, dominance, and view blockage, leading to an overall impact rating from that KOP.

The Energy Commission's visual assessment methodology evaluates impact to a particular KOP in terms of two primary factors: sensitivity to impact of the KOP (attribute of the setting); and degree of visual change (an attribute of the project).

Visual Sensitivity captures those aspects of viewers and their setting that determine the likelihood of adverse impact. The fundamental elements of visual sensitivity include:

- ***viewer exposure -*** Visibility of a landscape feature, the number of viewers, distance, and the duration of the view are primary factors affecting viewer susceptibility to impacts.
- ***viewer concern –*** The level of viewer concern for visual change (viewer attitudes and expectations) is a key determinant of visual impact. It is often correlated with viewer activity type (e.g., viewers engaged in certain activities, such as recreation, are considered to have high levels of concern for scenic quality, while those engaged in other activities, such as work, are generally considered to have lower levels of concern). Residences are generally considered to be of high sensitivity. Expressions of public policy with regard to visual resources are given great weight in determining viewer concern.
- ***visual quality -*** The evaluation of the existing visual quality of the setting.

Visual Sensitivity is rated on a scale of low to high. Thus, high visual quality, high viewer concern, and high viewer exposure to the project, combine to create high sensitivity to impact.

Overall Visual Change captures the degree of *visual change* expected as a result of the project. The fundamental elements of visual change include:

- ***visual contrast –*** The conspicuousness or prominence of a project, and its compatibility with its setting, is primarily a function of its contrast with that setting.

Contrast is described in terms of formal attributes of form, line, color, and texture of the project in comparison to those of the setting.

- ***project dominance –*** in the context of this methodology, dominance refers to the project's apparent size and scale within the field of view, and its location in the field of view.
- ***view blockage/intrusion*** – blockage of existing scenic views is a criterion for determining significant visual impacts under the CEQA Guidelines. View blockage is assigned greater weight according to the quality of the blocked view, and of the project.

Visual change is rated on a scale of Negligible to Very Strong.

Visual change and visual sensitivity are then combined to arrive at preliminary findings of potential project impact significance.

In addition, the project is evaluated for conformance with applicable LORS. Adopted expressions of local public policy pertaining to visual resources are also given great weight in determining levels of viewer concern.

As needed, conditions of certification are proposed to reduce potentially significant impacts to less than significant levels if feasible.

SIGNIFICANCE CRITERIA

The following regulatory criteria were considered in determining whether a visual impact would be significant. Technical criteria for determining impacts under the study's methodology according to levels of overall visual sensitivity and anticipated overall visual change are also employed

State

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

Appendix G of the Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant.

1. Would the project have a substantial adverse effect on a scenic vista?

2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

4. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Local

Energy Commission staff considers any local goals, policies, or designations regarding visual resources. Conflicts with such laws, ordinances, regulations, and standards can constitute significant visual impacts. See the section on Applicable Laws, Ordinances, Regulations, and Standards.

Professional Standards

Professionals in visual impact analysis have developed a number of questions as a means of evaluating the potential significance of visual impacts (see, e.g., Smardon 1986). The questions listed below address issues commonly raised in visual analyses for energy facilities. Staff considers these questions in assessing whether a project would cause a significant impact in regard to any of the four CEQA criteria listed above:

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

Specifically, the process described above under the discussion of study methodology, that is, the combination of visual sensitivity and visual change, was used as a principal guideline in defining criteria of impact significance.

Vapor Plume Impact Criteria

Visual impacts of vapor plumes are more difficult to evaluate than structures because they vary in both size and duration depending upon operating and meteorological conditions. Larger plumes occur with lower frequency/duration than smaller plumes. Vapor plumes are generally associated with heavy industrial land uses and thus tend to be regarded negatively by visually sensitive observers. Vapor plumes may attain very large size and thus affect considerably larger areas than a power plant's structures.

Impacts of visible plumes were evaluated on the basis of those plumes ('significance criteria plumes') that would be expected to occur for 10 percent of daytime no fog, no rain hours, during the 6-month seasonal period when plumes are most prevalent in the project setting according to meteorological records. If initial analysis indicates that the plume frequency during these periods exceeds 10 percent, staff conducts a more thorough analysis to determine whether the plumes impacts are significant in the particular case and recommends appropriate mitigation. Nighttime hours without fog

are also considered in cases where night illumination could result in potential visual impacts from plumes. That is not considered to be the case in this instance.

The 10 percent criterion recognizes that larger plumes, occurring less frequently than 10 percent of the critical seasonal period, would be sufficiently infrequent as to represent a less than significant impact regardless of size. The semi-annual criterion reflects the tendency of visible plumes to be concentrated in certain seasonal periods and not in others. The 'without fog' criterion reflects the fact that plumes may often form in conditions that are also conducive to fog formation, but they are not likely to be highly visible or perceived as substantially adverse under such conditions.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL

The project is not located on federal lands and thus would not be subject to federal land management regulations. Consequently, no federal LORS pertaining to visual resources would apply to the project.

STATE

State Scenic Highway Program

The California State Department of Transportation (Caltrans) identifies a state system of eligible and designated scenic highways which, if designated, are subject to various controls intended to preserve their scenic quality.

There are no State-eligible or designated scenic highways within the viewshed of the proposed project.

LOCAL

City of Burbank General Plan

Land Use Element

Policy 16

New development shall have architectural design that is compatible with surrounding properties and which enhances the appearance of Burbank.

Industrial Land Use Policies

Encourage and promote the landscaping of industrial sites and the aesthetic design of industrial buildings in order to improve the appearance of the industrial areas, and the City as a whole, thereby contributing to the positive image of Burbank.

South San Fernando Redevelopment Plan (SSFRP)

Goals of the SSFRP include ensuring cohesive design and development standards in the development and/or redevelopment of land, implementation of design and use standards to assure high aesthetic and environmental quality, and to provide unity and integrity to developments within the Project Area.

City of Burbank Zoning Regulations

The MPP site is located within an M-2 Industrial Zone (Chapter 31 of the COB Municipal Code). City zoning regulations for M-2 uses require street frontage landscaping, including planting of one tree for every 40 feet of street frontage, and require a conditional use permit for structures greater than 35 feet in height (Ch. 31, Article 8, Sec. 31-812).

In addition the City Art in Public Places ordinance (Ch. 31, Article 11, Sec. 31-1113.1) requires construction and installation of a work of art or other aesthetic amenity, or payment of an in lieu fee, as specified in the ordinance.

SETTING

REGIONAL SETTING

The proposed Magnolia Power Project (MPP) is located in the City of Burbank in Los Angeles County, in a highly urbanized portion of level valley floor visually enclosed to the north by the Verdugo Mountains and to the south by the Santa Monica Mountains. To the north and east of the project site, the City of Burbank slopes gently upward toward the base of the Verdugo Mountains, which then rise steeply approximately 1.5 miles from the site and are the location of numerous scattered residential and open space viewpoints. Similarly, the Santa Monica Mountains rise about 1.5 miles south and west of the project site and include portions of Griffith County Park, and Mt. Sinai and Forest Lawn Cemeteries. Between these enclosing mountain ranges, the site occupies a part of the intensively developed valley floor comprising a mosaic of predominantly low-rise industrial, residential, and commercial development. The core of central downtown Burbank, including city government offices and high-density retail development is located within a 1/2 –mile radius of the project site, immediately to the northeast of Highway I-5.

The urbanized valley floor setting has a high visual absorption capacity. That is, views toward the site from most viewpoints on the valley floor tend to be scattered, highly filtered and limited in extent due to the intensive intervening development. Nevertheless, prominent foreground views to the site occur from elevated roadway overcrossings adjacent to the site. Occasional unobstructed middle-and background distance views also occur from elevated viewpoints in the mountains to the north and south.

VISUAL RESOURCES Figure 1, Existing Landscape Setting and Key Observation Points, depicts typical landscape types in the project viewshed, and the location of Key Observer Positions (KOPs).

PROJECT SITE

The proposed MPP site is situated directly adjacent to the Burbank Western Channel, a concrete box flood channel adjoining the northeastern boundary of the MPP site. MetroLink railroad tracks lie immediately north of the channel, and the adjacent Burbank Regional Intermodal Transportation Center (RITC)/MetroLink station and parking lot lie north of the tracks. U.S. Highway I-5 in turn lies just north of the RITC. The MPP site is bounded by Magnolia Boulevard to the northwest, Olive Avenue to the southeast, and Lake Street to the southwest. The site is within a General Industrial (M-2) zone, adjacent to other commercial manufacturing and limited industrial uses occupying the southwest side of Highway I-5 in the general vicinity. In general then, as discussed in further detail below, the MPP site is located in a predominantly industrial setting of generally low visual sensitivity.

From most available nearby viewpoints to the north, east, and south, the MPP site is characterized by a highly industrial appearance dominated by the prominent Olive Units 1 and 2 power blocks, a switching yard, storage tanks and buildings, and the prominent Magnolia Units 3 and 4 exhaust stack, which at 150 feet in height is the facility's most widely visible feature. In such views the facility is typified by the visually chaotic sight of exposed mechanical equipment, unpainted surfaces, and an absence of attention to design and appearance. In contrast, in views from Magnolia Boulevard to the west, the industrial features of the facility are generally hidden behind the two-story Burbank Water Light and Power (WLP) administration buildings, which have the appearance of a typical landscaped industrial office.

Views into lower portions of the site from adjacent streets are screened by solid masonry walls along Lake Street and Olive Avenue, which conceal much of the plant's visual clutter from viewpoints on Olive and Lake, although taller structures described above remain highly prominent above these screening walls (**VISUAL RESOURCES Figure 4a**). (All figures referred to in the text may be found at the end of this section). As mentioned, views into the site from Magnolia Boulevard are generally screened by the two-story WLP administration building. Views into the site from the northeast property line adjoining the RITC/MetroLink parking lot are also screened by continuous unpainted concrete walls and low storage buildings.

Prominent elevated foreground views into the site occur from elevated bridges on both Olive Avenue and Magnolia Boulevard as these streets cross over the river channel and railroad tracks, as discussed further below under the discussion of Key Observation Points (see KOPs 4 and 5).

PROJECT AREA SETTING

Existing Visible Vapor Plumes

According to the applicant, existing Olive Unit 2 and two existing cooling towers associated with the Olive Units are described as typically producing medium to large plumes (25 yards or greater) at various times through the period of November through February (MPP, 2001k).

In addition, the nearby Americold Logistics plant across Magnolia Boulevard from the MPP is described as producing medium to large plumes (25 yards or greater in length) during low temperature conditions. Other known sources of substantial visible plumes include the City of Glendale Power Plant, located nearly 4 miles to the east with 5 cooling towers, and the Los Angeles Department of Water and Power Valley Generating Station, located 6 miles from the MPP, with 6 cooling towers. Both of these sources would be considered to be generally outside the project viewshed, although plumes of 2 or more of these facilities could possibly be visible from common viewpoints. Other plume sources have also been identified in the vicinity, but are of much smaller magnitude and would thus have a minor or negligible influence on the existing visual setting (MPP, 2001k).

Staff conducted on-site reconnaissance of the MPP site to monitor the existing plume baseline. Under conditions of 46 degrees F., and 66% relative humidity the existing plant was not observed to produce any visible plume. At that time, only one very small plume (approximately 20 feet in height) was observed, at the nearby Aries Beef Plant on Magnolia Boulevard. Plumes of this magnitude would have no influence on the evaluation of project impacts.

Key Observation Points

The following discussion divides the viewshed into landscape types, or areas of broadly uniform visual character and quality, to provide an overview of the existing setting. Key Observation Points (KOPs) are then described in terms of their visual character and quality, viewer concern, viewer exposure, and overall Visual Sensitivity.

The viewshed or area of potential visual effect (the area within which the project could potentially be seen) is depicted in **VISUAL RESOURCES FIGURE 1**, **Existing Landscape Setting and Key Observation Points**. Although the viewshed extends to viewpoints at far-middleground distances (up to approximately 2-1/2 miles), views within this radius are scattered and intermittent due to intervening urban development. Intermittent, isolated views of portions of the existing plant, particularly the tall (150 feet) Units 3 and 4 exhaust stack, occur within open view corridors along major streets, or between structures and landscaping. Views of the project site occur from residences, public parks and streets in the surrounding mountains at distances of 1-1/2 miles and beyond.

Beyond a foreground radius of approximately 1/2 mile, potential impacts from project structures are unlikely because of the very small visual magnitude that they would have in views beyond this distance. Adverse impacts from visible vapor plumes could occur to much greater distances, depending upon the size and frequency of such plumes. KOPs outside of the ½ mile foreground radius are thus examined primarily with regard to potential vapor plume impact.

KOP numbers from the AFC and subsequent Data Responses have been retained in the following discussion but are discussed in different order. In addition new KOPs have been introduced where appropriate and assigned distinct numbers.

Unit 1 – Burbank Industrial

As described above, the MPP is located within a General Industrial zone of the City of Burbank, adjacent to other predominantly single-story industrial facilities designated as commercial manufacturing, limited industrial, and auto commercial, occupying the southwest side of U.S. Highway I-5. Highway I-5 northeast of the site forms a strong visual barrier to this industrial zone from viewpoints in downtown Burbank to the north. In general this landscape type has low visual quality, low to moderate viewer concern, varying degrees of visual exposure, and low to moderate overall visual sensitivity, as described in detail below for each individual KOP.

KOP 4 - View Looking South toward Site from Magnolia Boulevard Overcrossing

VISUAL RESOURCES Figure 2a depicts the view from KOP 4, from the sidewalk nearest to the project site, on the Magnolia Boulevard overcrossing facing south approximately 500 feet from the site. It is similar to views of motorists traveling southwest on Magnolia Boulevard, though visual exposure of motorists would be less due to their location on the opposite (north) side of the street. The extremely wide panoramic view of this figure substantially reduces the apparent visual magnitude of the existing plant facilities in this photograph, but does convey the very large physical area and portion of the field of view occupied by the existing plant, which strongly dominates the view. The adjoining MetroLink parking lot is visible in the left portion of this figure.

Visual Quality – This view is strongly dominated by the industrial character of the existing MPP facility, typified by exposed mechanical equipment, lack of visual coherence or unity, and a general absence of landscaping, painting, or other attention to visual appearance. The visual quality of this view of the existing MPP would be considered low, but is seen in the foreground of views of the Santa Monica Mountains, which are prominently visible behind the plant. Though the mountains are an attractive scenic feature of high quality, the power plant dominates so strongly in these views that overall scenic quality is highly compromised. Nevertheless, this view is considered of low to moderate quality due to the presence of the mountains.

Viewer Concern – Viewer concern of motorists entering this heavily industrial zone is low. The level of scenic expectation in an area such as this is quite limited.

Viewer Exposure – Visibility from this location is moderate to high. Although visibility from the sidewalk location from which this photograph was taken is high, the photograph is atypical due to the very low number of pedestrians who use the sidewalk. The principal viewers as mentioned are westbound motorists on the north lanes of the bridge, whose visual exposure to the plant is partly blocked by the roadway and bridge themselves. The distance zone is foreground, and the number of viewers is high. The duration of this view, however, is low for motorists. Overall viewer exposure was thus considered moderate to high.

Overall Visual Sensitivity – Taking into account the overriding influence of low viewer concern in an industrial area, and low to moderate visual quality, overall sensitivity was considered Low to Moderate despite the moderate to high degree of viewer exposure.

KOP 5 - View Looking Southwest toward Site from Olive Avenue Overcrossing

KOP 5 - **VISUAL RESOURCES Figure 3a** depicts the view from KOP 5 the Olive Avenue overcrossing facing southwest approximately 500 feet east of the site and is representative of views of southwest-bound motorists on Olive Avenue. Viewer exposure is actually understated in this figure due to the location of the photo viewpoint on the south side of the bridge, rather than the near (north) side from which virtually all viewers would observe the site. From the north side of the bridge, visibility of the site would be high, and the portion of the field of view occupied by the plant would also be high, exerting strong visual dominance. The view is very similar in virtually all respects to KOP 4.

Visual Quality – As discussed under KOP 4, visual quality is low to moderate, due to the presence of scenically attractive but visually subordinate views of the Santa Monica Mountains in the background beyond the project site, which enhance the otherwise low visual quality of the power plant and its industrial setting.

Viewer Concern - Viewer concern of motorists entering this heavily industrial zone is considered low.

Viewer Exposure - Visibility from this location is moderate to high. The distance zone is foreground, and the number of viewers is high. The duration of this view is low for motorists. Overall viewer exposure was thus considered moderate to high.

Overall Visual Sensitivity – As under KOP 5, taking into account the overriding influence of low viewer concern in an industrial area, together with low to moderate visual quality, overall sensitivity was considered Low to Moderate despite the moderate to high degree of viewer exposure.

Other Viewpoints within Industrial Zone

KOPs 4 and 5 offer the worst-case scenarios for views of the proposed project from within this landscape unit, due to their elevated foreground locations and moderate to high level of visual exposure. Other views of the site within the industrial area would be from viewpoints at the same elevation as the power plant. Such lower viewing angles substantially reduce the visibility of the proposed project features due to the screening and filtering influence of intervening structures in a highly developed area. KOPs BI-1 through BI–3 represent key representative viewpoints within foreground distance of the MPP in the industrial zone, as follows:

KOP BI (Burbank Industrial) -1 – View from Intersection of Lake Street and Olive Avenue (south corner of site)(VISUAL RESOURCES Figure 4a)

Visual Quality – Visual quality is low to moderate. The existing plant presents a highly industrial appearance with visually chaotic, exposed mechanical equipment of Olive Units 1 through 4 and the plant switchyard, numerous power lines and an un-landscaped street frontage. The surrounding industrial streetscape similarly exhibits little visual unity or attention to design considerations. However, broad scenic views of the Verdugo Mountains form the backdrop of views to the east.

Viewer Concern – Viewer concern and scenic expectation in this industrial setting is also considered to be low.

Viewer Exposure – Visibility of the MPP is high. Distance is foreground. Viewer number is high, though duration is generally low. Overall viewer exposure is moderate to high.

Overall Visual Sensitivity – Taking into account the overriding influence of low viewer concern in an industrial area, and low to moderate visual quality, overall visual sensitivity is Low to Moderate despite moderate to high viewer exposure.

KOP BI-2 – View from Magnolia Avenue Eastbound near Lake Street (west corner of site)(VISUAL RESOURCES Figure 4b)

Visual Quality – Visual quality is moderate. The industrial setting is mitigated by mature street trees, the architectural design and landscaping of the Burbank Water, Light and Power (BWLP) offices, and views of the Verdugo Mountains.

Viewer Concern – Viewer concern in this industrial setting is considered to be low.

Viewer Exposure – Visibility of the MPP power plant is largely screened from view by the BWLP offices, and is low to moderate. Distance is foreground. Viewer number is high, and view duration low. Overall viewer exposure is moderate.

Overall Visual Sensitivity – Taking into account moderate visual quality, low viewer concern, and moderate viewer exposure, overall sensitivity is Low to Moderate.

KOP BI-3 – View from Metrolink Parking Lot (northeast of site)(VISUAL RESOURCES Figure 4c)

KOP BI-3 represents the daily view of several hundred MetroLink commuters who park in this lot directly north of the MPP site while boarding the commuter train.

Visual Quality – Visual quality is low to moderate. The highly industrial, low quality views of the MPP are enhanced by the parking lot landscaping and attractive station architectural and landscape design.

Viewer Concern – Viewer concern is considered low. Scenic expectations of viewers focusing on the activity of boarding the train in this predominantly industrial zone are expected to be very limited.

Viewer Exposure – Visibility of plant facilities is moderate to high. Distance is foreground. Viewer number is high. View duration is low. Overall viewer exposure is therefore considered moderate to high.

Overall Visual Sensitivity – Taking into account both low to moderate visual quality and the over-riding influence of low viewer concern in this largely industrial setting, overall sensitivity is Low to Moderate despite moderate to high viewer exposure.

Unit 2 – Burbank Residential and Urban Parks (Valley)

As indicated in **VISUAL RESOURCES Figure 1**, considerable numbers of residences lie within foreground distance of the existing MPP. Residential districts are located approximately ¼ mile from the project site west of Victory Boulevard and Lake Street. In addition to residential areas west of the site, substantial numbers of residences are also located within near-middleground distance (a little over ½ mile) to the northeast, in and around downtown Burbank across I-5. However, views of the project site and facilities from residences are so few and limited in nature as to be negligible. This is due mainly to the fact that in western Burbank, street frontages on major boulevards comprising the principal view corridors to the site consist of commercial or industrial businesses. Residences thus lack unobstructed view corridors to the site. In north Burbank views to the site from residential areas are blocked by mid-rise development of downtown. Associated urban open space in the vicinity include Olive Avenue Recreation Center approximately ¼ mile west of the site on Olive Avenue, and McCambridge Park approximately 1 mile to the north. No views of the site occur from these facilities or other public open spaces in this area due to intervening vegetation and structures that completely screen views.

Unit 3 – Burbank Commercial

As shown in **VISUAL RESOURCES Figure 1**, considerable commercial development lies within foreground distance of the existing MPP, the nearest located approximately ¼ mile from the project site on Victory Boulevard, and lining major east-west streets including Olive Avenue and Magnolia Boulevard. In addition to commercial areas west of the site, downtown Burbank and adjacent Media City Center (Burbank Mall) are also located within foreground distance to the northeast, across U.S. I-5.

Visual quality of commercial areas in the project vicinity in general is considered moderate, as described below. Visibility of project structures from all these commercial areas are very limited, consisting mainly of intermittent views of the Units 3 and 4 exhaust stack amid strong filtering and screening of intervening structures and street trees. However, even where proposed project structures would not be visible, view corridors toward the site from commercial areas at foreground distances could be subject to impacts from visible plumes, depending upon the plumes' size and frequency. In general, views from commercial areas were of moderate overall visual sensitivity.

Downtown Burbank and Media City Center (Burbank Mall):

Views to the MPP site from points within the downtown area (northeast of I-5) at foreground distances to the MPP site were considered comparable in their setting characteristics. These characteristics are thus described for downtown viewpoints in general, together, as follows:

KOP BC (Burbank Commercial) -1 – View from Olive Avenue near City Hall Looking Southwest **(VISUAL RESOURCES Figure 5a)**

KOP BC-1 depicts a view toward the site at a distance of approximately 1/3-mile, east of San Fernando Boulevard near City Hall.

KOP BC-2 – View from Magnolia Boulevard east of First Street Looking Southwest **(VISUAL RESOURCES Figure 5b)**

KOP BC-2 depicts a view toward the site at a distance of approximately 1/4 mile, east of First Street. The top of the Units 3 and 4 stack may barely be seen in the view, as indicated in the figure.

KOP BC-3 – View from First Street Looking South **(VISUAL RESOURCES Figure 5c)**

KOP BC-3 depicts a view toward the site from First Street at a distance of approximately 1/4 mile. The tops of the Units 1, 2, 3 and 4 stacks may be seen in the view, as indicated in the figure.

Visual Quality – Visual quality of the downtown is considered moderate. Intensive landscaping, street trees, and strong urban design controls contribute to strong visual unity.

Viewer Concern – Viewer concern in commercial areas is considered moderate. Typically, heavy industrial uses are not regarded as compatible with retail commercial uses.

Viewer Exposure – Visibility of the project site from downtown is very low. Screening and filtering by intervening development and landscaping is almost total, with views of the tall Magnolia Units 3 and 4 stack occurring only in intermittent, very isolated locations where screening is absent. If visibility of project structures were the sole concern, downtown viewpoints would probably not require assessment, and would suggest a low to moderate level of overall sensitivity. However, downtown KOPs have been reviewed because prominent unobstructed foreground views of visible plumes could occur from major view corridors such as Magnolia, Olive, and First Street. Viewer exposure to large-scale visible plumes would be low to moderate.

Distance zone of these commercial areas is foreground. The number of potential commercial viewers is high. The duration of views is low to moderate. Visibility of project features is very limited and inconspicuous. However, because prominent unobstructed foreground views of visible plumes could occur from major view corridors such as Magnolia, Olive, and First Street, overall viewer exposure is considered low to moderate rather than low.

Overall Visual Sensitivity – Taking into account moderate visual quality, moderate viewer concern, and low to moderate viewer exposure to visible plume effects, overall visual sensitivity was considered Moderate.

Southwest Burbank Commercial Streets

KOP 3 – View from Victory Boulevard at Cypress Street Looking East **(VISUAL RESOURCES Figure 6a)**

KOP 3 depicts views from Victory Boulevard at a distance of approximately ¼ mile. Though technically located within the industrial zone, the street is typified by small retail

and light industrial businesses with a commercial office and storefront character, in marked contrast to the heavy industry to the east of this street.

Visual Quality – Visual quality in the vicinity is low to moderate, typified by offices and storefronts of various light industrial businesses which exhibit a lower degree of attention to appearance than retail commercial districts, but a higher level of quality than heavy industrial areas like those to the east of Victory Boulevard.

Viewer Concern – Viewer concern is considered to be low to moderate, reflecting a mix of viewers engaged in industrial and commercial activities.

Viewer Exposure – Visibility of the project site from this area is low. Few views of the MPP site exist, and where they occur consist primarily of views of the tall Unit 3 and 4 stack, with other features of the facility screened by intervening development, as illustrated in this photograph. Distance zone is foreground. Number of viewers is high, but duration of views where they occur, are fleeting. Overall viewer exposure is thus moderate.

Overall Visual Sensitivity – Taking into account low to moderate visual quality, low to moderate viewer concern, and low to moderate viewer exposure, overall sensitivity is Low to Moderate.

KOP BC-4 - View from Magnolia Boulevard Looking Northeast (**VISUAL RESOURCES Figure 7a)**

Street-fronts along major east-west streets west of the MPP site are zoned for commercial use. Two of these, Magnolia and Olive Avenue, are oriented directly toward the MPP site, creating view corridors directly toward the power plant. Although portions of the tallest Unit 3 and 4 stack are occasionally visible from Magnolia Street, the stack is barely noticeable in the absence of visible plumes. The Burbank WLP administration building can be seen in the center of this photo at a distance of under ½ mile.

Visual Quality – Visual quality along Magnolia Boulevard is moderate, with strong visual unity from the mature street trees lining both sides of the street, and the scenic element of the Verdugo Mountains framed in the background.

Viewer Concern – Viewer concern is considered to be moderate, typical of a retail commercial district.

Viewer Exposure – Visibility of the project from this and other viewpoints on Magnolia is low overall. Although portions of the tallest Unit 3 and 4 stack are occasionally visible from the north side of Magnolia Street above the tree canopy, the stack and other portions of the MPP power plants are barely noticeable in the absence of visible plumes. Similarly, the BWLP building becomes visible as distance decreases, but also screens more industrial portions of the MPP facility from view. Nevertheless, views of visible plumes could be prominent throughout the foreground radius depending upon their height, due to unobstructed views of the sky above the MPP site down the length of Magnolia Boulevard.

Distance zone is foreground. Number of viewers is moderate to high. Duration of views is low to moderate. Overall, viewer exposure is low to moderate.

Overall Visual Sensitivity –Taking into account moderate visual quality, moderate viewer concern, and moderate viewer exposure to large-scale plumes, overall sensitivity to plume impacts was considered Moderate. Due to low viewer exposure to project structures, sensitivity to structure impacts is Low.

KOP BC-5 - View from Olive Avenue Looking Northeast **(VISUAL RESOURCES Figure 7b)**

KOP BC-5 depicts the view toward the MPP site from Olive Avenue at a distance of somewhat over ½ mile.

Visual Quality – Street trees are sporadic and intermittent on Olive Avenue, and development less unified in form and character, lending it a lower level of visual unity than commercial areas of Magnolia Boulevard. Nevertheless, mature trees of Olive Avenue Park enhance foreground distance views, and open, relatively unobstructed views of the Verdugo Mountains form a scenic backdrop to views toward the east. Visual quality is considered moderate.

Viewer Concern – Viewer concern in commercial areas is considered moderate. Typically, heavy industrial uses are not regarded as compatible with retail commercial uses, which predominate in the study area.

Viewer Exposure – Visibility of the project facilities from foreground commercial portions of Olive Avenue varies from none to low depending upon the exact location. Nevertheless, views of visible plumes could be quite prominent throughout the foreground radius depending upon their height, due to the open, unobstructed views of the sky above the MPP site.

Distance zones are foreground. The number of potential viewers is high. The duration of views is low to moderate. Overall viewer exposure is thus low for structures, moderate for plumes.

Overall Visual Sensitivity – Taking into account moderate visual quality, viewer concern, and moderate viewer exposure to large-scale plumes, overall sensitivity to plume impacts was considered Moderate. Due to negligible viewer exposure to project structures from all locations except the immediate project vicinity (depicted in KOP BI-1), sensitivity to structure impacts is Low.

Unit 4 – Highway I-5

Highway I-5 passes within 200 feet of the MPP site, and represents many thousands of viewers each day, by far the largest viewer group exposed to the project.

KOP 6 – U.S. I-5 Northbound, Looking West

KOP 6 **(VISUAL RESOURCES Figure 8a)** is a view of the MPP site from I-5 at foreground distance, in this case westbound. It is fairly typical in that the view is highly

filtered and heavily screened by intervening roadside landscaping of substantial stature. This roadside edge condition predominates within the foreground and near-middleground radius of the site, which would be most vulnerable to potential impact.

Visual Quality – Existing visual quality on I-5 is low to moderate. Although generally low, the visual quality of this portion of highway is improved substantially by the roadside landscaping described previously, and by views of the Verdugo Mountains to the northeast. The landscape is nevertheless dominated by the highway itself, and by expanses of typical urban development lacking any special scenic value.

Viewer Concern –Scenic expectations of motorists in a highly urbanized area lacking highly distinct landscape character such as this are limited. Nevertheless, viewers are not completely indifferent to major adverse impacts on views under such conditions. Viewer concern of motorists on I-5 is thus considered to be low to moderate.

Viewer Exposure – Overall, visibility is low, due to the general heavy roadside screening discussed previously. Viewing distance from I-5 is foreground. The number of potential viewers is very high. The duration of views is low. However, due to high exposure to the site at foreground distance from a short segment of highway within foreground distance to the east of the site, overall viewer exposure is considered moderate.

Overall Visual Sensitivity – Taking into account low to moderate visual quality, low to moderate viewer concern, and moderate overall viewer exposure, overall visual sensitivity of foreground views from U.S. I-5 was considered Low to Moderate.

Unit 5 – Verdugo Mountains Residential and Open Space

Scattered views from residences, open space areas, and public streets are located at various points in canyons of the Verdugo Mountains located approximately 1-1/2 miles and more from the MPP site. Due to their elevated position, views are unobstructed, although at these distances the MPP appears visually very subordinate and indistinct. The area is classified by the City as Mountain Reserve land use, and in addition to numerous residences, includes several public opens space facilities including Brace Canyon Park, Stough Park, DeBell Golf Course, Wildwood Canyon Park, and Brand Park. Views from these public facilities are scattered and limited in number and extent. Where such views occur, they are essentially similar to the following KOPs:

KOP 1 – View from Tujunga Street (VISUAL RESOURCES Figure 9a)

This view is typical of a substantial number of viewpoints in the Verdugo Mountains at distances of 1-1/2 to 2 miles.

Visual Quality – Visual quality of these viewpoints is moderate to high, characterized by intensive landscaping and panoramic views of the valley floor and Santa Monica Mountains in the distance.

Viewer Concern – Viewers are both residents and visitors to public recreational destinations. Viewer concern is moderate to high.

Viewer Exposure – Overall, visibility is moderate to high. Views of the site are unobstructed by other development due to the elevated viewing angle. Viewing distance is middleground. At these distances, the MPP site is indistinct, although the prominent Unit 3 and 4 stack is visible and identifiable due to high line contrast, particularly in clear weather. The number of residences with unobstructed views of the site is moderate. Duration of views is high. Overall viewer exposure is thus Moderate to High.

Overall Visual Sensitivity – Taking into account moderate to high visual quality, moderate to high viewer concern, and moderate to high viewer exposure, overall sensitivity was considered Moderate to High.

KOP 2 – View from Howard Court near Viewcrest (VISUAL RESOURCES Figure 10)

This view is typical of a moderate number of locations on residential streets to the northeast of the site at distances of 2 miles or more.

All parameters of the existing visual setting are as described for KOP 1, except distance is far-middleground (over 2 miles). Thus, overall visual sensitivity is also Moderate to High.

Unit 6 – Santa Monica Hills Recreational and Cemetery Open Space

These views are typical of a limited number of viewpoints in the Santa Monica Mountains at distances of 2 or more miles, including Griffith Park, and Mt. Sinai and Forest Lawn Cemeteries. Relevant viewing characteristics are essentially similar among viewpoints in the area and are described together as a unit, under KOP 11.

KOP 11 - Forest Lawn Cemetery

Visual Quality – Visual quality of these viewpoints is moderate to high, characterized by intensive landscaping, natural vegetation, and panoramic views of the valley floor and Verdugo Mountains in the distance.

Viewer Concern – Viewers are visitors to Griffith Park and Forest Lawn Cemetery. Viewer concern with visual quality is high.

Viewer Exposure – Overall, visibility is low. Views of the site are largely obstructed by vegetation and terrain. Viewing distance is middleground to far-middleground. At these distances, the MPP site, where visible, is relatively indistinct. The number of viewers is moderate. Duration of views is moderate. Due particularly to the very limited number and extent of views to the project from this area, overall viewer exposure is Low.

Overall Visual Sensitivity – Taking into account moderate to high visual quality, high viewer concern, and low viewer exposure, overall visual sensitivity was considered Low to Moderate.

POWER PLANT

VISUAL RESOURCES FIGURE 11 depicts architectural elevations of the proposed power plant. **VISUAL RESOURCES FIGURE 12** depicts architectural elevations of the proposed cooling towers.

The existing MPP is characterized by a highly industrial appearance dominated by the prominent Olive Units 1 (top of power block structure, 89 feet; top of stack, 109 feet); Unit 2 (top of structure, 91 feet; top of stack, 109 feet; Unit 3 (top of structure, 47 feet, top of stack, 91 feet); Unit 4 (top of structure, 57.5 feet, top of stack, 76.7 feet); and the Magnolia Units 3 and 4 exhaust stack (150 feet). The site is enclosed on Lake Street, Olive Avenue, and the Burbank Western Channel/MetroLink frontages by approximately 12-foot high masonry or concrete walls. On Magnolia Boulevard, views into the site are screened by the existing two-story Burbank Water Light and Power (BWPL) administration building.

An existing 78,000-barrel storage tank (60 foot height) located near the northeastern boundary of the plant would be removed, as would a 25,000-barrel oil storage tank (52 foot height) near the center of the site. The Magnolia Cooling Tower 3 (36 foot height) east of Magnolia Units 3 and 4 would be removed, as would existing Magnolia Units 1 and 2 (41 foot height).

The proposed MPP would include a new power block, switchyard upgrades to the Olive switchyard, new control and administrative buildings, new cooling tower structures, boiler, storage tanks, gas compressors, and other ancillary facilities. As depicted in the **VISUAL RESOURCES Figure 11**, the most visually prominent features would include a 150 foot HRSG exhaust stack, an enclosed HRSG (82.5 foot height), an STG enclosure structure (71.75 foot height), and CTG inlet structure (84 foot height), located in the eastern corner of the MPP site adjacent to the Magnolia Boulevard overcrossing. Six new cooling tower cells (50 foot height) would be placed near the site's northeastern boundary in the vicinity of the existing 78,000-barrel storage tank, to be removed. An LM6000 combustion turbine of unspecified height occupies the center of the site. No new transmission towers are proposed. Power generated by the new unit would be conducted to the existing Olive switchyard by a 1,500-foot long underground circuit.

A new 3-story administration building (50.5 foot height; approximately 60,000 square feet) would be constructed immediately west of the new generation unit in the location of the existing Magnolia Units 1 and 2.

Proposed Plant Night Lighting

Under Applicant's proposed mitigation measure, night lighting would be hooded to direct illumination downward and inward to minimize light, glare and backscatter, and include use of time- or motion-detector-controlled lighting.

CONSTRUCTION STAGING AREAS

Various off-site construction staging and construction parking areas are proposed. These would be located adjacent to railroad right-of-ways south of U.S. I-5 within the industrial zone.

LINEAR FACILITIES

Transmission Lines

No new on- or off-site, aboveground transmission lines or towers are proposed for the MPP project.

Water and Gas Supply lines

Natural gas, potable water, and reclaimed water would be supplied by existing on-site supply lines. No additional off-site linear facilities are proposed.

ANALYSIS OF IMPACTS

A summary of the impact analysis is presented in a table in Appendix VR-1.

PROJECT SPECIFIC IMPACTS

As described previously under Visual Analysis Methodology, visual impacts are assessed as a function of Visual Sensitivity (viewing attributes of the setting) and Visual Change (anticipated degree of visual change).

Ratings of existing and proposed project contrast, dominance, and view blockage were made on the basis of field observation, photo documentation, and study of applicant- and staff-prepared visual simulations and other project information. Applicant KOP views reproduced in the AFC were reviewed and duplicated by staff in the field, to confirm the accurate reproduction of visual scale of the simulations when viewed in tabloid-sized (11” x 17”) format in the AFC.

KOP numbers from the AFC have been retained. However, the order in which they are discussed has been changed to accord with the structure of this analysis.

Environmental Checklist

VISUAL RESOURCES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		X		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		X		

A. Scenic Vistas

Scenic features visible within the project viewshed include taller peaks and ridges of the Santa Monica and Verdugo Mountains, which are prominent from viewpoints throughout the City of Burbank.

The full analysis of visual effects to individual KOPs, including an analysis of project visual change and overall impact, is presented in detail further below, in the discussion of Item C., Visual Character or Quality. The following summarizes the results of these analyses for the specific KOPs relevant to this discussion of scenic vistas.

Visually dominant intervening foreground development blocks or strongly filters views of the mountains from the majority of locations in the vicinity of the MPP. Nevertheless, views northeastward to the Verdugo Mountains are an important feature of the landscape as seen along unobstructed view corridors such as Magnolia Boulevard and Olive Avenue. KOPs 4 and 5 adjacent to the site offer views southwestward of the Santa Monica Mountains behind the MPP, as do other locations in downtown Burbank. Various elevated viewing locations in the Verdugo Mountains have unobstructed views of the Santa Monica Mountains (KOPs 1 and 2).

As described in greater detail under the discussion of individual KOPs, below, the potential effect of intrusion by project structures into view corridors to the surrounding mountains is minor to negligible. Only the proposed exhaust stack (150 foot height) is expected to intrude into such views. In the one location where such intrusion would be noticed to a moderate degree, KOP 4 on Magnolia Boulevard, viewer concern and visual sensitivity would be sufficiently low and views sufficiently fleeting (approximately 10 seconds) that the impact is considered minor and less than significant.

The potential effects of large-scale visible plumes on views to the mountains are much greater. Visible cooling tower plumes are expected to intrude into views of the

mountains from KOPs 4 and 5 for a substantial period (50 percent or more of daytime no fog no rain hours) during the 6-month fall and winter period. This impact would potentially be significant. However, with staff-recommended Condition of Certification VIS-6, this impact would be reduced to less than significant levels. The staff Plume Analysis is included as **Appendix VR-2**.

View corridors in foreground commercial areas of Magnolia Boulevard and Olive Avenue looking both northeast and southwest could experience some view intrusion from visible plumes. From these particular viewpoints, the predicted criteria plumes, that is, those plumes of at least the size predicted to occur for 10 percent of seasonal no-fog, no-rain daylight hours, and used by staff to evaluate potential plume impacts, as described in the methodology section above would cause a moderate level of visual contrast and overall visual change. As described in greater detail below under KOPs BC-4 and BC-5, this level of intrusion into scenic views would result in strong overall adverse visual change, and would be adverse and significant in the context of the area's moderate visual sensitivity. With staff-recommended Condition of Certification VIS-6, such l plumes would not extend into the view corridors formed by the eastward oriented streets. Potential impacts by such plumes to these scenic views would thus be mitigated to less than significant levels. Plumes of a size predicted to occur for half of all seasonal no-rain, no-fog daylight hours would not extend into the view corridors and would have no appreciable effect on these scenic views.

View corridors westward to the Santa Monica Mountains from KOPs in downtown Burbank are limited in both extent and quality due to extensive filtering and screening by intervening foreground development. Although these views could potentially be affected by the predicted criteria plumes (plumes of a size predicted to occur 10 percent of seasonal daylight no-rain no-fog hours), their existing scenic importance is so minor that occasional blockage by plumes is considered to be a less than significant effect.

Occasional large-scale plumes could have an adverse effect on scenic views from elevated viewpoints in the Verdugo and Santa Monica Mountains. However, although plumes could be noticeable as an element in views of the valley floor, they would not block scenic view corridors. The potential effects on the scenic character and quality of such views are discussed below under Item C.

In summary, no significant adverse impacts on scenic views or view corridors are anticipated.

B. Scenic Resources

As indicated in the previous discussion of LORS, there are no state-designated or eligible scenic highways within the proposed project viewshed. Furthermore, the project would not damage any scenic resources such as trees, rock outcroppings, or historic buildings. Thus, the project would not substantially damage any scenic resources.

C. Visual Character or Quality

Project Operation Impacts

In discussions of simulations, readers should note that representations are of the unmitigated project, except where specific measures have been proposed by the applicant.

Visible Vapor Plume Impacts

Staff conducted computer modeling of predicted visible vapor plumes that would be produced by proposed cooling towers and HRSG, using the both the Seasonal/Annual Cooling Tower Impact (SACTI) and Combustion Stack Visible Plume (CSVP) models (**and reported in Appendices VR-2 and VR-3).** Staff noted substantial discrepancies between its modeling results and SACTI cooling tower plume results provided by the applicant. Overall, predicted magnitude and frequency of plumes predicted by staff were substantially less than those predicted by the applicant.

Cooling Tower Plumes

In response to requests by staff, the Applicant provided revised data for the cooling tower operating under 'no duct firing' conditions (MPP, 2001b, data responses #147 and 148). Since it is expected that duct firing will not occur for the substantial majority of hours, particularly in those parts of the year most conducive to visible plume formation (fall and winter) the data for the no duct firing condition are more representative of normal cooling tower operation vis-à-vis plume impacts. SACTI and CSVP modeling of the no-duct-firing condition were performed by staff and are included in the analysis as Appendices VR-2 and VR-3 and are summarized in Table VR-1.

Table VR-1. Staff SACTI Modeling of Visible Cooling Tower Plume Dimensions

Seasonal Daytime No Rain/No Fog Hours**					
(Staff Results)					
		Duct Firing		**Non-Duct Firing**	
	Percentile[1]	**CSVP**	**SACTI*** **	**CSVP**	**SACTI*** **
Length (m)	50%	No Plume	30-40	No Plume	20-30
	10%	**138**	40-50	**193**	30-40
	Maximum	305	5,000-6,000	427	5,000-6,000
Height (m)*	50%	No Plume	20-30	No Plume	20-30
	10%	**254**	30-40	**149**	20-30
	Maximum	670	600-700	489	600-700
Width (m)	50%	No Plume	20-40	No Plume	20-40
	10%	**54**	40-60	**37**	20-40
	Maximum	88	600-800	72	600-800

* ND – No Data Provided. Seasonal = November through April (day 304 - 120).
(*) Plume height in the SACTI results does not include the height of the cooling tower (add 12.3 m).
(**) SACTI Duct Firing Cases at Daytime, Nighttime and Seasonal Daytime hours were modeled with a total heat rejection rate of 251 MW. The SACTI Duct Firing modeled would not run with a total heat rejection rate of 252 MW.
(***) Maximum dimensions are based on met data grouping within SACTI, which can provide non-consistent results.
Bold indicates staff evaluation threshold and corresponding values.

[1] % of daytime no rain, no fog hours in the 6-month season in which plumes would be most prevalent.

As stated previously staff assumed that the MPP would not be anticipated to operate with duct firing during the great majority of hours conducive to visible plume formation. Consequently, staff conclusions on potential significance of plume impacts, below, are based on modeling of non-duct firing operation of the MPP.

As shown in the table, substantial discrepancies were found in the plume predictions produced by the SACTI and CSVP models. However, the preponderance of evidence suggests that the results of the staff CSVP modeling are likely to be the most accurate, and have been used as the basis for the findings in this Final Staff Assessment. The CSVP results represent the most conservative basis of analysis, i.e., they predict the larger magnitude plume of the two models.

As described above under the discussion of study methodology, to evaluate potential plume impacts staff used the predicted 10 percent seasonal (six month) no fog, daytime plume as the measure of impact. If a plume of this magnitude and frequency would exceed thresholds of significant impact for a given KOP (i.e., levels of project-caused visual change in relation to visual sensitivity of the existing setting), then potentially significant impacts could occur. Larger plumes occurring at lower frequencies than this 10 percent frequency threshold were considered too infrequent to be significant and are not considered. The actual number of hours represented by the impact threshold (10 percent of daytime no fog no rain hours per six-month period) is approximately 180 hours. It should be recalled that somewhat smaller but still substantial and potentially impact-inducing plumes would occur for an additional, greater number of hours per season. The 10 percent dimensions are thus only an index for evaluating the overall effect of large-scale, potentially significant seasonal plumes. When one considers that the large majority of these large plumes would be concentrated in the months of December and January, the proportion of hours of significant plumes is actually likely to be much higher than 10% of daytime no-fog no-rain hours.

Key dimensions of the CSVP-predicted 10 percent seasonal daytime, no fog no rain plume without duct firing are as follows: Height: 149m (488 feet), Length 193m (633 feet), Width 37m (121 feet).

HRSG Exhaust Stack Plumes

Staff also conducted CSVP modeling of anticipated HRSG exhaust stack plumes. These results are summarized below in Table VR-2. As the table illustrates, the expected occurrence of HRSG plumes of any size falls far below the staff frequency threshold for potential impact significance of 10% of seasonal daytime no fog hours. (Anticipated frequency of any visible plume for this critical period is .02% or 2 hours per 6-month season). Consequently no significant impacts are anticipated due to HRSG exhaust stack plumes.

Table VR-2 – Staff Predicted Hours with HRSG Steam Plumes*

		No Duct Firing		With Duct Firing		With Duct Firing & Power Augmentation*	
	Available (hr)	Plume (hr)	Percent	Plume (hr)	Percent	Plume (hr)	Percent
All Hours	43,848 29,133**	9	0.02%	686	1.6%	1,252	4.3%
Daylight Hours	22,204 18,198**	2	0.009%	143	0.64%	297	1.6%
Nighttime Hours	21,644 10,935**	7	0.03%	543	2.5%	955	8.7%
Seasonal Daylight No Rain/Fog Hours	9,031 6,235**	2	0.02%	53	0.59%	22	0.35%
Seasonal Nighttime No Rain/ Fog Hours	10,608 2,328**	6	0.06%	377	3.6%	113	4.9%

Seasonal conditions occur from November through April.
*Burbank Airport 1996-2000 Meteorological Data
** Only ambient temperatures of 59°F or greater were considered at Full Load with Duct Firing and Power Augmentation. Duct fining is estimated to be necessary for only 1,000 hours per year and Duct Firing with Power augmentation is estimated to be necessary only 200 hours per year. The results shown above are conservative in that they do not incorporate those expected operating hours.

Existing Visible Plume Baseline

As discussed under Setting, above, visible plumes are produced occasionally by the existing Olive generation units, and by nearby off-site industrial facilities. Although the applicant has described such plumes as typically exceeding 25 meters in length during cold conditions, field observations by staff during plume-conducive cool weather conditions did not reveal existing plumes of a magnitude that would affect the evaluation of proposed project plumes. The degree of existing impact from visible plumes in the project vicinity appeared to be negligible (MPP 2001k).

Potential impacts from visible plumes are discussed below for each KOP.

Impacts from View Areas Represented by KOPs

The potential for proposed project structures to represent an appreciable level of visual change capable of resulting in significant impacts was determined by observation in the site vicinity to be limited to KOPs at a foreground distance of approximately ½ mile or less from the project site. This is largely a result of the limited physical and apparent size of those proposed structures, as well as limitations to their visibility. Consequently, KOPs located beyond the foreground distance zone are analyzed primarily for their potential to experience significant impacts from visible vapor plumes, rather than from project structures.

Unit 1 - Burbank Industrial KOPs

As described in the visual setting, overall visual sensitivity of all identified viewpoints within the Industrial landscape type (Unit 1) is considered to be low to moderate. Therefore significant adverse impacts would not be anticipated from either structure or plume impacts within this unit.

KOP 4 –View Looking Southwest toward Site from Magnolia Boulevard Overcrossing. **(VISUAL RESOURCES Figure 2b).**

Structures

Visual Contrast –Visual change due to proposed project structures would be almost unnoticed, except for the proposed 150-foot exhaust stack, which 'skylines' the ridge of the Santa Monica Mountains in the background, resulting in strong line and form contrast.

Visual Dominance – The proposed exhaust stack's position near the roadway would also give it strong spatial dominance, attracting attention of motorists and contributing to a strong level of visual dominance.

View Blockage – Minor blockage of a portion of the moderate quality scenic view of the Santa Monica Mountains would result in a weak level of view blockage. Although the stack intrudes into and skylines the mountains, the portion of view blocked is small.

Overall Visual Change – Due to the strong contrast, strong dominance, and weak view blockage, overall visual change due to structures would be strong.

Impact Significance – Combined with the setting's low to moderate visual sensitivity, the high level of overall visual change would represent an adverse but less than significant visual impact. Due to the low to moderate level of visual quality and the low level of viewer concern in this location, it is doubtful that most viewers would be aware of this visual change.

Mitigation - Although impacts are anticipated to be less than significant, in order to reduce the effect on the scenic view of the mountains and to better conform to the intent of City of Burbank (COB) policies to enhance the aesthetic character of industrial areas, staff recommends painting of the proposed HRSG stack in a blue color that would blend with the color of the sky, thereby reducing overall project contrast and dominance, as described in Condition of Certification **VIS-1**.

Visible Plumes

Visual Contrast – Cooling tower plumes of the predicted magnitude would contrast very strongly in form, line, color and texture against the background of mountains and sky, and the existing setting of industrial development.

Visual Dominance – Plumes of the size predicted to occur 10 percent of daytime no fog no rain seasonal hours would be very strongly dominant both spatially and in scale from this KOP.

View Blockage – Views of the Santa Monica Mountains from this viewpoint would be blocked to a moderate to strong degree by plumes for 50 percent or more of the 6-month fall and winter season most conducive to plume formation.

Overall Visual Change – Based on CSVP modeling results, the overall visual change would thus be very strong during fall and winter months. Even if the magnitude of predicted plumes were to increase, however, the level of overall visual change would remain the same (very strong).

Impact Significance – In the context of the setting's low to moderate visual sensitivity, the very strong level of overall visual change due to plumes would cause adverse and potentially significant visual impacts. With staff-recommended Condition of Certification VIS-6, adverse visual change due to plumes would be reduced substantially, reducing impacts to less than significant levels.

KOP 5 - View Looking Southwest toward Site from Olive Avenue Overcrossing **(VISUAL RESOURCES Figure 3b).**

Anticipated project impacts at this KOP, which is fundamentally similar to KOP 4 described above, would be essentially as described for KOP 4, except that effects on scenic views of the Santa Monica Mountains would be negligible due to the angle of view, which places taller, prominent peaks to the left (south) of views of the site.

Structures

Visual Contrast – The proposed turbine and HRSG enclosure structures, as depicted in **VISUAL RESOURCES Figure 3b,** would be taller and somewhat more conspicuous than the structures now occupying this portion of the MPP site. The similarity in the form, line and texture of the new structures with the existing MPP, however, would result in generally moderate contrast, with the exception of the 150-foot tall exhaust stack, which would exhibit strong line and color contrast against the sky.

Visual Dominance – The new project structures would have similar visual magnitude and attract similar levels of attention as other large existing structures, so scale dominance would be co-dominant. The position of the turbine enclosures and HRSG stack toward the far (north) side of the site would place them within, but at the periphery of, a motorist's normal field of vision. Thus, spatial dominance would be subordinate. Overall, dominance would be moderate.

View Blockage – View blockage is negligible from this KOP. Prominent, scenic peaks of the Santa Monica Mountains do not background views to the MPP from this location as they do from KOP 4.

Overall Visual Change – Although overall dominance of project features would be moderate, contrast would be sufficiently strong that overall visual change is considered strong.

Impact Significance – Combined with the setting's low to moderate visual sensitivity, the overall strong level of project visual change would represent a somewhat adverse but less than significant visual impact. Due to the low to moderate level of visual quality and low level of viewer concern in this location, it is doubtful that the majority of viewers would be aware of this visual change.

Mitigation - Although impacts are anticipated to be less than significant, in order to reduce the effect on the scenic view of the mountains and better conform to the intent of COB policies to enhance the aesthetic character of industrial areas, staff recommends painting of the proposed HRSG stack in a blue color that would blend with the color of the sky, thereby reducing overall project contrast and dominance, as described in Condition of Certification **VIS-1**.

Visible Plumes

Effects of plumes would be substantially as discussed under KOP 4, above, except that view blockage would be negligible since background views of mountains are insignificant in this view. In the context of the setting's low to moderate visual sensitivity, the very strong level of overall visual change due to plumes would cause adverse and potentially significant visual impacts. With staff-recommended Condition of Certification **VIS-6**, adverse visual change due to plumes would be reduced substantially, reducing impacts to less than significant levels.

Other Viewpoints Within Unit 1

KOP BI (Burbank Industrial)-1 – View from Corner of Lake Street and Olive Avenue (south corner of site) **(VISUAL RESOURCES Figure 4a).**

KOP BI-2 – View from Magnolia Avenue Eastbound near Lake Street (west corner of site)**(VISUAL RESOURCES Figure 4b).**

KOP BI-3 – View from Metrolink Parking Lot (north of site) **(VISUAL RESOURCES Figure 4c).**

As discussed, all viewpoints identified within the Industrial landscape type were considered to have low to moderate visual sensitivity. Visual change expected at these foreground viewpoints due to project structures is moderate overall. Therefore, no significant adverse impacts due to structures would be anticipated from any point within this landscape type. However, to better conform with the intent of COB policies to enhance the aesthetic character of industrial areas, staff recommends painting of the proposed HRSG stack in a blue color that would blend with the color of the sky, thereby reducing overall project contrast and dominance, as described in Condition of Certification **VIS-1**.

Very strong levels of adverse visual change are anticipated as a result of predicted visible cooling tower plumes for 10% or more of the seasonal critical period of evaluation (no fog, no rain, daylight hours per 6 month season). This would represent a significant adverse impact. With staff-recommended Condition of Certification **VIS-6**, this impact would be reduced to less-than-significant levels.

Unit 2 – Burbank Residential and Urban Parks (Valley)

No residential or urban park viewpoints with direct views of the site were identified. The principal view corridors to the MPP site from points on the urbanized valley floor to the southwest of the site occur down major boulevards, particularly those, like Magnolia Boulevard and Olive Avenue, which are oriented directly toward the site. The street

frontage of these view corridor boulevards is virtually all commercial in the vicinity of the site, with residential streets oriented perpendicularly in relation to the site. Thus, potential view corridors on residential streets in the direction of the site from such streets are blocked by foreground structures.

Residential areas of downtown Burbank to the northeast of the site occur on all major streets northeast of Glen Oaks Boulevard. Field observation showed that at this distance view corridors toward the site are virtually completely screened by extensive intervening development of the central downtown area, and by the elevated overcrossing structures of Magnolia Boulevard and Olive Avenue, which also block view corridors to the site from the northeast. Similarly, views toward the MPP site from within the two principal public open spaces located at foreground or near-middleground distance to the site, Olive Avenue (Izay) Park to the southwest and McCambridge Park to the north, are blocked by intervening landscaping and development.

Unit 3 – Burbank Commercial KOPs

Downtown Burbank (Northeast of I-5)

Views to the MPP site from points within the downtown area at foreground distance were considered essentially similar in their setting characteristics, with moderate overall visual sensitivity. Potential project impacts would also be essentially similar within this area and are thus described for downtown viewpoints in general, together, as follows:

KOP BC (Burbank Commercial) -1 – Olive Avenue near City Hall Looking Southwest **(VISUAL RESOURCES Figure 5a)**

KOP BC-2 – View from Magnolia Boulevard east of First Street Looking Southwest **(VISUAL RESOURCES Figure 5b)**

KOP BC-3 – View from First Street Looking South **(VISUAL RESOURCES Figure 5c)**

Structures

Visual Contrast – The proposed exhaust stack would be visible from various locations including Magnolia Avenue between 3rd Street and 1st Street, and portions of 1st Street. From these viewpoints the rectilinear, vertical form and bright metallic finish would present form, line and color contrast against the horizontal Santa Monica Mountains ridgeline and foreground street tree canopies, depending upon the exact view location. Overall contrast would be weak, however, because of the very small portion of structure visible in any of these views.

Visual Dominance – Overall visual dominance of the exhaust stack, where visible, would be weak. Visual magnitude of the visible portion of stack, and its position within views framed by more prominent foreground elements such as street trees and buildings of the downtown area, would be visually very subordinate. Scale dominance, because the proportion of view occupied by the project would be small, would be weak to negligible. Spatial dominance, would also be weak due to the very heavy filtering of visually dominant foreground elements such as buildings and trees.

View Blockage – The exhaust stack would block a small portion of a moderate quality view of background mountains and sky. The view of mountains from this area is limited due to the Magnolia Boulevard and Olive Avenue overcrossing structures. The minor degree of additional blockage by the proposed exhaust stack would be weak.

Overall Visual Change – The overall level of visual change due to the exhaust stack, where visible, would be weak.

Impact Significance – In the context of the setting's moderate visual sensitivity, impacts of project structures would be insignificant due to the weak level of overall visual change.

Visible Plumes

Visual Contrast – Contrast of the CSVP-predicted 10 percent seasonal daytime, no fog plume (length 193m (633 feet), height: 149m (488 feet), width 37m (121 feet)) would be strong overall. The white plumes would extend into downtown view corridors to a strong degree, exhibiting strong form and line contrast. Color contrast would range from moderate to strong depending upon weather conditions.

With staff-recommended Condition of Certification **VIS-6**, plumes would be restricted to 400 feet in length or 200 feet in height for 10 percent of seasonal (i.e. November through April) daylight no fog/no rain hours. Form, line, color, and scale contrast would be moderated by the reduced visual magnitude of the plumes at these dimensions. At this reduced length, plumes would not extend off-site into roadway view corridors and would thus be substantially less prominent. Also, at this height, plumes would not be so much larger than other objects in the field of view as to be highly conspicuous. Overall contrast would thus be reduced to a moderate level.

Visual Dominance – The proportion of the field of view occupied by plumes of this size within the available downtown view corridors would be substantial and conspicuous, and greater than other objects in the view, so scale dominance would be dominant. At the predicted magnitude the plumes could intrude strongly into or dominate the focus of views down Magnolia Boulevard or Olive Avenue. Spatial dominance would thus be very strong, and overall dominance would be dominant (strong).

With Condition of Certification **VIS-6** overall dominance of the 10% seasonal plume would be moderate. Because plumes would not extend off-site into primary roadway view corridors to a substantial degree, spatial dominance would be subordinate. Scale dominance would be reduced to subordinate levels by the reduced plume height and overall magnitude in relation to other objects in the view.

View Blockage – 10 percent seasonal plumes could block a portion of views of the mountains to the southwest. However, these highly filtered view corridors are of very minor importance from downtown viewpoints. This moderate blockage of a moderate quality view represents a weak level of view blockage.

With Condition of Certification **VIS-6**, view blockage would be weak to negligible.

Overall Visual Change – The overall level of visual change due to plumes is expected to be strong.

With recommended mitigation described in Condition of Certification **VIS-6**, the overall degree of visual change would be reduced to a moderate level.

Impact Significance – In the context of moderate visual sensitivity of the setting, the strong level of change from unmitigated plumes would be adverse, and potentially significant.

Mitigation – With mitigation as described under staff-recommended Condition of Certification **VIS-6**, the dimensions of 10 percent seasonal plumes would be reduced from a strong to a moderate level of visual change, and impacts would thus be less than significant.

Southwest Burbank Commercial Streets (Southwest of Site)

KOP 3 – View from Victory Boulevard at Cypress Street **(VISUAL RESOURCES Figure 6b)**

Overall visual sensitivity of this viewpoint is low to moderate. Overall visual change due to structures from this viewpoint would be weak to negligible. Therefore significant adverse impacts from project structures are not anticipated. Predicted vapor plumes would exhibit strong contrast, dominance, and overall visual change from this KOP for 10% or more of the seasonal critical period (no-fog, no-rain daylight hours). This would represent a significant impact. With staff-recommended Condition of Certification **VIS-6**, these impacts would be reduced to less than significant levels.

KOP BC (Burbank Commercial) -4 – View from Magnolia Boulevard Looking Northeast toward Plant **(VISUAL RESOURCES Figure 7a)**

This commercial district of Magnolia Boulevard forms an open view corridor directly to the MPP site against the backdrop of the Verdugo Mountains. Overall visual sensitivity of these foreground distance views is low for structures, moderate for plumes.

Structures

As discussed under Setting, potential visibility of project structures on Magnolia Avenue outside of the industrial zone is negligible. Therefore, significant adverse impacts from structures are not anticipated.

Visible Plumes

Visual Contrast – Contrast of the predicted 10 percent seasonal daytime plumes would be much as described above for downtown viewpoints. Dense white plumes would extend into the northeastward Magnolia view corridor to a strong degree, exhibiting strong form and line contrast. Color and texture contrast would vary from moderate to strong levels depending upon weather conditions. Overall contrast would be strong.

With staff-recommended Condition of Certification **VIS-6**, form, line, color, and scale contrast of plumes would be moderated by the reduced visual magnitude of the plumes

at the recommended dimensions. At this reduced length, plumes would not extend off-site into roadway view corridors and would thus be substantially less prominent. Also, at this height, plumes would not so much larger than other objects in the field of view as to be highly conspicuous. Overall contrast would thus be reduced to a moderate level.

Visual Dominance – Scale dominance of the predicted cooling tower plumes would be dominant, occupying a substantial portion of the view. Spatial dominance would be dominant due to its focal position at the terminus of motorists' eastward views down Magnolia Boulevard. Overall dominance would thus be strong (dominant).

With Condition of Certification **VIS-6** overall dominance of the 10 percent seasonal plume would be moderate. Scale dominance would be reduced to co-dominant levels, similar in scale to taller structures in the vicinity. Plumes would occupy a focal position within the view corridor, but spatial dominance would be moderated by the reduced overall size of the mitigated plumes within the field of view.

View Blockage – 10 percent seasonal plumes could block a moderate portion of views of the mountains to the east. This moderate blockage of a moderate to high quality view represents a moderate level of view blockage.

Mitigated 10 percent seasonal plumes would cause minor blockage of the moderate to high quality view of mountains, representing a weak level of blockage overall.

Overall Visual Change – Strong contrast, strong dominance and moderate view blockage thus result in a strong overall level of visual change.

Impact Significance – In the context of the setting's moderate existing sensitivity to plume impacts, the strong level of visual change from unmitigated visible plumes during fall and winter would cause significant adverse visual impacts.

Mitigation – With mitigation as described under staff-recommended Condition of Certification **VIS-6**, the magnitude of 10 percent seasonal plumes would be reduced to a moderate level of visual change overall, and impacts would thus be less than significant.

KOP BC-5 - View from Olive Avenue Looking Northeast **(VISUAL RESOURCES Figure 7b).**

Structures

As discussed under Setting, potential visibility of project structures on Olive Avenue outside of the industrial zone is negligible. Therefore, significant adverse impacts from structures are not anticipated.

Visible Plumes

As discussed in the Setting section, overall sensitivity to plume impacts was considered moderate.

Visual Contrast – Predicted 10 percent seasonal daytime plumes would be less prominent than as described for Magnolia Boulevard viewpoints. Unlike Magnolia

Boulevard, Olive Avenue does not form a view corridor directly to the MPP site. Thus, plumes at the MPP would be screened to a greater degree by intervening structures and vegetation on the north side of Olive Avenue. However, dense white plumes would periodically extend into the Olive Avenue view corridor to a strong degree, exhibiting strong form and line contrast. Color contrast would range from moderate to strong depending upon weather conditions. Overall contrast would be strong.

Visual Dominance – Scale dominance of the predicted cooling tower plumes would be dominant, occupying a substantial portion of the view above structures and vegetation on the north side of the street. The predicted 10 percent seasonal plumes would be long enough to intrude substantially into the Olive Avenue view corridor. Spatial dominance of plumes would be dominant due to their position in the general direction of travel of eastbound motorists. Overall dominance would thus be strong.

View Blockage – The predicted 10 percent seasonal cooling tower plumes would intrude substantially into the main Olive Avenue view corridor to the Verdugo Mountains, representing a moderate blockage of a moderate to high quality view. View blockage would thus be moderate.

Overall Visual Change – Overall visual change due to unmitigated visible plumes would thus be strong.

Impact Significance – This strong level of change to the moderate sensitivity setting would be a potentially significant adverse impact.

Mitigation – In the same way as described above for KOP BC-4, mitigation from staff-recommended Condition of Certification **VIS-6** would reduce overall effects of 10 percent seasonal plumes to a moderate level of visual change. Impacts would thus be less than significant.

Unit 4 – Highway I-5

KOP 6 – View Looking South from I-5 **(VISUAL RESOURCES Figure 8b).**

U.S. I-5 passes within 200 feet of the MPP site, and represents many thousands of viewers each day, by far the largest viewer group exposed to the project. Overall visual sensitivity of foreground distance viewpoints on U.S. I-5, however, was considered to be low to moderate. Overall visual change due to project structures, due in part to weak dominance and to extensive existing roadside landscape screening, is considered to be weak. Therefore significant adverse visual impacts from structures are not anticipated. Overall adverse visual change due to predicted cooling tower plumes would be strong, and represent a significant impact. Staff-recommended Condition of Certification **VIS-6** would reduce overall effects of 10 percent seasonal plumes to a moderate level of visual change. Impacts would thus be reduced to a less than significant level.

Under some conditions dense, very low-lying cooling tower plumes may interfere with motorist navigation on I-5. Such potential impacts are addressed in the **Traffic and Transportation** section of this Final Staff Assessment.

Unit 5 – Verdugo Mountains Residential and Open Space

Overall visual sensitivity of residential and recreational viewpoints in the Verdugo Mountains at middleground distances from the site was considered moderate to high. This landscape type is represented by the following KOPs:

KOP 1 – View from Tujunga Street **(VISUAL RESOURCES Figure 9b).**

KOP 2 – View from Howard Court near Viewcrest **(VISUAL RESOURCES Figure 10).**

Visual sensitivity and potential project impacts from viewpoints throughout this landscape type were considered essentially similar and are discussed together as follows:

Structures

As discussed above the likelihood of significant adverse impacts from project structures outside of the foreground distance zone of the MPP is considered to be negligible. Therefore no adverse impacts in this landscape type are anticipated due to project structures.

Visual Contrast – Potential visual contrast of project structures at this distance would be weak. Although the prominent Unit 3 and 4 stack is visible and identifiable due to high line contrast, particularly under clear weather conditions, at these distances (1-1/2 to 2-1/2 miles) the site itself is indistinct, constituting a very small part of the larger urbanized valley floor. Similarly, the proposed new exhaust stack, of similar height to the existing Unit 3 and 4 stack, would be visible but would not have sufficient line or form contrast to strongly draw attention or constitute a landmark. Therefore, the overall level of contrast would be weak.

Visual Dominance – Spatial and scale dominance at this distance would be subordinate (Weak).

View Blockage – No view blockage would occur.

Overall Visual Change – Overall visual change due to project structures would thus be weak.

Impact Significance – Visual changes due to project structures would thus be less than significant.

Visible Plumes

Visual Contrast – Contrast of 10 percent seasonal plumes would be moderate. The cloud-like form of the cooling tower plumes would contrast with the rectilinear forms of larger structures in the MPP vicinity and horizontal line of the valley floor. Color and texture contrast would be moderate to low depending upon weather conditions. Scale contrast would be strong; the predicted 10 percent plume would be substantially larger than any other objects in the vicinity. Overall contrast is considered moderate.

With staff-recommended Condition of Certification **VIS-6**, form, line, color, and scale contrast of plumes would be moderated by the reduced visual magnitude of the plume. Mitigated plumes would appear to be of a similar or smaller visual scale in relation to other large structures in the vicinity. Overall contrast would be reduced to a weak level.

Visual Dominance – Similarly, overall visual dominance would be moderate. The visual magnitude of the predicted 10 percent plume would vary depending upon distance, but would generally be subordinate within the panoramic field of view, so scale dominance would be subordinate. Spatial dominance is co-dominant; the plumes would occupy a central and conspicuous position within the field of view of the valley floor.

Mitigated 10 percent seasonal plumes would have weak overall visual dominance. Scale dominance within the panoramic field of view would be subordinate. Spatial dominance would be moderated by the small scale and relative inconspicuousness of the plume, which would attract attention only weakly within the panoramic view.

View Blockage – View blockage would be weak. The predicted 10 percent plume would intrude into views of the Santa Monica Mountains to the west, but would not break the skyline, and would occupy a minor portion of the view. This minor blockage of a moderate to high quality view is considered weak.

Mitigated plumes would represent a weak, further reduced level of view blockage.

Overall Visual Change – Overall change due to predicted 10 percent seasonal cooling tower plumes would thus be moderate.

Impact Significance – In the context of the existing setting's moderate to high level of visual sensitivity, moderate visual change due to plumes have a potentially significant visual impact.

Mitigation – With mitigation of staff-recommended Condition of Certification **VIS-6**, as described above, 10 percent seasonal plumes would be reduced to a weak level of overall visual change, and impacts would thus be less than significant.

Unit 6 – Santa Monica Hills Open Space

Overall visual sensitivity of viewpoints in the Santa Monica Mountains was considered to be low to moderate due to the very limited number and extent of views to the project in this area. Adverse visual change due to project structures would be negligible at these distances and exposures. Therefore, significant adverse visual impacts from structures are not anticipated in this landscape unit. Moderate levels of visual change would be anticipated due to predicted visible plumes. Given the low to moderate sensitivity of the KOP, this impact would be less than significant.

Summary of Project Operation Impacts on Existing Visual Character or Quality

In summary, no significant impacts were identified due to project structures. Potentially significant impacts due to predicted visible vapor plumes would be reduced to less than significant levels with adoption of staff-recommended Condition of Certification **VIS-6**.

Construction Impacts

On-Site Construction Activities

On-site construction activity would take place in the context of a low visual quality industrial setting in which large construction equipment and the visual chaos associated with large construction projects would not be conspicuously out of character. Furthermore, because all potential viewpoints of these activities are located in the immediately surrounding industrial zone, with its associated low to moderate visual sensitivity, significant adverse impacts would not be anticipated. Construction activities would not be evident from moderate sensitivity commercial viewpoints in downtown or southwest Burbank.

Off-Site Construction Activities

Gas and Water Line Construction

No gas or water line construction is proposed.

Lay-down and Worker Parking Areas

All proposed off-site lay-down and parking areas would be located within the Industrial landscape type (Unit 1), characterized by low visual quality, low viewer concern, and low to moderate levels of overall visual sensitivity. They would not be visible to sensitive viewers in commercial areas due to their location immediately south of U.S. I-5. Given these characteristics of the visual setting of these locations, no significant adverse effects would be anticipated.

No significant adverse impacts from construction activities are anticipated.

D. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Large industrial facilities such as power plants have the potential to cause significant visual impacts due to light or glare, particularly that caused by night lighting.

As described under the Applicant's proposed mitigation and staff-recommended Condition of Certification **VIS-2 and VIS-3**, plant and parking area lighting would be of minimal brightness consistent with safety; would be shielded and directed to eliminate all direct off-site illumination and upward (backscatter) illumination; and lighting for maintenance purposes would be kept off when not needed. With adoption of this staff-recommended measure, the nighttime level of anticipated visual change would be weak, resulting in impacts to moderately sensitive commercial area viewers that would range from less-than-significant to insignificant. Control of upward, nighttime backscatter illumination would be particularly important in order to avoid illumination of large nighttime vapor plumes, as indicated in staff recommended Condition of Certification **VIS-3**.

Daytime glare can be created by industrial facilities due to reflection of sunlight on shiny metallic surfaces, particularly where such glare could affect navigation of motorists. Momentary glare could occur due to solar reflection off the proposed metallic exhaust

stacks, affecting motorists on the Magnolia Boulevard and Olive Avenue overcrossings. With staff-recommended Condition of Certification **VIS-1**, the proposed exhaust stack would be painted with a non-reflective paint, thus eliminating the potential for glare.

CUMULATIVE IMPACTS

To contribute to cumulative impacts from project structures, future projects would have to be located near the MPP site in order to be seen within the same views. No existing or reasonably foreseeable future projects were identified that would contribute to cumulative impacts due to project structures.

Cumulative plume impacts could occur if existing plumes of the MPP or other nearby industrial facilities were to combine with project-created plumes to exceed a threshold of impact not otherwise attained by the proposed project alone.

Although the applicant has described existing plumes created by the Olive generation units and cooling towers as typically exceeding 25 meters in length during cold conditions, field observations by staff during plume-conducive cool weather conditions did not reveal existing plumes of a magnitude that would affect the evaluation of proposed project plumes. The degree of existing impact from on- or off-site visible plumes in the project vicinity appeared to be negligible (MPP 2001k).

Plumes from the MPP project and plumes from either or both the Los Angeles Department of Water and Power Valley Generating Station and City of Glendale Power Plant could potentially be visible simultaneously from common viewpoints in the Glendale hills. Although data on existing facility plumes is limited, based upon staff field observations both the individual facility plumes and the various plumes taken together are expected to be indistinct at these distances (2 to 3 miles or more). The additional contribution of the predicted MPP plumes is not expected to attract attention at these distances, and thus is not expected to contribute substantially to a potentially significant adverse cumulative impact.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed Magnolia Power Plant project (please refer to Socioeconomics Figure 1 in this Staff Analysis), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. Based on the visual analysis, staff has not identified unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no visual environmental justice issues related to this project.

COMPLIANCE WITH APPLICABLE LORS

FEDERAL

No federal LORS pertaining to visual resources apply to the project.

STATE

No State visual regulations apply to the project.

LOCAL

City of Burbank General Plan

Land Use Element

Policy 16

New development shall have architectural design that is compatible with surrounding properties and which enhances the appearance of Burbank.

See discussion below.

Industrial Land Use Policies

Encourage and promote the landscaping of industrial sites and the aesthetic design of industrial buildings in order to improve the appearance of the industrial areas, and the City as a whole, thereby contributing to the positive image of Burbank.

Staff-recommended Condition of Certification **VIS-4** would require that the project comply with landscaping standards defined in COB zoning regulations, including planting of street trees along Olive Avenue, Lake Avenue, and frontage of the proposed new administration building; and planting of vines along perimeter walls of the site, including those facing the RITC/MetroLink station.

Staff-recommended Condition of Certification **VIS-4** would also require that the applicant submit proposed architectural and landscape plans to the COB for review and comment prior to Energy Commission approval.

South San Fernando Redevelopment Plan (SSFRP)

Goals of the SSFRP include:

- Ensuring cohesive design and development standards in the development and/or redevelopment of land ….

- Implementation of design and use standards to assure high aesthetic and environmental quality, and to provide unity and integrity to developments within the Project Area.

In order to conform with the intent of the SSFRP with regard to design standards, staff-recommended Condition of Certification **VIS-4** requires that the applicant submit both architectural and landscaping plans for the proposed administration building to the COB for review prior to Energy Commission approval. With implementation of staff-recommended Condition of Certification **VIS-4** as just described, the project would conform to these policies of the SSFRP.

City of Burbank Zoning Regulations (Municipal Code Ch. 31).

The MPP site is located within an M-2 Industrial Zone (Chapter 31 of the COB Municipal Code). City zoning regulations for M-2 uses require that a minimum of 50 percent of exposed front and side yards be landscaped, encourage planting of vines on masonry buildings, and require a minimum of one tree to be planted for every forty linear feet of street frontage. M-2 zoning also requires a conditional use permit for structures greater than 35 feet in height (Ch. 31, Article 8, Sec. 31-812).

Height limitations for M-2 uses are not specified but must be determined by the COB as part of the required Conditional Use Permit if height exceeds 35 feet. A CUP would be required for the proposed project.

In addition a City Art in Public Places ordinance (Ch. 31, Article 11, Sec. 31-1113.1) requires construction and installation of a work of art or other aesthetic amenity, or payment of an in lieu fee, as specified in the ordinance.

The Olive Avenue frontage of the MPP does not currently conform with these requirements, since none of that frontage is landscaped. With implementation of staff-recommended Condition of Certification **VIS-4**, conformance with the landscaping standards for M-2 zones would be required, as described above. With these measures the project would conform to landscaping requirements of the City zoning code.

The applicant has indicated the intent to comply with Sec. 31-1113.1, Art in Public Places ordinance, in a way to be determined by the COB (AFC, p. 5.9-31). This measure is included under staff-recommended Condition of Certification **VIS-5**.

In addition, in order to better conform to the intent of COB General Plan and SSFRB policies to enhance the aesthetic character of industrial areas, staff recommends painting of the proposed HRSG stack in a blue color that would blend with the color of the sky, thereby reducing overall project contrast and dominance, as described in Condition of Certification **VIS-1**. This measure is intended to reduce the visual contrast from all view locations within the foreground radius of the site.

With staff-recommended Conditions of Certification **VIS-4**, and **VIS-5**, the project would fully conform to applicable policies of the COB.

RECOMMENDED MITIGATION MEASURES

To reduce visual contrast of the project from foreground viewpoints and improve conformance with COB policies, the proposed 150-foot tall exhaust stack should be

painted a blue color with low-reflectivity paint, as described under staff-recommended Condition of Certification **VIS-1**.

To mitigate potential night lighting impacts during construction and operation, shielding and controls of night lighting should be implemented, as described in staff- and applicant-recommended Conditions of Certification **VIS-2** and **VIS-3**.

To achieve conformance with landscaping requirements of M-2 zoning code and policies of the COB General Plan and SSFRP, the project should undergo architectural and landscape design review by the COB, and landscaping as described under staff-recommended Condition of Certification **VIS-4**. To achieve conformance with the COB Art in Public Places ordinance, the applicant should comply with Condition of Certification **VIS-5**.

To reduce potentially significant impacts from visible vapor plumes to less than significant levels, plumes should be monitored and controlled as described in staff-recommended Condition of Certification **VIS-6**.

With proper implementation of these measures, potential impacts of the project would be reduced to less than significant levels, and LORS compliance would be achieved.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The proposed project structures would not cause significant visual impacts. However, in order to ensure conformance with applicable policies of the COB General Plan, South San Fernando Redevelopment Plan, and ordinances of the COB Municipal Code regarding visual appearance of industrial facilities, staff recommends adoption of Conditions of Certification **VIS-1, -2, -3, –4 and –5**. With proper implementation of these measures, the proposed project would conform with applicable COB policies with regard to visual impact and community design.

Potentially significant impacts due to predicted visible cooling tower plumes could occur at both foreground and middleground viewpoints. These impacts would be reduced to less than significant levels with adoption of staff-recommended Condition of Certification **VIS-6**.

Project lighting has the potential to cause significant visual impacts. To mitigate night lighting impacts, staff recommends implementation of Conditions of Certification **VIS-2** and **VIS-3**. With these measures night lighting impacts of the project would be less than significant.

RECOMMENDATIONS

Project structures would not cause any significant visual impacts. To ensure conformance with applicable policies of the COB General Plan, South San Fernando Redevelopment Plan, and ordinances of the COB Municipal Code regarding visual appearance of industrial facilities, staff recommends adoption of Conditions of

Certification **VIS-1**, **VIS -2**, **VIS -3**, **VIS-4**, and **VIS-5**. With proper implementation of these measures, the proposed project would conform to applicable COB policies with regard to visual impact and community design.

Predicted visible cooling tower plumes would cause significant visual impacts at both foreground and middleground viewpoints. These impacts would be reduced to less than significant levels with adoption of staff-recommended Condition of Certification **VIS-6**.

The Energy Commission should adopt the following conditions of certification if it approves the project.

PROPOSED CONDITIONS OF CERTIFICATION

VIS-1 Prior to first turbine roll, the project owner shall treat the surfaces of all project structures and buildings visible to the public such that their colors minimize visual intrusion and contrast by blending with the landscape; their surfaces do not create excessive glare; and they are consistent with local laws, ordinances, regulations, and standards. The project owner shall submit for CPM review and approval, a specific treatment plan whose proper implementation will satisfy these requirements. The treatment plan shall include:

a) Specification, and 11” x 17” color simulations at life size scale when viewed at 18“, of the treatment proposed for use on project structures, including structures treated during manufacture;

b) A list of each major project structure, building, tank, transmission line tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation);

c) Two sets of brochures and/or color chips for each proposed color;

d) Samples of each proposed treatment and color on the predominant material of the heat recovery steam generator (HRSG), the HRSG stacks, and the cooling tower;

e) A detailed schedule for completion of the treatment; and

f) A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated on site, until the project owner receives notification of approval of the treatment plan by the CPM.

Verification: The project owner shall submit its proposed treatment plan at least 90 days prior to ordering the first structures that are color treated during manufacture.

Prior to first turbine roll, the project owner shall notify the CPM that all buildings and structures are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report for the life of the project.

VIS-2 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

a) All lighting shall be of minimum necessary brightness consistent with worker safety;

b) All fixed position lighting shall be shielded, hooded, and directed downward to minimize backscatter to the night sky and direct light trespass (direct lighting extending outside the boundaries of the construction area);

c) Wherever feasible and safe, lighting shall be kept off when not in use and motion detectors shall be employed; and

d) A lighting complaint resolution form shall be maintained by plant construction management, to record all lighting complaints received and to document the resolution of that complaint.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify the CPM that the lighting is ready for inspection.

The project owner shall report any lighting complaints and documentation of resolution in the Monthly Compliance Report.

VIS-3 The project owner shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project, the vicinity, and the nighttime sky is minimized. To meet these requirements the project owner shall ensure that:

a) Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light source is shielded to minimize light trespass outside the project boundary while taking into consideration security concerns.

b) All lighting shall be of minimum necessary brightness consistent with worker safety and security concerns;

c) High illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have switches or motion detectors to light the area only when occupied; and

d) Plant operations staff shall record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

Verification: At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval written documentation describing the lighting control measures and fixtures, hoods, shields proposed for use. The project owner shall incorporate the CPM's comments in lighting equipment orders.

Prior to first turbine roll, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection.

The project owner shall report any complaints about permanent lighting and provide documentation of resolution in the Annual Compliance Report for that year.

VIS-4 The project owner shall implement a landscape plan for the entire MPP site that brings the facility into compliance with City of Burbank zoning regulations (Ch. 31, Article 8, Sec. 31-812); and shall ensure conformance with City of Burbank policies to improve the appearance of industrial areas and assure high aesthetic and environmental quality, and to provide unity and integrity to developments within the South San Fernando Redevelopment Areas.

The project owner shall submit a landscape plan for the project to the City of Burbank for review and comment, and to the CPM for review and approval. The landscape plan shall include:

a) A detailed topographic landscape plan view drawing that depicts the locations proposed for each species of plant, and the proposed spacing of plants;

b) 11"x17" color photo simulations of the proposed landscaping for the power plant at 10 years after planting as it is expected to appear in both summer and winter;

c) A list and description of potential plant species, including their growth rate, mature size, mature shape, and proposed size at installation. The species shall be selected with the objectives of satisfying the screening requirements and providing the widest possible range of species from which to choose;

d) A discussion of the suitability of each plant species for the site conditions and mitigation objectives, including evidence from a qualified professional arborist that the species selected are both viable for the proposed location and available;

e) A detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as feasible in coordination with project construction;

f) An irrigation plan view drawing at the same scale as the landscape drawing;

g) Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project;

h) A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project;

i) Landscaping of a minimum of 50 percent of exposed street frontage;

j) Vines planted on masonry buildings and walls along street frontage, including concrete walls facing the MetroLink parking area;

k) Street trees planted along Magnolia Boulevard, Lake Street, and Olive Avenue frontages at a minimum of one tree to be planted for every forty linear feet of street frontage;

l) A minimum of 50 percent of required trees with a minimum 36-inch box size, with the remainder a minimum 24-inch box size. The required 36-inch box trees shall be equally distributed in required front or street side yards;

m) if trees are planted in planters, planters with a minimum length and width of five feet;

- maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal; and
- a procedure for monitoring for and replacement of unsuccessful plantings.

In addition, the project owner shall submit architectural and landscaping plans for the proposed administration building to the City of Burbank for review and comment, and to the CPM for review and approval.

The project owner shall not implement these plans until the project owner receives approval of the plan from the CPM.

The project owner shall obtain the required CUP for proposed structures in excess of 35 feet in height as required by City zoning ordinance.

Verification: At least 60 days prior to start of construction, the project owner shall submit the landscape and architectural plans to the City of Burbank for review and comment, and the CPM for review and approval.

At least 30 days prior to start of construction, the project owner shall notify the CPM that the required CUP has been obtained from the COB.

The project owner shall notify the CPM within seven days after completing installation of the landscaping that the planting and irrigation systems are ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in the Annual Compliance Report for the life of the project.

VIS-5 In order to conform to the City of Burbank's Art in Public Places ordinance (Ch. 31, Article 11, Sec. 31-1113.1), the project owner shall complete construction and installation of a work of art or other aesthetic amenity, or

make payment of an in lieu fee, as specified in the ordinance, in accordance with the preference of the COB.

The project owner shall submit a plan for complying with Ch. 31, Article 11, Sec. 31-113.1 to the City of Burbank for review and comment, and to the CPM for review and approval. The compliance plan shall include design and construction details as requested by the City; or procedures and schedule for payment of an in lieu fee, as determined in consultation with the City.

Verification: At least 60 (sixty) days prior to start of construction, the project owner shall submit the Art in Public Places compliance plan to the City of Burbank for review and comment, and the CPM for review and approval. If the CPM notifies the project owner that revisions of the submittals are needed before the CPM will approve the submittal, within 15 (fifteen) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

VIS-6 The project owner shall design the project such that visible plumes from the cooling tower do not exceed 400 feet in length or 200 feet in height for more than 10 percent of seasonal (i.e. November through April) daylight no fog/no rain hours. If necessary based on the proposed cooling tower design, an automated control system shall be used to ensure that plume frequencies and dimensions are within the specified performance requirements.

Verification: At least 60 days prior to ordering the cooling tower, the project owner shall provide to the CPM for review and approval, the specifications of the cooling tower and the specifications for any automated control system and related systems and sensors that will be used to ensure compliance with the specified plume performance requirements. The CPM will, prior to approval of the submittal, independently verify whether the project is expected to satisfy the specified performance standards.

The project owner shall monitor and document the frequency and the dimensions of the cooling tower visible plume from November 1st to April 30th during the first year of operation, and shall provide evidence of compliance, including physical and continuous video evidence covering the entire seasonal period, and frequency data, to the CPM within 30 days of the end of the monitoring period. Video evidence shall be sufficiently comprehensive in coverage as to permit corroboration of plume performance by the CPM for the entire study period (November 1 – April 30) and may consist of hourly or semi-hourly time-lapse exposures (video frames), with on-tape date and time noted. If after review of the first season's monitoring results the CPM determines that the project was not in compliance with the condition during the monitoring period, the project owner shall submit a Plume Compliance Plan describing modifications to the power plant's cooling tower or operational regime that would result in compliance. Monitoring shall continue until the project owner provides to the CPM evidence of successful compliance for a monitoring season, and the CPM approves the submittal.

REFERENCES

City of Burbank, 1988. General Plan.

City of Burbank, ND, SSFRA Plan

City of Burbank, ND, Municipal Code.

Magnolia Power Project. MPP 2001a. Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Project. MPP 2001k. Data Responses 147 and 148. Submitted to the California Energy Commission on November 5, 2001.

Smardon, R., J. Palmer and J. Felleman, 1986, Foundations of Visual Project Analysis.

Placeholder for Summary Table: Visual Resources Appendix VR-1 – page 1 of 4

Placeholder for Summary Table: Visual Resources Appendix VR-1 – page 2 of 4

Placeholder for Summary Table: Visual Resources Appendix VR-1 – page 4 of 4

Attachment 1:
LIGHTING COMPLAINT RESOLUTION FORM

MAGNOLIA POWER PLANT City of Burbank, California
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Description of corrective measures taken: Complainant's signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct: Plant Manager's Signature:

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

WASTE MANAGEMENT

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

This analysis presents an assessment of issues associated with managing wastes generated from constructing and operating the proposed Magnolia Power Project (MPP Project, 01-AFC-6). Staff evaluated the proposed waste management plans and mitigation measures designed to reduce the risks and environmental impacts associated with handling, storing, and disposing of project-related hazardous and nonhazardous wastes. The technical scope of this analysis encompasses wastes generated during facility construction (including demolition of existing structures) and operation, except wastewater discharged pursuant to National Pollutant Discharge Elimination System (NPDES) permits. Wastewater is discussed in the **Soil and Water Resources** section of this document.

Energy Commission staff's objectives in its waste management analysis are to ensure that:

- The management of the wastes will be in compliance with all applicable laws, ordinances, regulations, and standards (LORS). Compliance with LORS ensures that wastes generated during constructing and operating the proposed project will be managed in an environmentally safe manner; and
- Disposal of project wastes will not result in significant adverse impacts to the environment, including existing waste disposal facilities.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. § 6922)

The Resource Conservation and Recovery Act (RCRA) establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

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

Title 40, Code of Federal Regulations, part 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are

described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended).

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

Title 14, California Code of Regulations, § 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

Title 22, California Code of Regulations, § 66262.10 et seq. (Generator Standards)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be transported by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

LOCAL

The City of Burbank Municipal Code section 15.1-800 unified Hazardous Waste and Hazardous Materials Management Regulatory Program address the enforcement of CCR title 23 standards on petroleum underground storage tank cleanup. The Los Angeles County Fire Department, Hazardous Materials Division regulates hazardous waste generator permits, handling, and storage requirements.

SETTING

PROJECT AND SITE DESCRIPTION

The proposed project is located in the City of Burbank in Los Angeles County at the site of the existing City of Burbank power plant at 164 West Magnolia Boulevard. The City of Burbank has operated an electrical generating facility at this site since 1941. The proposed project will be owned by the Southern California Public Power Authority

(SCPPA) and operated by the City of Burbank. The Magnolia Power Project, a proposed nominal 328 MW natural gas combined-cycle generating facility, will be constructed on about 3 acres of the existing 23 acre site.

The Magnolia Power Plant Project involves demolition of the remaining components associated with Magnolia Units 1 and 2 of the existing facility. Construction of the new combined cycle plant will then occur at the location of the demolished units.

The Magnolia Power Plant site is located about 1/8 mile west of the Interstate 5 freeway. Industrial properties border the site on all sides. Primary access to the site is via Olive Avenue and Magnolia Boulevard.

An Environmental Site Assessment (ESA) was conducted by URS Corporation, in accordance with methods prescribed by the American Society for Testing and Materials (ASTM). This report is included in Appendix O of the AFC (MPP 2001a). The purpose of an ESA is to determine the potential for the presence or likely presence of any hazardous substances or petroleum products under conditions that may indicate a release or threat of a release from present or past activities. The Phase I ESA reported significant past use of hazardous materials on-site and the potential for contamination with hazardous wastes. Above-ground storage tanks were found as were underground storage tanks (USTs) and an area where a large release of fuel oil from a tanker truck had been reported in the past. Based on the results of the Phase I ESA, it was recommended by URS Corporation that a Phase II investigation of soil conditions be conducted. A Limited Phase II ESA was prepared by URS (URS 2001) and submitted by the applicant to the CEC on September 30, 2002. This Limited Phase II ESA was not conducted according to standard ASTM procedures. It found, however, some contamination in areas of the site which will be excavated for the proposed power plant. Contamination consisted of:

- total petroleum hydrocarbons in the oil and grease range (maximum 2570 ppm)
- volatile organic compounds, including 1,1,2,2-tetrachloroethane (5.8 ppb) and 1,2,3-trichlropropane (6.9 ppb),
- arsenic at levels considered above background for native Southern California soils, and
- hexavalent chromium in one of 21 soil samples obtained near the cooling towers.
- No SVOCs were found in any of the samples analyzed.

Based upon this Limited Phase II ESA, staff concludes that remedial action is necessary prior to site mobilization. Accordingly, staff recommends Condition of Certification WASTE-5, which requires the project owner to enter into a Voluntary Cleanup Agreement with DTSC, prepare a Remedial Action Plan, and implement cleanup activities prior to site mobilization.

IMPACTS

PROJECT SPECIFIC IMPACTS

Construction and Demolition

Demolition, site preparation, and construction of the generating plant and associated facilities will generate both nonhazardous and hazardous wastes. Individual contractors are considered to be the generators of construction wastes, and as part of its contract specifications for construction contractors, the MPP will require that materials be handled and disposed in accordance with applicable LORS (MPP 2001a, AFC Table 5.14-5). The disposal sites for nonhazardous waste would be the El Sobrante Landfill, the Simi Valley Landfill, and the Bowerman Landfill.

Nonhazardous waste streams from construction include paper, wood, glass, scrap metal, and plastics, from packing materials, waste lumber, insulation, and nonhazardous chemical containers (MPP 2001a, AFC Table 5.14-2). The AFC estimates that about 20 to 40 cubic yards of these types of wastes will be generated on a weekly basis.

Hazardous wastes typically generated during construction include waste oil and grease, paint, used batteries, spent solvent, welding materials, and cleanup materials from spills of hazardous substances. Table 5.14-2 also lists types, estimated amounts, and management methods of hazardous wastes (MPP 2001a). The AFC estimates that a total of about 1 cubic yard of hazardous wastes will be generated per week of construction activities. Additionally, about 55 gallons of solvents, used oil, paints, and oily rags will be generated each week along with an estimated 200,000 gallons of HRSG cleaning waste (some hazardous and some nonhazardous) per cleaning sometime during construction.

In addition to the construction hazardous wastes noted above, there will be additional wastes associated with site preparation. The demolition of existing units 1 and 2 will, along with hazardous waste site remediation, generate both nonhazardous and hazardous wastes including the usual paper, wood, glass, concrete, asphalt, plastic, insulation, empty containers, asbestos-containing materials (ACM), regulated building materials (RBM) that contain lead-based paint, soil, and hydrocarbon-contaminated soil. All ACM and RBM will be removed prior to demolition and disposed of in the appropriate Class I or II landfill. All nonhazardous demolition wastes will be segregated and either recycled or sent to a Class III landfill. Contaminated soil will be segregated and analyzed and if found to be hazardous, either treated or sent to a Class I landfill. Non-hazardous soil may be disposed of at treatment or recycling facilities. No estimate of either ACM, RBM, or contaminated soils is available until the applicant conducts the appropriate surveys and remedial investigations. Staff has proposed Condition of Certification **WASTE-5** to require that these materials be included in the Voluntary Cleanup Agreement with DTSC.

Operation

The proposed facility will generate both nonhazardous and hazardous wastes under normal operating conditions.

Nonhazardous wastes

Nonhazardous wastes generated during plant operation are expected to be similar to those generated by the existing facility and include trash, office wastes, empty containers, broken or used machine parts, cardboard, paper, wood and plastic (MPP 2001a, AFC Table 5.14-3). The quantities of nonhazardous wastes generated from gas-fired facilities are typically minor and operation of the new units is expected to generate the same amount as currently generated. Nonhazardous solid waste will be routinely segregated according to recyclable content to minimize the quantity disposed off-site (MPP 2001a, AFC p. 5.14-10).

Zero Liquid Discharge System

The applicant has submitted a Supplement to the AFC (MPP 2002a), adding a Zero Liquid Discharge (ZLD) system to the existing project. This system would result in no wastewater added to the existing reclaimed water stream that continues to Discharge 001. This system consists of a two-stage process: brine concentrator (or evaporator), and a salt-cake crystallizer.

The cooling tower blowdown will be treated to remove hardened minerals before processed by the brine concentrator that reduces the wastewater by about 90%. The resultant decant will be recycled to the cooling tower, and the brine will be further treated in a crystallizer to remove the dissolved and suspended solids. The resultant decant from the crystallizer will be recycled once more to the cooling tower and the solids (salt cake) will be transported to an appropriate landfill for final disposal (MPP 2002a, Section 1.1).

The operation of the Magnolia ZLD system will result in the annual generation of approximately 22 tons of salt cake waste from the crystallizer (MPP 2002a, Table 5.14-3). A sampling program will be created by the applicant in order to establish baseline characterization of the wastes, and will include sampling of the softener solid and crystallizer solid once per month until a statistical database is established for each waste type. The sampling methodology and documentation will follow the procedures specified in the "Testing Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd edition, USEPA, revised 1986. These include sampling procedures, equipment, handling, custody procedures, record-keeping, and reporting (MPP 2002a, Section 5.14).

Testing was done for similar ZLD systems in support of the Three Mountain Project and Pastoria Energy Facility siting cases in order to determine if the wastes might be classified as hazardous. Analyses of the solid wastes similar to those that would be generated from the softener as well as the crystallizer indicated that all metals of concern were below California regulatory limits that define hazardous waste (Ogden 2000a; PEF/Thompson 2000f). Staff agrees with the sampling program proposed by

the applicant and proposes Condition of Certification **WASTE-6**, which would ensure that the testing of the salt cake is done accordingly.

Although the solid waste generated from the crystallizer may not be classified as hazardous, it might be considered a California designated waste due to its high salt content. The category of designated waste includes nonhazardous waste that contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that could exceed applicable water quality objectives or affect the beneficial uses of waters of the state (Cal. Code Regs., tit. 27, § 20210). Designated wastes are required to be disposed of at Class I or Class II disposal sites.

The effluent from the brine concentrator is subsequently routed to the crystallizer for further concentration. If the effluent were to contain hazardous levels of any constituent, such concentration could be considered hazardous waste treatment, a process that would require a permit from the Department of Toxic Substances Control. However, since the effluent water is reused in the plant, a recycling exemption provided for in Health and Safety Code section 25143.2(c)(2) would apply as long as the following conditions are met:

1. The wastewater must be recycled at the same facility at which it was generated;
2. The wastewater must be recycled within generator waste accumulation time limits; and
3. The wastewater must be managed in accordance with all applicable requirements for generators of hazardous wastes under Health and Safety Code Chapter 6.5 and regulations adopted by DTSC.

Staff's proposed Condition of Certification **WASTE-7** requires testing of the effluent from the brine concentrator to determine whether it qualifies as a hazardous waste. If it is determined to be hazardous, MPP would have to apply for a recycling exemption from DTSC.

Construction and operation of the zero liquid discharge system would not have any significant effects on any of the other waste streams generated at MPP.

Hazardous Wastes

Hazardous wastes likely to be generated during routine project operation include oily water, combustion turbine generator (CTG) washwater, heat recovery steam generator (HRSG) washwater, spent selective catalytic reduction (SCR) catalysts, and minimal amounts of used cleaning solvents. About 20 to 33 cubic meters per year of spent catalyst will be generated and recycled. Approximately 50 gallons per year of oily water, 7200 gallons per year of CTG washwater, and 50,000 gallons every two to three years of HRSG washwater are also expected to be generated.

IMPACT ON EXISTING WASTE DISPOSAL FACILITIES

AFC Table 5.14-1 lists landfills and recycling facilities in the general area of the MPP that accept nonhazardous wastes (MPP 2001a). The El Sobronte Landfill (Class III) has a permitted disposal capacity of 4,000 tons per day (tpd) and is expected to remain

operational until 2050. Other landfills in the area have additional capacity and include the Simi Valley Landfill (Class III, 4,000 tpd, 2020-2050), and the Frank R. Bowerman Landfill (8,500 tpd, 2024). Project nonhazardous waste generation will be insignificant (20-40 cubic yards per week) during the construction period and less than one tpd during operation. Another 22 tons per year (approximately 0.06 tpd) of salt cake would also be generated and require disposal at a Class I, II or III landfill depending upon the results of toxicity testing. Thus, waste generation rates are only a very small portion of daily permitted capacity for any one landfill. Even discounting the effects of recycling on the total amount of non-hazardous wastes destined for landfilling, the amounts of waste generated during project construction and operation are insignificant relative to existing disposal capacity.

Three Class I landfills in California, at Kettleman Hills in King's County, Buttonwillow in Kern County, and Laidlaw in Imperial County, are permitted to accept hazardous waste. In total, there is in excess of 21.9 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with remaining operating lifetimes up to the year 2078. The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators, and the transport of waste out of state that is hazardous under California law, but not federal law.

Much of the hazardous waste generated during facility construction and operation will be recycled, such as used oil and spent catalysts. Even without recycling, the generation of hazardous waste from MPP would be a very small fraction (less than one percent) of existing capacity and would not significantly impact the capacity or remaining life of any of the state's Class I landfills. Staff estimates that each ton of salt cake would be approximately one cubic yard, so that about 22 cubic yards would be generated annually. Given that more than 21.9 million cubic yards of Class I landfill capacity exists through the year 2078 and potentially beyond, staff finds that even if the salt cake were to be placed in a Class I facility, no impact on waste disposal facilities would occur.

CUMULATIVE IMPACTS

Additional waste management impacts which could contribute to those from construction and operation of the MPP project include those associated with the demolition of the existing structure and site remediation. It is also possible that some nonhazardous wastes may be generated if the off-site staging locations require paving.

Demolition of existing structures would generate nonhazardous and hazardous wastes and the Applicant has indicated that most will be recycled. Once the structures are removed, soil or groundwater contamination may be present, and remediation may be required. There is currently no designated "lead" regulatory agency. Until a Phase II ESA or Remedial Investigation is conducted, the extent of potential contamination is unknown.

Installation of SCR pollution control will not result in any significant waste related impacts. Periodically, the catalysts must be replaced to maintain operating efficiency, and are typically recycled. In the event that recycling is not pursued, the catalyst would

require disposal in a class I (hazardous) landfill. The amount of catalyst, which must be recycled or disposed, is estimated at 100 cubic meters every 3 to 5 years.

The quantities of wastes generated during construction and operation of the MPP project, including the salt cake waste that would be generated from the ZLD system, will not result in any significant waste management related impacts. Similarly, quantities of wastes associated with the activities described above, including demolition, site remediation, and installation of SCR catalyst, will not be significant. Considering the lack of impacts on individual disposal facilities and the availability of additional regional landfills, cumulative impacts will be insignificant for both hazardous and nonhazardous wastes.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed project (please refer to **Socioeconomics** Figure 1 in this Final Staff Assessment), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. Based on the waste management analysis, staff has not identified any significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no waste management environmental justice issues related to this project.

FACILITY CLOSURE

During any type of facility closure (see the **General Conditions** section of this Final Staff Assessment, which discusses planned, unexpected temporary, and unexpected permanent closure), the primary waste management related concern is that project wastes not pose any potentially significant problem to the public, workers, or the environment. Staff believes that conditions of certification in the **General Conditions** section will adequately address waste management issues related to closure.

In the case of unexpected temporary closure, waste management practices normally required by LORS and already in-place (such as limiting hazardous waste accumulation time to 90 days and requiring proper containment) would be adequate to avoid significant problems. In addition, staff's **General Conditions for Facility Closure** requires preparation of an on-site contingency plan, which shall provide for removal of hazardous wastes and draining of all chemicals from storage tanks and other equipment for temporary closures exceeding 90 days.

An approved on-site contingency plan is also required to protect public health and safety in the case of unexpected permanent closure. As above, the plan must provide for the removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment.

For planned permanent closure, MPP will develop a facility closure plan at least twelve months prior to commencement of closure and is committed to complying with LORS which are applicable at the time of closure.

COMPLIANCE WITH APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Energy Commission staff concludes that MPP will be able to comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during MPP site preparation, construction and operation. The applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the California Department of Toxic Substances Control. Because hazardous wastes will be produced during project construction and operation, MPP should utilize its existing DTSC identification number as a hazardous waste generator and existing hazardous waste generator permit from the LA County Fire Department. Accordingly, MPP will be required to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, and keep detailed records. Pursuant to California Code of Regulations, Title 22, section 67100.1 et seq., a hazardous waste Source Reduction and Evaluation Review and Plan must be prepared by MPP, which meets the requirements of SB-14.

MITIGATION

Based on the analysis of impacts and the design and operational features that have been incorporated into the project, MPP has proposed mitigation measures that are consistent with LORS and with CEC requirements (see MPP 2001a, AFC section 5.14.3.1).

To ensure proper waste management practices, staff agrees with MPP proposed mitigation WM-2 which requires MPP to develop and submit a waste management plan which will include details on the handling, packaging, labeling, minimizing, storage, treatment, and disposal of wastes (proposed Condition of Certification **WASTE-4**).

Staff has reviewed the Phase I ESA and agreed with its recommendation for a Phase II ESA. A Limited Phase II ESA was prepared by URS (URS 2001) and found contamination in areas of the site which will be excavated for the proposed power plant.

Based upon this Limited Phase II ESA, staff concludes that remedial action is necessary prior to site mobilization. Accordingly, staff recommends Condition of Certification **WASTE-5,** which would require the project owner to enter into a Voluntary Cleanup Agreement with DTSC, prepare a Remedial Action Plan, and implement cleanup activities prior to site mobilization.

DTSC has indicated that the applicant has made a request for designation of DTSC as the administering agency to oversee site investigation and remedial action, pursuant to California Health and Safety Code section 25260 et seq.

Staff has examined the waste management related measures proposed by the applicant and concluded that, together with applicable LORS and the additional measures proposed by staff, they will adequately assure that no significant environmental impacts will result from the management and disposal of project-related waste.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

AGENCY COMMENTS

Department of Toxic Substance Control

Comment: The DTSC commented that the Staff Assessment should provide further evaluation regarding any potential threat present site conditions pose to human health or the environment. They base their request on the information provided in the Phase I Environmental Site Assessment regarding the potential presence of hazardous wastes at the site.

Response: Applicant has provided a limited Phase II ESA which has identified additional contamination on-site. Staff's has proposed Conditions of Certification **WASTE-2, WASTE-4,** and **WASTE-5**, which address this issue which was added in response to DTSC concerns. Specifically, proposed Condition of Certification **WASTE-5** would require the project owner to enter into a Voluntary Cleanup Agreement and prepare a Remedial Action Plan that addresses the presence and remediation of contaminated soil and groundwater at the site. This Plan would then be submitted to DTSC for review and approval, the LARWQCB (if appropriate), the City of Burbank, and the LA County Fire Department, Hazardous Materials Division for review and comment, and to the CEC CPM for review and approval.

Comment: The DTSC recommended that as part of the conditions of certification the project owner shall prepare a Remedial Action Plan and submit it to DTSC for review and approval. In addition, DTSC provides guidance for Preliminary Endangerment Assessment (PEA) preparation and cleanup oversight through the Voluntary Cleanup Program (VCP). DTSC also provides low interest loans under the Urban Cleanup Loan Program (UCLP) to conduct PEA and for the cleanup or removal of hazardous materials.

Response: Staff has added proposed Condition of Certification **WASTE-5** to require the applicant to enter into a Voluntary Cleanup Agreement and prepare a Remedial Action Plan that must be approved and implemented prior to any earth moving activities.

CONCLUSIONS AND RECOMMENDATIONS

Management of the wastes generated during demolition, construction and operation of MPP will comply with applicable LORS and will not result in any significant adverse impacts if MPP implements the waste management measures proposed in the Application for Certification (01-AFC-6) and the proposed conditions of certification.

CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above. Three

new Conditions of Certification have been proposed due to comments received from DTSC and due to the addition of a zero-liquid discharge system by the applicant.

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or Geologist shall be given full authority to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit the resume to the CPM.

WASTE-2 If additional contaminated soil not covered by Condition of Certification **WASTE-5** is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action. Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall contact representatives of the City of Burbank, DTSC, the LARWQCB (if appropriate) and the LA County Fire Department, Hazardous Materials Division for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the Registered Professional Engineer or Geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-3 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-4 The project owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the project owner shall submit the Construction Waste Management Plan to the City of Burbank for review and the CPM for approval.

The operation waste management plan shall be submitted to the City of Burbank for review and the CPM for approval no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to the planned management methods.

WASTE-5 The project owner shall enter into a Voluntary Cleanup Agreement (VCA) with DTSC and shall prepare a Remedial Action Plan (RAP) that addresses the presence and remediation of Asbestos-Containing Materials (ACM), Regulated Building Materials (RBM) that contain lead-based paint, and contaminated soil and groundwater at the site, as described in the Limited Phase II ESA. This Plan shall be submitted to DTSC for review and approval, the LARWQCB (if appropriate), the City of Burbank, and the LA County Fire Department, Hazardous Materials Division for review and comment, and to the CEC CPM for review and approval. No site mobilization shall take place until the RAP has been approved by DTSC and the CPM and the site remediated to the satisfaction of DTSC and the CPM. The project owner shall provide the results of all baseline and confirmatory sampling and analysis to the City of Burbank, DTSC, the LARWQCB (if appropriate), the LA County Fire Department, Hazardous Materials Division, and to the CEC CPM for review and guidance on the remediation.

Verification: The project owner shall enter into a Voluntary Cleanup Agreement (VCA) with DTSC not later than 30 days after certification by the CEC and submit the RAP prior to the initiation of remedial action as per a schedule to be determined by DTSC. The request for site clearance or No Further Action (NFA) shall be made not later than 60 days prior to any earth moving activities. Copies of the VCA, sampling and analysis results, the RAP, and request for NFA shall be submitted the LARWQCB (if appropriate), the City of Burbank, and the LA County Fire Department, Hazardous Materials Division, and the CEC CPM, no less than 5 days after submittal to DTSC.

WASTE-6 The project owner shall test the salt cake product from the crystallizer for the presence of hazardous levels of metals (as described in the AFC MPP 2002a Section 5.14). If levels are below ten times the Soluble Threshold Level Concentration as listed in Title 22, California Code of Regulations, section 66261.24, then future testing is not required unless there is a substantial change in the wastewater treatment process. If not classified as a hazardous waste, the

project owner shall manage the salt cake product appropriately as a nonhazardous or designated waste unless it is sold as a commercial product.

Verification: As soon as practicable but no later than 30 days after the initial generation of salt cake, the project owner shall notify the CPM of the test results and the planned disposal method.

WASTE-7 The project owner shall test representative samples of the effluent from the brine concentrator for the presence of hazardous levels of metals. If test results indicate that the effluent is classified as hazardous, then the project owner shall apply to DTSC for a recycling exemption for hazardous waste treatment as provided for in Health and Safety Code section 25143.2(c)(2).

Verification: Within 60 days of beginning commercial operation, the project owner shall notify the CPM of the test results for the brine concentrator effluent. If applicable, the project owner shall include a copy of the DTSC application, and shall notify the CPM upon receipt of the exemption from DTSC.

REFERENCES

Magnolia Power Project. MPP 2001a. Application for Certification, Volumes I and II, Magnolia Power Project (01-AFC-6). Submitted to the California Energy Commission on March, 2001.

Magnolia Power Project. MPP 2002a. Supplement to the Application for Certification, Magnolia Power Project (01-AFC-6). Submitted to the California Energy Commission on May, 2002.

Ogden 2000a. Detailed Mitigation Plan and Analysis of Impact Assessments in Resource Areas Affected by the Mitigation Plan. Three Mountain Power, LLC. AFC-99-02. Submitted to the California Energy Commission. August 21.

Pastoria Energy Facility/Thompson PEF 2000f. Applicant's Data Request Responses (Third Data Response Submittal). Submitted to the California Energy Commission on April 3, 2000.

URS 2002. Limited Phase II ESA, Burbank Magnolia Power Plant, Burbank, California. August.

SOIL AND WATER RESOURCES

Testimony of Richard Sapudar, James Schoonmaker, John Scroggs, and Rick Sidor

INTRODUCTION

The Southern California Public Power Authority (SCPPA), has filed an Application for Certification (AFC) with the California Energy Commission (CEC) to build and operate a 328 MW combined cycle electric power generating facility at the existing City of Burbank (COB) Magnolia Power Plant (MPP) facilities. This FSA section was prepared following analysis of the AFC, supplements to the AFC, revisions, multiple staff data requests and responses from the applicant, and workshops conducted by staff for the purposes of evaluating, clarifying information, and receiving stakeholder input regarding the application. More recently, staff received and evaluated data from applicant's project modification that incorporates Zero Liquid Discharge (ZLD) in place of an NPDES permitted wastewater discharge.

This analysis focuses on:

- soil conditions of the site;
- water supply and water resources;
- storm water and erosion;
- wastewater discharges;
- compliance with applicable federal, state and local laws, ordinances, regulations and standards (LORS);
- mitigation measures for significant impacts; and
- recommendations for conditions of certification requiring adequate mitigation for significant impacts and ensuring compliance with LORS.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

Clean Water Act

The Clean Water Act (33 U.S.C. Section 1251 et seq.) requires states to set standards to protect quality of the waters of the United States. Point source discharges to surface water are regulated by this act through requirements set forth in a National Pollutant Discharge Elimination System (NPDES) Permit. Stormwater discharges during construction and operation of a facility also fall under this act and must be addressed through either a project specific or general NPDES permit. In California, the nine Regional Water Quality Control Boards (RWQCB) administer the requirements of the Clean Water Act. The Los Angeles Regional Water Quality Control Board (LARWQCB) has jurisdiction in the MPP project area.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards and implementation procedures. The criteria for the project are contained in the Water Quality Control Plan (Basin Plan), Los Angeles Region. This plan sets numerical and/or narrative water quality standards controlling the discharge of wastes with elevated temperature to the state's waters. These standards would be applied to the proposed project through the Waste Discharge Requirements (WDRs), during construction and/or operation of the project.

California Water Code

Section 13552.6 of the Water Code specifically identifies that the use of potable domestic water for cooling towers is an unreasonable use of water if suitable recycled water is available. The availability of recycled water is based upon a number of criteria, which must be taken into account by the SWRCB. These criteria include provisions that the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and will not impact downstream users or biological resources.

Section 13552.8 of the Water Code states that any public agency may require the use of recycled water in cooling towers if certain criteria are met. These criteria include that recycled water is available and meets the requirements set forth in section 13550, the use does not adversely affect any existing water right, and, if there is public exposure to cooling tower mist using recycled water, appropriate mitigation or control is necessary.

Water Recycling Criteria

Under Title 22 of the California Code of Regulations section 60301 et seq., the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of reclaimed water for industrial processes such as steam production and cooling water. California Title 22 recognizes that there are different recycled water uses, and depending on the risk of human contact, different treatment standards are permissible. For industrial cooling, Title 22 recycled water needs to be at a minimum disinfected secondary-23 (Most Probable Number of 23 coliform bacteria/100ml). For unrestricted use of recycled water, such as in a distribution network serving multiple users, tertiary treatment is required to meet a standard of 2.2 MPN/100 ml. Title 22 also regulates wastewater treatment system reliability, requiring a combination of redundant processes, back-up power supplies, and/or storage to provide high reliability.

California Constitution, Article X, Section 2

This section requires that the water resources of the State be put to beneficial use to the fullest extent possible. The waste, unreasonable use or unreasonable method of use of water is prohibited. The conservation of such waters is to be exercised with a view to the reasonable and beneficial use in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or

water course in the State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use, or unreasonable method of use, or unreasonable method of diversion of water. This section is self-executing, and the Legislature may also enact laws in the furtherance of the policy contained in this section.

STATE WATER RESOURCES CONTROL BOARD

Policy 75-58

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB which addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for powerplant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy also addresses cooling water discharge prohibitions.

LOCAL

Los Angeles County Ordinances

The Standard Urban Storm Water Mitigation Plan (SUSMP) was developed as part of the municipal storm water program to address storm water pollution from new Development and Redevelopment by the private sector. While the project does not fall into the category of a private sector development, the applicant will comply with the requirements of the SUSMP by developing Best Management Practices (BMPs) to meet the program objectives on the site.

ENVIRONMENTAL SETTING

REGIONAL DESCRIPTION

The region is fully developed and covered with impervious surfaces. The average annual rainfall measured in the MPP area is 15.06 inches. The wettest month is January, with an average rainfall of 3.15 inches, with July being the driest month and averaging 0.01 inch. The San Fernando Valley is a downfaulted valley partially filled with alluvial sediments. It slopes gently to the south-southeast toward the Los Angeles River.

Water Supply

Burbank lies in the heart of the basin known as the Los Angeles County Drainage Area, from which storm waters are carried to the Pacific Ocean via the Los Angeles and San Gabriel Rivers. As the San Fernando Valley has developed over the years, an

impervious asphalt and concrete cap has covered a large part of the surface area, and has significantly decreased the amount of rainwater that percolates to groundwater.

The San Fernando Valley Groundwater Basin is the largest of four hydrologic basins within the Upper Los Angeles River Area (ULARA). Groundwater recharge to the basin occurs from direct infiltration of precipitation, artificial recharge of imported water and treated wastewater effluent, and subsurface inflow from the adjacent groundwater basins.

Water supplies in the area are derived from groundwater. Depths to groundwater within the alluvial deposits of the basin range from approximately 50-300 feet below ground surface (bgs). The ground water in the western portion of the ULARA is calcium sulfate-bicarbonate in character, while the eastern portion is calcium bicarbonate in character.

All other water is imported by regional water districts and distributed by local water districts from either the Colorado River or from north of the basin via the California State Water Project.

SITE & VICINITY

Groundwater

The site is in the San Fernando Valley, which is within the ULARA. The ULARA has four distinct basins that include the San Fernando, Sylmar, Verdugo, and Eagle Rock. The San Fernando basin underlies the MPP site. The depth to groundwater below the project area is approximately 100 feet bgs.

Surface Water

The only surface water feature of significance near the MPP is the Burbank Western Channel. The flow from this channel originates from the westerly slopes of the Verdugo Mountains and from east of Lankershim Boulevard and eventually flows to the Los Angeles River. The Burbank Western Channel is listed on the LARWQCB 303(d) list as a water body impaired for ammonia, cadmium, trash, odors, algae, and unnatural scum/foam. Surface waters from the site are drained to a storm drain then to the Burbank Western Channel.

The COB proposes to supply MPP with water from three sources; reclaimed water from the Reclaimed Water Plant as the primary source, groundwater from on-site contaminated wells, and finally COB potable water. The potable water is composed of approximately 35 percent State Water Project (SWP) water, four percent of Colorado River water, with groundwater making up the remaining 61 percent.

Soils

Soils underlying the project area consist of sand, silt, silty sand, and silty clay. The project area is in an urbanized area, and primarily industrial and commercial in nature. The site has been an urban area for decades. The project will require no new linear facilities off-site, as all water supply, fuel supply, wastewater piping and other required utilities already exist at the site.

Existing Plant Site

The MPP is to be constructed at the existing COB Magnolia power plant site. The plant is located in the COB, in Los Angeles County, California at 164 West Magnolia Boulevard, which is situated approximately one-eighth mile west of the I-5 Freeway. The site is bordered by industrial properties on all sides. The COB site is approximately 23 acres in size.

Proposed Project

The new facility will be constructed in an existing area of the Magnolia facility that will be made available by demolition of structures no longer used by the plant. The new facility will occupy 4 acres, in the eastern portion of the plant near the adjacent freeway. Other existing facilities will be modified to function as offices, shops, warehousing, and affiliated structures.

The applicant's proposed facility is described in Section 3.4 of the AFC revised by the Supplement for Zero Liquid Discharge (ZLD) Option (MPP 2000a, MPP 2002g). MPP has redesigned the project from the original project design of wastewater discharged to the West Burbank Channel, which would have required an NPDES permit, to a ZLD wastewater treatment system that results in no liquid discharge of wastewater. The MPP no longer requires an operational NPDES permit from the LARWQCB to discharge wastewater, however stormwater discharge permits are required for both construction and operation.

The proposed facility will consist of one 1-on-1, dual shaft, combined cycle power island. The power-island will include a natural gas fired, heavy-duty natural gas Combustion Turbine Generator (CTG) nominally rated 169 MW. An additional 12 MW of power can be generated by admitting "injection steam" into the CTG. The CTG will exhaust into a natural gas fired Heat Recovery Steam Generator (HRSG or boiler). Steam from the HRSG will be admitted into a condensing steam turbine with a nominal capacity of 85 MW unfired and 147 MW with full firing of the HRSG. The total power production will be 328 MW.

The proposed ZLD system is described in the ZLD Supplement of May 2002 (MPP 2002g). The ZLD system and equipment is not yet to the final design phase, and the descriptions that are currently available are somewhat generic. The ZLD system is described as a train (a series of treatment steps) consisting of:

- Pretreatment softening of cooling tower blowdown by lime precipitation or other method.
- Brine concentration by thermal process, or by high pH reverse osmosis method, with resulting low-solids water sent to the cooling water system.
- Crystallizer treatment of the liquor/concentrate, resulting in additional water to the cooling system and solids to be removed for transport to landfill.

The description also specifies that tanks will be provided in front of the crystallizer for receiving uncondensed cooling tower blowdown. The total volume of the two tanks is specified as "6 days of storage" and is estimated at 180,000 gallons.

The product of the ZLD solids concentration will be two sludge streams described in Table 5.5-7A & B of the Supplement. The cold lime softener sludge is expected to be 2.5 tons per day on average. This sludge will consist of 30 percent water, 57 percent calcium carbonate, 9 percent magnesium hydroxide, lime inerts and silica, along with less than 1 percent total of other chemical species. The crystallizer sludge is expected to be 5.8 tons per day on average. This sludge consists of 30 percent water, 34 percent sulfates, 23 percent sodium, 8 percent chlorine, and smaller amounts of potassium and silica along with multiple trace chemical constituents.

Sludges will be collected in “steel rolloff bins”, where they will be sampled, analyzed, and disposed of as required. From the bins, they will be transported to a licensed disposal site. The appropriate disposal site will be selected after analysis of the sludge.

Water Supply

The MPP has been designed to utilize a combination of sources for water supply. According to the applicant's facility description, the primary source of water to meet MPP evaporative cooling tower and non-potable water service demands will be surplus reclaimed water available from the COB Reclaimed Water Plant (RWP). A portion of the reclaimed water produced by the COB RWP and now discharged to the Burbank Western Channel would be diverted to the proposed MPP. All blowdown from the cooling tower and selected other process water sources in the plant will be discharged to a ZLD system, and the resulting sludge generated by the ZLD will be disposed of in a landfill site.

A “will-serve” letter has been received by the applicant from COB. A copy of the will serve letter from the COB, dated May 3, 2002, is included as Appendix "V" of the applicant's ZLD supplement (MPP 2002g). The will serve letter does not commit to a given quantity or quality of reclaimed water, but agrees to provide all MPP demands for water with available supplies of whatever source, including up to 205 acre-feet per month of contaminated well water. The will-serve letter says non-potable and potable water supply sources are available to serve the MPP for those extended periods of inadequate or unacceptable reclaimed water supply, and apparently will be used at will. Staff discusses these water supply issues in the Reclaimed Water section below and through proposed Conditions of Certification.

Surface Water

The surface water supply in the region is from the SWP and the Department of Water and Power (DWP) purchase of Colorado River Water. All water to the project is to be supplied by purchase agreement with the City of Burbank (COB).

Groundwater

The San Fernando Valley basin has been adjudicated due to overdraft. Because the San Fernando Valley basin is an adjudicated basin, groundwater pumping by the COB is limited to a volume equal to 20 percent of water imported by the COB. This limitation assumes 20 percent return flow to the groundwater basin from infiltration associated with irrigation and other uses. According to the COB Urban Water Management Plan, groundwater pumping by the COB is limited more by COB water rights than by aquifer characteristics or available supply.

Groundwater quality in the ULARA is generally good and within the recommended limits of California Title 22 Drinking Water Standards. The eastern portion of the San Fernando Valley, the western end, and other areas of the San Fernando Basin, and parts of the Verdugo Basin have groundwater contamination issues.

The contaminants of interest include trichloroethylene (TCE), tetrachloroethylene (PCE), and nitrates. A 1995 study of San Fernando groundwater determined that groundwater underlying the MPP site has concentrations of TCE, PCE, and nitrate that exceed federal and State water quality standards. The federal and State standards for TCE and PCE are 5 ug/l (micrograms per liter or parts per billion). The federal standard for nitrate (NO_3 as nitrogen) is 10 mg/l (milligrams per liter or parts per million), with the State standard being 45 mg/l as NO_3.

Hexavalent chromium (Cr^{6+}) is also present in the groundwater beneath the MPP site, with COB reporting concentrations ranging from none detected (the detection limit was not provided) to 26 ug/l. Desoxycorticosterone acetate and dichloroethane were also found in the groundwater.

The COB owns two wells on the MPP site, which are capable of producing about 2900 acre-feet/year (AFY). They were taken out of service in the fall of 2000 due to elevated levels of Cr^{6+}. The well water is also contaminated with TCE and PCE.

Approximately 14,800 AFY of this contaminated groundwater has been pumped by COB-owned or operated wells. This groundwater is treated to remove volatile organic hydrocarbons (VOCs) and blended with Metropolitan Water District (MWD) water to lower the NO_3 concentration to meet drinking water standards. The COB has curtailed use of well water with elevated Cr^{6+} concentrations.

If COB supplies water from these on-site wells, it will be treated by COB as required for the intended use. The treatment plan includes filtration through granular activated carbon to remove the VOCs and sulfur dioxide (SO_2) reduction with sand filtering to remove Cr^{6+}. Although staff considers this groundwater degraded based on the contamination present, it is considered to be a source of drinking water.

The EPA has calculated that groundwater extraction at the rate of 9,000 gpm is required by the COB to control the plumes (13 million gallons per day, well in excess of MPP needs). The COB has not been able to maintain extraction of more than 6,000 to 8,000 gpm. The COB may realize some advantages in providing this contaminated well water to the MPP. The two city wells located on the MPP site extract water from an area of high contaminant concentration within the TCE and PCE plumes. Pumping water from these wells would not cause the plumes to migrate and could help contain and reduce the contaminant plumes.

Soil and Water Table 1 presents water quality levels for treated well water supplied to the MPP and for COB domestic water.

Soil and Water Table 1
Expected Well Water and Domestic Water Quality
(Mg/L except as noted)

Analyte	Treated Ground Water	Domestic Potable Water
Calcium	58	61
Magnesium	14	15
Sodium	37	44
Potassium	3	3
M-Alkalinity, as $CaCO_3$	174	184
Chloride	29	34
Sulfate	56	62
Fluoride	0.5	<0.1
Nitrate	18	21
Silica	5	22
TSS	1	0.2
Turbidity	NR	0.4 (NTU)[2]
TDS	434	479
BOD_5	NR	NR[1]
Ammonia	NR	NR[1]
COD	NR	NR[1]
Boron	NR	NR[1]
Phosphate	NR	<0.1
Phosphorus	7.3	7.6
Cyanide	NR	NR[1]
Cadmium	<0.010	NR[1]
Chromium	<0.010	<0.010
Copper	0.050	0.007
Lead	<0.050	NR[1]
Mercury	<0.001	NR[1]
Nickel	0.010	NR[1]
Silver	0.010	NR[1]
Zinc	0.050	0.21

[1]NR - Not reported. (Source MPP 2001a, Table 3.4-4b)
[2]Nephelometric Turbidity Units

Reclaimed Water

The COB intends to supply and the applicant intends to utilize the current COB RWP discharge as the primary water supply to the MPP, with backup from other COB sources. The RWP has a capacity of 9.0 million gallons per day (mgd) average, and 12.0 mgd, instantaneous peak. The RWP currently supplies reclaimed water to the existing COB Magnolia power generating facility, golf course irrigation, landfill revegetation and other minor irrigation purposes. The RWP now discharges an average of 5.0 mgd to the Burbank Western Channel after these other reclaimed water demands have been met. This discharge volume would supply the reclaimed water the MPP proposes to use.

Treatment provided at the RWP consists of primary clarification, aeration, secondary clarification, filtration, and disinfection as required by Title 22 of the California Code of Regulations. The RWP discharges treated wastewater at two points, labeled Outfall 001 and Outfall 002. The 002 outfall is essentially an overflow from 001, so the two outfalls, while physically separate, are treated as a single discharge.

Soil and Water Table 2 provides the history of reclaimed water availability, which is the amount discharged to the outfalls in past years.

Soil and Water Table 2
Reclaimed Water Availability (MGD)

	1998	1999	2000	2001	Average
January	4.902	4.866	2.953	5.677	4.600
February	7.003	4.990	3.240	7.073	5.577
March	6.417	5.342	2.626	7.160	5.386
April	6.487	6.275	2.857	6.689	5.577
May	6.912	4.957	5.810	5.639	5.830
June	5.479	3.001	6.710		5.063
July	5.027	4.236	5.368		4.877
August	5.425	3.932	5.898		5.085
September	5.695	2.509	5.625		4.610
October	5.043	3.679	6.033		4.918
November	4.819	3.760	5.667		4.749
December	4.905	2.556	4.544		4.002
Average	5.666	4.172	4.785		5.064

Source: Magnolia AFC Second Response to Data Requests page 3.4-5 (MPP 2002ka). Note: This data is identical to Table 3.4-2 in the applicant's ZLD Supplement (MPP 2002g).

With adoption of the ZLD system, the requirement for reclaimed water is 1.3 mgd average and 1.9 mgd maximum. Given this demand, the data above indicate that even with diurnal and seasonal variations, an adequate supply is available at all times other than during interruptions caused by plant upsets or delivery system failures.

The RWP occasionally experiences plant upsets when reclaimed water is not available. When upsets to treatment plant processes occur, operation may be temporarily slowed or stopped and discharge to the outfalls may be reduced or redirected to the North Outfall Sewer where it is eventually treated by the City of Los Angeles Hyperion Publicly Owned Treatment Works. During periods of plant upset reclaimed water could be produced that would be unsuitable for use at the proposed MPP.

To reduce any operational impacts that could occur due to RWP upsets that may reduce the available volume of reclaimed water, the MPP proposes to incorporate a reclaimed water storage tank. MPP proposes to retrofit and rehabilitate an existing 2.2 million-gallon capacity underground tank located at the MPP site. This tank has been used by the COB to store fuel oil and has been drained, cleaned, and decommissioned. The MPP proposes to line this tank to make it suitable for reclaimed water storage. The

2.2 million gallons constitutes more than 24 hours of peak load equivalent water volume from the RWP.

The COB, in agreement with the MPP, proposes to provide reclaimed water that remains after existing, higher priority, reclaimed water demands are met. These "senior" demands include cooling makeup water supplied to the existing COB Power Plant, reclaimed water reserved for golf course irrigation, and other landscape irrigation supply contracts. However, these senior demands are small in comparison with available supply and are not expected to result in shortages except under upset conditions.

MPP's total water supply needs are estimated at 1,414 AFY. When insufficient reclaimed water is available, the MPP must utilize other sources of water, which include contaminated well water from on-site wells and potable water consisting of Colorado River water, SWP water, and/or groundwater. However, the ZLD Supplement (MPP 2001g) Table 3.4-1A specifies that all sources of non-reclaimed water for cooling tower use are expected to average 5.5 AFY. In addition, the applicant proposes to use 105 AFY non-reclaimed water for the demineralizers when reclaimed water is not suitable for this use. In addition, 2.2 AFY will be needed for potable uses, bringing the total non-reclaimed supply requirement to 112.7 AFY annual average use.

Water Consumption

Over the past 5 years the average volume of water treated, reclaimed for other uses or discharged to the Burbank Western Channel from the RWP can be summarized as follows:

Soil and Water Table 3
Annual Average Flow Rates
COB Reclaimed Water Plant

	AFY	MGY[1]	MGD
Average Treated Annually	6,493	2,116	5.800
Average Delivered To Existing Power Plant	355	116	0.320
Average Delivered To Irrigation	464	151	0.410
Average Water Discharged To Burbank Western Channel & Available For The MPP Project	5,674	1,849	5.070

[1]Million gallons per year. Source (MPP 2001a, Section 5.5.2)

According to the applicant, circulating cooling tower water will be continuously monitored to maintain chemical concentrations below levels that would be deleterious to the MPP systems. Based on makeup water analyses, silica will normally be the controlling constituent. It is desired to maintain the silica concentration at less than 150 mg/L. This can be achieved, based on design reclaimed water quality by operating the cooling tower at about 5.6 cycles of concentration. The cycles of concentration will vary according to the makeup water composition.

As part of the MPP, a circulating water chemical feed system will supply water-conditioning chemicals to the circulating water system to minimize corrosion and to control biofouling. Sulfuric acid will be fed to the circulating water system for alkalinity

reduction and pH adjustment to control the scaling tendency of the circulating water. To minimize biofouling in the circulating water system, it is proposed that sodium hypochlorite will be stored and available on-site so that it can be shock fed into the system as a biocide.

The applicant's data have assumed the use of 105 AFY non-reclaimed water as makeup water for the HRSG/ST steam cycle. Additional treatment by demineralization will be required. The demineralization system would consist of a leased demineralizer utilizing off-site regeneration facilities. Demineralized water will be directed to an on-site demineralized water storage tank. A proposed cycle chemical feed system would supply water-conditioning chemicals to the HRSG/ST steam cycle to minimize corrosion. The system would inject an oxygen scavenger and a neutralizing amine into the feedwater and condensate, respectively, for dissolved oxygen control and cycle pH control. The proposed design would provide for automatic feed of oxygen scavenger and amine in proportion to feedwater and condensate flow rates, respectively.

Soil and Water Table 4 presents the average day and maximum day water demands estimated for the MPP in the AFC. These estimates assume that 100 percent of the non-potable water demands at the MPP are met by reclaimed water and are supplied by the COB RWP. Average day demands were calculated assuming an average ambient air temperature of 64°F and plant operation at full load, with additional steam and power produced by HRSG duct firing for 1,000 hours/year – even though the applicant has stated in the ZLD Supplement section (3.4.7.4.2) an intention to limit duct firing to not more than 200 hours per year. Maximum day demands were determined by the applicant, assuming an ambient air temperature of 81°F and plant operations at full load, duct fired for 12 hours per day.

Soil and Water Table 4
MPP COOLING AND PROCESS WATER DEMANDS
(gal/day)

Cooling and Process Water Demand	Average Day (1)	Maximum Day (2)
Cooling Water Makeup	1,112,000	1,520,000
Cycle Makeup Treatment System	111,000	229,000
Plant & Equipment Drains	11,000	11,000
Evaporative Cooler	35,000	90,000
Chemical Drains	0	0
TOTAL	1,269,000	1,850,000
Domestic Water (Potable & Sanitary Uses)	2,000	2,000

Source (MPP 2001a, Table 3.4-1)
1. Average day demands are based on 64°F ambient air temperature (day average).
2. Maximum day demands are based on 81°F ambient air temperature (day average). Plant operating at full load with duct firing for 12 hrs / day.

Average consumption with reclaimed water

Average consumption is described in Figure 3.4-5A (MPP 2001a) Water Mass Balance. With the ZLD system operating, there is no wastewater discharge dilution water used as

in the prior NPDES discharge project design. All 1,421 acre-feet per year of water needed for cooling can be provided by reclaimed water. High purity water in the amount of 273 AFY is provided by the ZLD system, and is returned to the cooling cycle. Only 3 AFY is lost by water trapped in the ZLD dry product that will be disposed of in landfill.

Maximum consumption with Reclaimed Water

Maximum day demands are also shown in Soil and Water Table 4. To meet maximum day demands it is estimated that 1.85 mgd of reclaimed water must be supplied to the MPP. It is anticipated that these maximum demands would occur during summer months (June - September) when ambient air temperatures are highest and power demands are expected to peak. Since 1998, the lowest monthly average production from RWP occurred in May 1999, when only 2.5 mgd were generated. Even this amount is adequate for maintaining supply to MPP and to other existing irrigation uses.

Water Consumption During RWP Upsets

The applicant stated in in section 3.4.7.3.1 page 3.4-12 of the ZLD Supplement (MPP 2002g) that ”The data indicates that the RWP experiences these type of upsets (during which the plant either ceases to operate or produces reclaimed water of a quality unusable by the MPP) roughly two weeks out of the year, or about 5 percent of the time (on an annual average basis)”. Five percent of an average annual demand of 1,421 acre-feet would be 71 acre-feet/year. Compensation would be provided by the 2.2 million gallon (6.7 acre-feet) storage tank. While the degree of compensation afforded by this and other coping mechanisms is difficult to estimate, the applicant has concluded that the annual use of “Non-Reclaimed Water” for cooling purposes will be 5.5 acre-ft per year, which is equivalent to 5,000 gallons per day.

Water Demand - Fire Protection and Potable Water Supply

The potable water demands of the MPP are estimated at 2,000 gpd. Domestic water would not require further treatment, would be purchased from the COB, and would be available on-site with connection to an existing 6-inch water main. The total amount of water available through this six-inch line has not been determined, however, according to a recent COB hydrant flow test conducted on a COB water main located near the MPP site, domestic water flows of more than 2,500 gpm at more than 100 psi residual pressure are available. Fire protection flows required for the MPP facility are estimated at 2500 to 3500 gpm during a fire or fire test only, and at other times zero.

Wastewater

An existing NPDES permit, described below, is held by the City of Burbank, and covers both the wastewater reclamation plant (RWP) and the existing power facility. The NPDES permit is administered by the California Regional Water Quality Control Board Los Angeles Region (LARWQCB). The ZLD system used by the MPP will not discharge cooling tower blowdown or other process water using this NPDES permit. Thus, MPP will have no affect on the physical or chemical characteristics of the existing wastewater discharge covered by the COB NPDES permit. MPP will contribute to the stormwater discharge component from the existing facility. MPP use of reclaimed water will reduce the current discharge flow from the RWP by the amount of water consumed in the new MPP plant. This amount averages 1.269 mgd, compared to the average discharge of effluent at the RWP discharge point of 5.07 mgd. This average represents a 25 percent

reduction of the discharge. It is not known if the COB will be required to modify the NPDES permit as a result of this reduction in wastewater discharge flow. Existing site drains, surface drains, storm drains, and other low volume discharges leave the power plant and are discharged to the controlled discharge point, and are not expected to change in volume as a result of MPP.

LARWQCB Waste Discharge Requirements (WDR) 98-052

On June 29, 1998 the Los Angeles Regional Water Quality Control Board adopted Waste Discharge Requirements (WDR) No. 98-052 for the City of Burbank Water Reclamation Plant and Steam Power Plant. This order serves as a permit under the National Pollutant Discharge Elimination System. WDR 98-052 replaced WDR 96-050 that had been adopted for these City of Burbank facilities on July 15, 1996. Order 98-052 expires on May 10, 2003. The City of Burbank Water Reclamation Plant and Steam Power Plant discharges to the Burbank Western Channel (Wash) which is tributary to the Upper Los Angeles River. Order No. 98-052 considers and/or incorporates requirements relating to the LARWQCB's Watershed Management plan for the ULARA.

The original MPP project design included a wastewater discharge under the existing COB steam power plant NPDES permit. This design was subsequently abandoned in favor of the ZLD system due the expected inability of the MPP wastewater discharge to meet the more stringent effluent limits resulting from incorporation of the California Toxics Rule into a revised NPDES permit required by the LARWQCB for the new wastewater discharge. A wastewater discharge requiring an NPDES permit is no longer a part of either the MPP design or operational plan and, therefore, this staff assessment evaluates only the ZLD project design actually proposed by the applicant.

RWP SYSTEM PERFORMANCE

According to the applicant, the COB is pursuing modifications to the COB RWP that may significantly improve the reclamation water quality and quantity produced by the existing treatment plant. Of particular importance are proposed improvements to enhance the removal of nitrogen, ammonia, nitrite and nitrate. The applicant has clarified that the nitrogen numbers discussed in the original AFC and ZLD Supplement take into account the RWP retrofits (MPP 2001o and 2002i).

The upgrade will provide for biological nutrient removal through the addition of aeration basins and secondary clarification improvements, reliability improvements, upgrading of the disinfection system and addition of dechlorination capabilities. This enhanced primary treatment will allow for increased removal of metals and other constituents if it becomes necessary in the future. In addition, the improvements will be designed for an 18.0 (rather than 12.0) mgd peak capacity.

IMPACTS

The Energy Commission siting regulations contain requirements regarding impacts that are intended to guide and assist staff in the evaluation of projects. Title 20, California

Code of Regulations, Division 2, Chapter 5, Article 6, contains the following specific requirements in Appendix B:

- Appendix B(g)(1) requires, in part, a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.
- Appendix B(g)(14)(E) requires an assessment of the effect of the proposed project on water resources.
- Appendix B(g)(14)(E)(i) requires a discussion of the effect of the project demand on the water supply and on other users of this source.

PROJECT SPECIFIC IMPACTS

Water Supply and Demand

The average day cooling process water demands estimated for the MPP is 1.269 mgd or 1421 acre-feet annually. In addition 2000 gpd (0.002 mgd) is needed for potable and sanitary uses.

MPP proposes to use potable water for feed to the demineralizers used in boiler makeup whenever the reclaimed water is of a quality that would damage the demineralizer equipment (MPP 2002g section 3.4.7.6.3). The applicant estimates the consumption of non-reclaimed water at 105 AFY. The AFC and responses to staff data requests have not specified the criteria that would determine that when reclaimed water is not usable in this service.

The average total daily discharge from the COB RWP measured at both Outfall 001 and Outfall 002 is 5.07 mgd. While average daily reclaimed water produced by the COB RWP exceed average and maximum day demands of the MPP, there are a number of factors which could diminish available reclaimed water supplies to levels which are inadequate to meet MPP reclaimed water demands. These factors include:

Upsets at the COB RWP which cause temporary plant shutdown and the diversion of influent flow to the North Outfall. Typically, short-term (8-hour) upsets occur at the COB RWP once or twice per month. Longer-term upsets, defined as those exceeding 24 hours, may occur once every 3 months. The on-site RWP storage tank will hold more than 24 hours of average consumption. Upsets that last longer than 24 hours are expected to occur infrequently.

- Treated reclaimed water quality that is sufficiently low quality that it could damage the demineralizers. The “expected” need for non-reclaimed water for this purpose is 105 AFY.

Soil and Water Table 9 below presents the applicant’s estimated annual water demands for the MPP project. On average the cooling and process water demand is 1.269 mgd, equal to 1421 AFY. The applicant has estimated that nearly all of this demand would be met by reclaimed water available from the COB RWP. Applicant calculates that an

average of 5.5 AFY (5,000 gpd) non-reclaimed water is all that is needed to make up for the outages of the RWP.

Soil and Water Table 9
MPP Annual Water Consumption Requirements

Average Annual Use of Water	gal/day	AFY
Water Sources:		
Water from non-reclaimed or potable source		
required due to RWP reliability	5,000	5.5
Directed to demineralizers	94,000	105
For domestic water	2,000	2.2
Subtotal non-reclaimed water	**101,000**	**113**
Water from reclaimed source	1,170,000	1,311
Total Water Supply	**1,271,000**	**1,424**
Water Uses:		
Cooling Tower Evaporation+Drift	1,145,000	1,282
Combustion Turbine Inlet Cooling	12,000	13
HRSG Venting, CT Injection	88,000	99
Plant Drains	11,000	12
Domestic consumption	2,000	2
Removed in ZLD Solids	3,000	3
Total Water Usage	**1,261,000**	**1,414**

NOTE: Failure to balance Totals is not explained, but is considered to be within acceptable engineering accuracy. Source (MPP 2001a, Table 3.4-1A)

Staff has reviewed the applicant's conclusion that only 5.5 afy would be required to compensate for "average" outage of the RWP. This conclusion appears to be based on what might occur with excellent management of the storage water and an "average" year. Considering that the COB is in the process of improving the RWP, this may be more reasonable than might be expected from looking at only past RWP performance, and staff has considered this fact in developing Conditions of Certification to address this issue.

Historic reclaimed water discharge records for the RWP indicate a wide range in flows. While lower flow rates may be related to equipment failures or microbiological upsets at the RWP, there are other factors, also outside of the proposed control of the MPP, that could affect the availability of reclaimed water discharges. Reduced influent flow volumes, increased reclaimed water demands from the existing COB power plant, and existing reclaimed water irrigation demands are factors that could impact reclaimed water available to the MPP. However, given the reduction in water demand caused by the ZLD design, none of these factors are now sufficient to be a likely cause of inadequate reclaimed water for MPP.

Water Treatment

MPP proposes to disinfect reclaimed water with hypochlorite prior to direct use as cooling tower makeup. When non-reclaimed water is needed by the MPP to supplement reclaimed water supplies, pre-treatment would be provided by the COB. If supplied from the COB domestic water system, non-reclaimed water would be pre-treated to Drinking Water Standards. If supplied from on-site groundwater wells, treatment would be provided by the COB as necessary to remove VOCs and, possibly, hexavalent chromium. The VOCs would be removed by activated carbon filters. The hexavalent chromium can be removed by reduction with sulfur dioxide followed by settling and filtration to remove the insoluble form of trivalent chromium.

Wastewater Discharge

With the change to a ZLD design, there is no process wastewater discharge outside of the plant. Wastewater is limited to domestic wastes of 2,000 gallons per day and plant drains from equipment and the oil/water separator of 11,000 gallons per day. Stormwater and surface drains will remain as before the project.

Soil Erosion, Storm Water, and Sedimentation

Erosion

Project construction activities conducive to erosion include clearing, grading and soil stockpiling. Disturbance of the existing surface protection may leave the soil particles vulnerable to detachment by wind, rainfall impact, and run-off. Sediment discharged from the site may be carried into downstream receiving waters and cause or contribute to water quality or beneficial use impairment.

Once construction is completed, erosion potential at the site is expected to be minimal due to the relatively flat grades, paved surfaces and the existing and proposed storm water conveyance systems. Although minor areas such as landscape areas and unpaved storage areas may be subject to erosion during project operation, staff considers the impacts to be less than significant with BMPs in place.

In order to minimize potential impacts from erosion of exposed soil areas both during construction and during project operation, the applicant has prepared and will implement a stormwater pollution prevention plan (SWPPP) as required under the General Construction Activity Stormwater Permit issued by the LARWQCB.

Stormwater Runoff/ Flooding

The site is located adjacent to the concrete-lined Burbank Western Channel. FEMA maps indicate that the site is outside the mapped 500-year floodplain.

On-site stormwater runoff patterns and volumes will likely not be significantly changed by the expansion of the facility. This is due to the fact that there will be no significant increase in impervious surfaces or runoff volumes. Currently stormwater runoff from the area where the new unit is to be constructed is collected and discharged to the adjacent Burbank Western Channel through an existing outfall. The preliminary data provided by the applicant for the existing stormwater system that MPP will use was inadequate to determine if the system currently has sufficient capacity to handle expected stormwater

flows. To prevent the possibility for potentially significant on-site flooding which may impact off-site areas, staff has recommended Conditions of Certification which will prevent significant impacts.

Storm Water Runoff/ Pollution Control

The preliminary design of the facility indicates that storm water from areas with potential for oil contamination will be directed to oil and water separators before being discharged into the sanitary sewer system. In addition, the draft SWPPP indicates that all inlets impacted by the new facilities will utilize storm drain filter inserts as required by the LA County SUSMP. The filters will be designed to treat the first ¾ inch of rainfall runoff in any given storm event. No significant impacts are expected from stormwater runoff if the SWPPP is properly implemented by MPP.

CUMULATIVE IMPACTS

No erosion or sedimentation impacts are expected to contribute to significant cumulative impacts with the implementation of BMPs.

The project will consume approximately 25 percent of the currently available reclaimed water from the COB RWP. Although the wastewater discharge to the West Burbank Channel will be reduced by the same amount, it is unlikely that changes in either the temperature or the chemistry of the discharge will be adversely affected by the MPP. A landfill disposal requirement of 9 tons per day will be required because of the ZLD system.

Considering the increasing pressures on fresh water use in California, staff finds the use of reclaimed water beneficial to the State's water supply. The use of a ZLD system will result in an efficient use of both the primary reclaimed water and other backup water supplies (properly treated contaminated groundwater or COB potable water). The quantity of water that will be consumed by MPP is considered to be within the normal range for of a project of this size using this technology.

FACILITY CLOSURE

The MPP project is expected to operate for a minimum of 30 years. Closure options range from "mothballing," with the intent of a restart at some time, to the removal of all equipment and facilities.

The decommissioning plan will be submitted to the Energy Commission for approval prior to decommissioning. Compliance with all applicable LORS, and any local and/or regional plans will be required. The plan will address all concerns in regard to potential erosion and impacts on water quality. See the **General Conditions** section of this Final Staff Assessment for more information on facility closure.

MITIGATION

The applicant has chosen to use reclaimed water from the COB RWP as the primary water source for the MPP. This wastewater would normally be discharged to the LA

River and ultimately to the Pacific Ocean. The use of potable or other fresh inland surface or groundwater is proposed for use as a backup water supply, and a Condition of Certification is proposed to ensure that the use of fresh potable, ground or surface water is minimized. Below are listed the applicant's proposed mitigation measures and staff's recommended mitigation measures.

APPLICANT'S MITIGATION MEASURES

Water conserving features include the following:

Zero Liquid Discharge system, with high purity water generated by this system returned to the cooling tower or other internal use;

- Storage of 2.2 million gallons of reclaimed water; and
- Return and reuse of plant drains to the cooling tower for recycling to save energy and water.

Features to minimize wastewater generation or control stormwater include the following:

- Off-site regeneration of demineralizers; and
- a draft stormwater pollution prevention plan for project construction and operations.

STAFF'S MITIGATION MEASURES.

Staff has encouraged, and the applicant has agreed to the following:

- Limitation on hours of power augmentation (duct firing) and associated water consumption to 200 hours per year. With the project redesigned to use reclaimed water in a ZLD configuration, this requirement is now considered by Soil and Water Resources staff to be optional, and may be exercised at the discretion of MPP so long as there are no other adverse impacts or LORS compliance issues in other technical areas (e.g. Air Quality).
- The addition of reclaimed water storage for use during reclaimed water interruptions.

In addition, the staff recommends the following:

Water Management Plan - Development and implementation of a committed water management plan that avoids the unreasonable use, unreasonable method of use, or waste of fresh groundwater, surface water, or potable water. The MPP AFC and ZLD Supplement have not included in their project design and operational plan any limit on the consumption and use of potable water or other fresh water sources.

Maximum Use of Reclaimed Water - Clearly, the ability of the COB RWP to supply reclaimed water in amounts adequate for MPP's needs is essential to its use by the project. Based on the proposed project design and operational plan, MPP would be expected to use the maximum amount of reclaimed water whenever it is available. Staff has proposed a Condition of Certification (**SOIL and WATER 5**) that would ensure the maximum use of reclaimed water and that minimizes the use of fresh potable, surface, or ground water. Under this condition, the applicant would be required to report on the percent of time that reclaimed water from the RWP was not available for use at MPP.

Specifically, the project owner will be required to calculate and report the 12-month annual average failure rate to the Compliance Project Manager (CPM) in the Annual Compliance Report.

Should the 12-month annual average failure rate exceed the 5 percent historical RWP failure rate average, the project owner will be required to file a report with the CPM explaining the reason(s) for the exceedance and the measures taken or planned by MPP and COB to bring the RWP reclaimed water supply failure rate back to 5 percent or less.

The 12-month annual average exceedance rate would be based on a monthly interval calculated and reported as the percentage of hours per month that the supply of reclaimed water from the RWP is not adequate for MPP's operational needs. The RWP failure rate is defined as the percentage of time on a monthly basis that reclaimed water is not available for any reason to meet MPP's needs.

Finally, staff's proposed Conditions of Certification would set failure rate thresholds based on the historic performance of the RWP that would trigger additional requirements. If a threshold were exceeded, the MPP could be found to be operating in manner inconsistent with the CEC license and Conditions of Certification. The project owner would be required to notify the CPM and file a report explaining why the failure rate exceeded any threshold level, could not have been controlled or avoided, and that demonstrates that the project can be operated in a manner consistent with the project design, operational plan, and the Conditions of Certification. The CPM would assess the need for any additional information, and determine if a project amendment that reflects the actual operation and water use of the project is necessary.

The threshold levels triggering this additional reporting requirement are:

- For the one-year (12-month) moving average, a RWP failure rate exceeding 15 percent;
- For the three-year (36-month) moving average, a RWP failure rate exceeding 10 percent; and
- For the five-year (60-month) moving average, a RWP failure rate exceeding 7.5 percent.

The one-, three-, and five-year moving averages would be based on a monthly interval calculated as the percentage of hours per month that the supply of reclaimed water from the RWP is not adequate for MPP's operational needs. The RWP failure rate is defined as the percentage of time on a monthly basis that reclaimed water is not available for any reason to meet MPP's needs.

The reclaimed water availability failure rate reporting will allow monitoring of the ability of the RWP to supply the amount of reclaimed water needed by MPP, and when combined with the proposed water use reporting requirements, the ability of MPP to operate as described in the ZLD Supplement and evaluated in this FSA.
Use of Fresh Water - The project expects to consume approximately 113 AFY of fresh water, primarily for use in the demineralizer system. Staff recommends that a

performance requirement be set to assure a reasonable limit of fresh potable, ground or surface water is not exceeded. This performance requirement is intended to ensure that the MPP is operated as designed and described in the ZLD supplement to the AFC (MPP 2002g), and that reclaimed water use is maximized and fresh water use is minimized. To allow MPP some flexibility in its use of reclaimed water, staff has developed Condition of Certification **SOIL and WATER 6** that recommends MPP be allowed 200 AFY annually of COB potable water use for potable and demineralizer uses.

Use of Contaminated Groundwater - The applicant has expressed a preference for the use of the contaminated groundwater that exists beneath the site as a backup water supply source. Staff has determined that this source of water is appropriate for all other non-potable uses, and may also replace potable uses at the discretion of MPP. Using this water source would have a positive effect on the reduction of existing groundwater contamination, as required by the USEPA consent decree.

However, as previously discussed, the COB is currently pumping and treating contaminated groundwater as a requirement of the consent decree. This treated groundwater is mixed with other fresh water, and according to MPP makes up approximately 50 percent of the COB drinking water supply. Therefore, staff finds that due to the reduced fresh water supply requirements related to the use of reclaimed water in a ZLD configuration, MPP's use of COB potable water as a backup water supply is conditionally acceptable. As long as a consent decree is in effect and the COB is pumping and treating contaminated ground water and blending it for distribution in the COB potable water supply at a rate that comprises at least 25 percent of the COB potable water supply, MPP may use COB potable water as a source of backup water. Otherwise, backup water supply must be obtained from properly treated contaminated groundwater from beneath the MPP site. This limitation is included as part of proposed Condition of Certification **SOIL and WATER 6**.

COB has adjudicated rights in the groundwater basin that are limited to a volume equal to 20 percent of the water imported by COB. COB has two wells on the site capable of pumping approximately 2900 AFY of groundwater. MPP has provided staff with adequate information to allow for the determination of the legal and/or regulatory relationship between these adjudicated groundwater rights and the requirements of the contaminated groundwater remediation required of COB by the USEPA.

- **Stormwater -** The existing stormwater system at the COB power facility, which the MPP intends to use to convey stormwater away from MPP, is designed to an older standard, and may be undersized relative to newer standards for similar systems. Compliance with the proposed Conditions of Certification **SOIL and Water 1 – 4** , which require Storm Water Pollution Prevention Plans (SWPPP) and Erosion and Sedimentation Control Plans (ESCP) for construction and operation, will ensure that modifications will be made that will prevent significant on-site flooding and the potential for significant impacts to adjacent off-site areas. The development of ESCPs for both the construction and operational phases of the project will ensure no significant impacts when combined with the SWPPP.

COMPLIANCE WITH LORS

The Energy Commission siting regulations contain several requirements with regard to use of water and conformance with LORS that are intended to guide and assist staff in the evaluation of projects. Title 20, California Code of Regulations, Division 2, Chapter 5, Article 6, contains specific requirements in Appendix B.

- Appendix B(g)(14)(C)(i) requires, in part, a description of the source of the water to be used and the rationale for its selection, and if fresh water is to be used for power plant cooling purposes, a discussion of all other potential sources and an explanation of why these sources were not feasible.
- Appendix B(h)(1)(A) requires, in part, the identification of laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each.
- Appendix B(h)(2) requires a discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).

As discussed below, the MPP proposed water use has been considered with regard to SWRCB policy, Water Code, and California Constitution sections that address various aspects of water use. Staff finds that if the proposed Conditions of Certification are required, the project will conform with LORS.

POLICY 75-58

SWRCB Policy 75-58 requires the applicant to consider the source of water supply for the power plant, giving preference to reclaimed water over potable or fresh water. The MPP design includes the “expectation” that reclaimed water will be used predominantly, although some potable water is still “expected” to be used due to the inability of the reclaimed water plant to deliver as reliably as the MPP requires. While MPP has provided no limitation on the consumption of potable water above these “expectations”, staff has developed Conditions of Certification (**SOIL and WATER 5** and **SOIL and WATER 6**) that will allow the project to conform to this policy. Staff considers the limited use of potable water (containing at least 25 percent treated contaminated groundwater) or treated contaminated groundwater by the project to be consistent with this policy. This policy does not support the inefficient use or waste of water that results in more fresh water being used than would otherwise be necessary, and encourages conservation.

MPP’s use of a Zero Liquid Discharge system, a project operation plan that maximizes the use of reclaimed water, and compliance with the recommended Conditions of Certification will allow the MPP to conform with this policy.

WATER CODE SECTIONS 13550-13552.8

The use of recycled water is required under the provisions of these sections of the Water Code. Staff has recommended a Condition of Certification (**SOIL and WATER 5**) that will insure the use of nonpotable water for predominately potable purposes where reclaimed water is available. Compliance with the recommended Condition of Certification will ensure that the project will conform with these code sections.

CALIFORNIA CONSTITUTION ARTICLE X, SECTION 2

Staff has determined that MPP's proposed use of reclaimed water in combination with a ZDL system will result in an efficient use of water. Compliance with recommended Condition of Certification **SOIL and WATER 5** will ensure conformance with this article of California's constitution.

CONCLUSIONS AND RECOMMENDATIONS

STORMWATER

The requirement for Stormwater Pollution Prevention Plans and Erosion and Sedimentation Control and Plans for both construction and operation will ensure that significant impacts do not occur.

EFFICIENT USE OF WATER

The ZLD Supplement proposes the use of reclaimed water and contaminated ground water as the source for all water to the extent allowed by the characteristics of the supply. Using reclaimed water with a Zero Liquid Discharge system will result in an efficient use of water.

USE OF POTABLE WATER

Staff recommends that fresh potable, surface and ground water use be limited to 200 AFY. COB potable water (containing at least 25 percent treated contaminated groundwater) or treated contaminated ground water from beneath the site may be used for demineralizer feedwater and as a backup water supply. See Conditions of Certification **SOIL and WATER 5** and **SOIL and WATER 6**.

USE OF ON-SITE WELLS

The COB owns two wells on the MPP site. According to the applicant, the existing on-site groundwater wells are capable of producing about 2900 AFY. This level of supply would significantly exceed maximum non-reclaimed water demands of the MPP. The two on-site wells were removed from city system service in the fall of 2000 due to elevated levels of Cr^{6+}, and are contaminated with TCE and PCE. Treatment of this groundwater would produce water of sufficient quality suitable for MPP cooling tower and process water demands without adverse impacts to existing COB domestic water uses when reclaimed water was unavailable.

There may be other beneficial impacts associated with MPP using this contaminated well water. Pumping water from these wells would not cause the contaminant plumes to migrate, and would help contain and reduce the plumes. Additional groundwater pumping would help the COB meet the objective set by the EPA consent decree for control of the contaminant plumes.

Staff considers the reasonable use of degraded groundwater consistent with SWRCB Policy 75-58. For the purpose of minimizing consumption of potable water and reducing existing superfund site contamination, staff recommends that MPP consider the use of

contaminated groundwater for process and cooling water for MPP when reclaimed water is not available.

RWP NPDES PERMIT

With the selection of ZLD for the MPP, the RWP NPDES permit is affected only to the extent of reducing flow volume by the amount taken for MPP service. Any necessary modification of this NPDES permit due to this change in the wastewater discharge flow would be the responsibility of the COB after consultation with the LARWQCB.

RWP IMPROVEMENTS

It is not clear whether the applicant considered potential reliability problems associated with the RWP plant improvements scheduled to take place in 2002 and 2003. This is important in that RWP unreliability is the largest single cause of non-reclaimed water consumption according to the data provided. Staff has addressed the reliability issues of the RWP supply of reclaimed water to MPP through Conditions of Certification **SOIL and WATER 5** that will ensure maximum use of reclaimed water.

RECLAIMED WATER USE – RELIABILITY AND WATER QUALITY CONCERNS

The applicant "conservatively" assumed that all CTG injection and CTG evaporative cooler makeup as well as HRSG (boiler) makeup will be from non-reclaimed water, although MPP intends to use reclaimed water to the extent possible. This assumption increases potable water usage by nearly 105 AFY. MPP had not provided specific reasons that reclaimed water is not acceptable, simply that it may not be suitable.

The applicant stated (MPP 2001a) that “Consistent with the objective to maximize the use of reclaim water to the greatest extent reasonable, in a situation where the organic chemistry in the reclaimed water supply creates problems with the demineralizers, the applicant would add an organic trap upstream of the resin. However, if the organic chemistry were to become excessively problematic, the applicant feels that it would be unreasonable to put in a new water treatment plant.”

The applicant anticipates there will be occasions when reclaimed water cannot be used at the MPP due to upset conditions at the RWP or problems upstream. This response has not specified that the organics content is indeed the problem, and has not provided data relating to the problem. Staff has addressed this issue through Conditions of Certification **SOIL and WATER 5** and **SOIL and WATER 6** that maximize the use of readily available reclaimed water and minimizes the use of fresh surface, ground, and potable water.

A reporting requirement for the reliability of the reclaimed water supply that has been included as part of Condition of Certification **SOIL and WATER 5** will allow for a determination that the expected reclaimed water is actually available to MPP, that it is being used to the maximum extent possible, and that the project will operate as described in this FSA.

LORS COMPLIANCE AND SIGNIFICANT IMPACTS

This Final Staff Assessment and the Conditions of Certification are applicable only to the project that was proposed and described at the time this evaluation was performed. The proposed MPP project will comply with identified applicable LORS and will have no known significant impacts if the Conditions of Certification recommended by staff are required. Staff recommends that the project not be licensed without these Conditions of Certification included as part of the license.

CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition. Other Conditions have been changed based on stipulated agreements between staff and the applicant, or based on changes to the project proposed by the applicant since publication of the SA. All of the modified Conditions are supported by the analysis outlined in the text above.

SOIL and WATER 1: Prior to any site mobilization, demolition, and construction activities, including linear facilities, the Project Owner shall develop a Storm Water Pollution Prevention Plan (SWPPP) as required under the General NPDES Stormwater Construction Activity Permit for the project. The plan shall be approved by the CPM prior to any site mobilization activities. The SWPPP shall include final drainage and facility design for all onsite and offsite project facilities. This includes final site drainage plans, showing all of the detail necessary to evaluate the impacts of stormwater run-on and run-off of the site and associated offsite facilities. The SWPPP shall address all issues detailed in the Staff Recommended Mitigation section of this FSA section. This plan shall demonstrate that the existing stormwater control system to be used by MPP has adequate capacity. The final plan shall also be consistent with all other permit and design documents, including any SUSMP requirements. The applicant shall include in this plan the installation of oil/water separators and storm drain water quality inlet inserts to treat runoff prior to discharge from the site, and shall provide manufacturers data sheets and any necessary calculations to support the sizing of the separators.

Verification: Sixty days prior to site mobilization the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) a copy of the Storm Water Pollution Prevention Plan (SWPPP) for the construction phase of the MPP for review and approval by the CPM. Site mobilization shall not begin prior to approval of the plan.

SOIL and WATER 2: Prior to site mobilization, demolition, and/or construction related ground disturbance activities, including linear facilities, the project owner shall develop an Erosion and Sedimentation Control Plan (ESCP) for the construction phase of the project. A copy of the ESCP for construction shall be provided to the CPM for review and approval. The ESCP shall address the actual drainage and facility design for all on- and off-site MPP project facilities for construction, and shall address all issues detailed in the Staff Recommended

Mitigation section of this FSA. The ESCP shall demonstrate compliance with all applicable SUSMP requirements.

Verification: Sixty days prior to the start of any site mobilization activities and/or ground disturbing activities associated with demolition or construction of the project or any linear element, the project owner shall submit the ESCP to the CPM for review and approval. The ESCP must be approved by the CPM prior to the start of site mobilization activities.

SOIL and WATER 3: Prior to power plant operation, the owner shall develop a SWPPP as required under the NPDES stormwater discharge permit for operation of the project. The SWPPP shall include the actual drainage and facility design for all onsite and offsite MPP project and linear facilities showing the details of the stormwater and sediment run-off and run-on to the MPP project facilities during operation. The SWPPP shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. This plan shall document that the existing and proposed project stormwater facilities have adequate capacity. The SWPPP shall be consistent with all other permit and design documents, and shall demonstrate compliance with all applicable SUSMP requirements. The project owner shall submit the operational SWPPP to the CPM for review and approval. The operational SWPPP shall be approved by the CPM prior to the start of operation.

Verification: Sixty days prior to the start of operation the project owner shall submit a copy of the SWPPP to the CPM for review and approval. The SWPPP must be approved by the CPM prior to power plant operation.

SOIL and WATER 4: Prior to power plant operation, the owner shall develop an Erosion and Sedimentation Control Plan (ESCP) for the operational phase of the project. The ESCP shall include the actual drainage and facility design for all on- and off-site MPP project and linear facilities showing all of the details of stormwater and sediment run-off and run-on to the MPP project facilities during operation. The ESCP shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. The SWPPP shall be consistent with all other permit and design documents, and shall demonstrate compliance with all applicable SUSUMP requirements. The project owner shall submit the operational ESCP to the CPM for review and approval. The operational ESCP shall be approved by the CPM prior to the start of operation.

Verification: Sixty days prior to the start of operation the project owner shall submit a copy of the ESCP to the CPM for review and approval. The ESCP must be approved by the CPM prior to power plant operation.

SOIL and WATER 5: Reclaimed water from the COB RWP shall be the primary water supply source for MPP, including cooling (inlet and condensing/heat rejection) and process water, and shall be used to the maximum extent possible when available except as allowed under **SOIL and WATER 6**. All reclaimed water supplied by COB to the MPP shall conform to all applicable LORS, including Title 22 California Code of Regulations. The following reporting shall be continued for the life of the project.

A. Annual RWP Standard Report

(1) The project owner shall calculate and report the RWP failure rate to the Compliance Project Manager (CPM) in the Annual Compliance Report. The failure rate shall be reported as the percentage of hours per month that the supply of reclaimed water from the RWP is not adequate for MPP's operational needs, and shall be reported by individual month and with the averages for the previous one, three, and five years of operation.

(2) Should the average failure rate for the year exceed 5 percent, the project owner shall include in the Annual Compliance Report an explanation of the reason(s) for the exceedance and the measure(s) taken or planned by MPP and COB to bring the RWP reclaimed water supply failure rate to within 5 percent or less.

B. RWP Threshold Failure Report

(1) The RWP Threshold Failure Report shall be filed if the following values are exceeded:

- For the one-year (12-month) moving average, a RWP failure rate exceeding 15 percent;
- For the three-year (36-month) moving average, a RWP failure rate exceeding 10 percent; and
- For the five-year (60-month) moving average, a RWP failure rate exceeding 7.5 percent.

The project owner shall calculate the 12-, 36-, and 60-month moving average RWP failure rates on a monthly basis and shall include them in the Annual Compliance Report.

(2) Should any of these threshold failure values be exceeded, the project owner shall notify the CPM by letter at the time the threshold exceedance is determined. Following the initial notification, the project owner shall file a RWP Threshold Failure Report with the CPM within 60-days of the date of determination that explains why the failure rate exceeded any threshold level, explains why the failure could not have been controlled or avoided, and demonstrates that the project can and shall be operated in a manner consistent with the project design, operational plan, and the Conditions of Certification.

(3) The CPM shall assess the need for any additional information. During the interval this evaluation is being conducted, the project shall continue to operate in manner as consistent with these conditions as possible. A schedule shall be developed by the project owner and the CPM that shall either bring the project into compliance with these conditions, or that shall result in the applicant filing an amendment with a modified project design and/or operational plan that shall conform with all applicable LORS and have no unmitigated significant impacts.

Verification:

A. **Annual RWP Standard Report**
The project owner shall include the Annual RWP Standard Report in the Annual Compliance Report to the Compliance Project Manager (CPM) for review and approval.

B. **RWP Threshold Failure Report**
The project owner shall submit to the CPM a threshold exceedance notification letter within 30 days of the end of the month in which the failure rate threshold for the 12-, 36-, or 60-month moving average has been exceeded. The project owner shall submit the **RWP Threshold Failure Report** to the CPM for review and approval within 60-days of the date the exceedance is determined. The evaluation and determination of the need for a project amendment shall be conducted by the CPM as expeditiously as possible.

SOIL and WATER 6: Only potable water from the COB, recycled water from the COB RWP, or contaminated groundwater from beneath the MPP site for which COB has an adjudicated groundwater right shall be used by the project. The primary water supply shall be reclaimed water provided by the COB RWP. The RWP reclaimed water backup water supply shall be COB potable water (containing at least 25 percent properly treated contaminated groundwater) or properly treated contaminated water from beneath the project site. The project owner shall confirm that COB potable water used for backup purposes contains at least 25 percent properly treated contaminated groundwater in the Annual Compliance Report.

The project shall be allowed a maximum of 200 acre-feet per year (AFY) COB potable water for all routine sanitary, domestic, and demineralizer feed water purposes. This 200 AFY shall not be considered or reported as part of the backup water supply. Any potable water used in excess of this amount shall be reported as a backup water supply use.

The project owner shall install an on-site metering and recording devices and record on a monthly basis all water used by the MPP (primary and backup), the amount of reclaimed, and non-reclaimed water used by the project, with the source and amount of all reclaimed and non-reclaimed water identified. The annual summary shall include the monthly range, monthly average, and total amounts of reclaimed and non-reclaimed water identified by amount and source used by the project in both gallons-per-minute and acre-feet. Following the first year of operation the annual summary shall also include the yearly range and yearly average of reclaimed and non-reclaimed water identified by amount and source used by the project. This information shall be supplied to the CPM in the Annual Compliance Report for review and approval.

Verification: No less than 60 days prior to the start of operation of MPP, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the pipelines serving and within the project. These

metering devices shall be capable of recording the quantities in gallons of water delivered to MPP and differentiate between uses of these supplies by MPP in order to report water demand. The project owner shall provide a report on the servicing, testing and calibration of the metering devices and operation in the annual compliance report.

The project owner shall submit the required water use summary to the CPM for review and approval as part of the Annual Compliance Report for the life of the project.

SOIL and WATER 7: The applicant states that the COB Reclamation Water Plant is actively being modified, and certain water quality data depend on completion of those modifications. The modifications are referred to by MPP as "Biological Nutrient Removal Project" and "Chemical, Electrical and Pumping Improvements Project". These are currently due for completion in 2002 and 2003 respectively, with various milestones before then. Should the work not proceed as planned, the MPP shall be expected to operate, and comply with the Conditions of Certification as if the RWP modifications have been accomplished with regard to project design and operational parameters for the MPP project as proposed.

Verification: The project owner shall provide regular progress updates and a final report on the RWP upgrades to the CPM in the Annual Compliance Report.

SOIL and WATER 8: The project shall operate with a Zero Liquid Discharge system. A liquid wastewater discharge shall not occur. The project owner shall provide the final design details and operational parameters of the ZLD system to the CPM prior to the start of commercial operation.

Verification: The project owner shall provide the required information on the ZLD system to the CPM 30 days prior to the start of commercial operation.

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Environmental Protection Agency, Office of Water. EPA-823-00-008. April 2000. (http://www.epa.gov/ost/standards/ctr/factsheet.html)

WORKER SAFETY AND FIRE PROTECTION

Testimony of Alvin J. Greenberg, Ph.D.

INTRODUCTION

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

The purpose of this analysis is to assess the worker safety and fire protection measures proposed by the Magnolia Power Project (MPP) and to determine whether the applicant has proposed adequate measures to:

- comply with applicable safety LORS;
- protect the workers during demolition, construction and operation of the facility;
- protect against fire; and
- provide adequate emergency response procedures.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act (OSH Act) of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, section 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards sections 1910.1 through 1910.1500, and clearly define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the general industry safety and health standards now in force under this OSH Act represent a compilation of materials from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA) which publishes the National Fire Codes.

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

Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.

Applicable Federal requirements include:

- 29 U.S. Code section 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 CFR sections1910.1 through 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 CFR sections1952.170 through 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR sections1910.1 through 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 ("Cal/OSHA") as published in the California Labor Code section 6300, et seq. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with sections 337 through 560 and continuing with sections1514 through 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)), and thus all Cal/OSHA health and safety standards meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 CFR §§1910.1 through 1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

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

Employers are responsible for informing their employees about workplace hazards, potential exposure, and the work environment (Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (8 CCR §5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1980. It was later revised to mirror the Federal Hazard Communication Standard (29 CFR §1910.1200) which established on the federal level an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers. A major component of this regulation is the required provision of Material Safety Data Sheets (MSDSs) to workers. MSDSs provide information on the identity, toxicity, and precautions to take when using or handling hazardous materials in the workplace.

Finally, 8 CCR section 3203 requires that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Additional applicable State requirements include:

- 8 CCR section 339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- 8 CCR section 337, et seq. - Cal/OSHA regulations;
- 24 CCR section 3, et seq. - incorporates the current edition of the Uniform Building Code;
- Health and Safety Code section 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility; and
- Health and Safety Code sections 25500 –through 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code, published at Title 24 of the California Code of Regulations section 3 et seq., consists of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning/building & safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of Title 24 of the California Code of Regulations.

Similarly, the Uniform Fire Code (UFC) Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition. The latest revision of the Uniform Fire Code adopted into the City of Burbank Municipal Code is the 1997 version. The City of Burbank Fire Department administers the UFC.

Applicable local (or locally enforced) requirements include:

- the 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);
- California Building Code, Title 24, California Code of Regulations (24 CCR § 3, et seq.); and
- The Uniform Fire Code, 1997.

SETTING

The proposed project is located in the City of Burbank in Los Angeles County at the site of the existing City of Burbank power plant at 164 West Magnolia Boulevard. The City of Burbank has operated an electrical generating facility at this site since 1941. The proposed project will be owned by the Southern California Public Power Authority (SCPPA) and operated by the City of Burbank. The Magnolia Power Project, a proposed nominal 328 MW natural gas combined-cycle generating facility, will be constructed on about 3 acres of the existing 23 acre site.

The Magnolia Power Project involves demolition of the remaining components associated with Magnolia Units 1 and 2 of the existing facility. Construction of the new combined cycle plant will then occur at the location of the demolished units.

The MPP site is located about 1/8 mile west of the Interstate 5 freeway. Industrial properties border the site on all sides. Primary access to the site is via Olive Avenue and Magnolia Boulevard.

The City of Burbank Fire Department (COBFD) will provide fire support services to the site. Station 11, located on Orange Grove Avenue approximately 1 mile from the project site, will provide these services. This is the closest station to the site and is assigned as the off-site first responder to the MPP. Response time is estimated to be approximately 3 minutes (COBFD 2001). Additional fire suppression support will be provided by Station 15, located at 1420 W. Vertigo Street with response time of approximately 3 to 4 minutes, and Station 14, located in the 2300 block of Burbank Boulevard, approximately 1.5 miles from the site with response time of approximately 4 minutes (COBFD 2002).

COBFD Station 12, located at 644 North Hollywood Way, is the assigned hazardous materials (hazmat) first responder. Response time for Station 12 is estimated to be 5 to 6 minutes. Station 12 has 24-hour hazmat capabilities, a hazmat engine and eight personnel. In the event of a major hazmat situation, the Los Angeles County Hazardous Materials Programs Division would be contacted and provide support to COBFD (COBFD 2001).

IMPACTS

WORKER SAFETY

Industrial environments are potentially dangerous during demolition, construction and operation of facilities. Workers at the proposed project will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for the Magnolia Power Project to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards

and protect workers. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards.

FIRE HAZARDS

During demolition, construction and operation of the proposed MPP there is the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires may develop from uncontrolled fires or be caused by large explosions of natural gas or other flammable gasses or liquids. Compliance with all LORS will be adequate to assure protection from all fire hazards.

APPLICANT'S PROPOSED MITIGATION

WORKER SAFETY

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

Demolition & Construction Safety and Health Program

The MPP encompasses demolition of existing Magnolia Units 1 and 2 and construction and operation of a natural gas fired facility with ancillary facilities such as transmission lines and pipelines. Workers will be exposed to hazards typical of demolition, construction and operation of a gas-fired combined cycle facility.

Construction Safety Orders are published at 8 CCR § 1502, et seq. These requirements are promulgated by Cal/OSHA and are applicable to the demolition and construction phase of the project. The Construction Safety and Health Program will include the following:

- Construction Injury and Illness Prevention Program (8 CCR § 1509);
- Construction Fire Protection and Prevention Plan (8 CCR § 1920); and
- Personal Protective Equipment Program (8 CCR §§ 1514 - 1522).

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

- Electrical Safety Program;
- Unfired Pressure Vessel Safety Orders;
- Equipment Safety Program;
- Forklift Operation Program;
- Excavation/Trenching Program;

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

The AFC includes adequate outlines of each of the above programs (MPP 2001a, section 5.17.2.1.1). Prior to the demolition of Magnolia Units 1 and 2 and construction of the MPP, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

Operations and Maintenance Safety and Health Program

Upon completion of construction and prior to operations at the MPP, the Operations and Maintenance Safety and Health Program will be prepared. This operational safety program will include the following programs and plans:

- Injury and Illness Prevention Program (8 CCR § 3203);
- Emergency Action Plan (8 CCR § 3220);
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (8 CCR § 3221); and
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

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

The AFC includes adequate outlines of the Operations Safety Program and the Injury and Illness Prevention Program (MPP 2001a, section 5.17.2.1.2). Appendix M of the AFC includes the existing site-specific City of Burbank power facility Emergency Action Plan. Prior to operation of the MPP, all detailed programs and plans will be provided pursuant to condition of certification **WORKER SAFETY-2**.

Safety and Health Program Elements

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

Injury and Illness Prevention Program (IIPP)

The Applicant will submit an expanded Demolition, Construction and Operations Illness and Injury Prevention Program to Cal/OSHA for review and comment 30 days prior to demolition, construction and operation of the project.

The IIPP will include the following components as presented in the AFC:

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

Emergency Action Plan

California regulations require an Emergency Action Plan (8 CCR § 3220). Appendix M of the AFC includes the existing Emergency Action Plan prepared by the City of Burbank Public Service Department dated July 1995.

The Emergency Action Plan should include the following features:

- Purpose and Scope of Emergency Action Plan;
- Personnel Responsibilities during Emergencies;
- Specific Response Procedures;

- Evacuation Plan;
- Emergency Equipment Locations;
- Fire Extinguisher Locations;
- Site Security;
- Accident Reporting and Investigation;
- Lockout/Tagout;
- Hazard Communication;
- Spill Containment and Reporting;
- First Aid and Medical Response;
- Respiratory Protection;
- Personal Protective Equipment;
- Sanitation; and
- Work Site Inspections.

Fire Prevention Plan

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

- Responsibilities;
- Procedures for fire control;
- Fixed and portable fire-fighting equipment;
- Housekeeping;
- Employee alarm/communication practices;
- Servicing and refueling areas;
- Training; and
- Flammable and combustible liquid storage.

Staff proposes that the Applicant submit a final Fire Protection and Prevention Plan to the California Energy Commission Compliance Project Manager (CPM) for review and approval, and the City of Burbank Fire department for review and comment, to satisfy proposed conditions of certification **WORKER SAFETY 1** and **2**.

Personal Protective Equipment Program

California regulations require personal protective equipment (PPE) and first aid supplies whenever hazards are encountered which, due to process, environment, chemicals or mechanical irritants can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (8 CCR § 3380-3400). The MPP operational environment will likely require PPE.

Information provided in the AFC indicates that all employees required to use PPE will be checked for proper fit and to see if they are medically capable of wearing the equipment (MPP 2001a, page 5.17-13). All safety equipment will meet NIOSH or ANSI standards and will carry markings, numbers, or certificates of approval. Respirators will meet NIOSH and California Department of Health and Human Services Standards. Each employee will be provided with the following information pertaining to the protective clothing and equipment:

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

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

Operations and Maintenance Written Safety Program

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

- Fall Protection Program;
- Hot Work Safety Program;
- Confined Space Entry;
- Hearing Conservation Program;
- Hazard Communication Program;
- Process Safety Management (PSM) Program; and
- Contractor Safety Program.

Operations and Maintenance Safety Training Programs

Employees will be trained in the safe work practices described in the above-reference safety programs.

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment (MPP 2001a, sections 3.4.10 Fire Protection and 5.17 Worker Safety) to determine if the project would adequately protect workers and if it would affect the fire protection services in the area. The project will rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. In the event of a major fire, fire support services including trained firefighters and equipment for a sustained response would be provided by the City of Burbank Fire Department.

During demolition and construction an interim fire protection system will be in place. The permanent facility fire protection system will be placed in service as early as possible during the demolition and construction phase.

The information in the AFC indicates that the project intends to meet the applicable fire protection and suppression requirements. Elements include both fixed and portable fire extinguishing systems. Fire fighting water is supplied to this facility by the City of Burbank water system and will provide more than an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and sprinkler systems. Fire hydrants with hose stations will be spaced at 300-foot intervals around the facilities, in accordance with NFPA 24 and local fire codes. Sprinkler and fixed spray systems will be designed and installed according to NFPA 13 and 15.

A carbon dioxide fire protection system will be provided for the combustion turbine generator and accessory equipment. Fire detection sensors will also be installed.

In addition to the fixed fire protection system, smoke detectors, combustible gas detectors, and portable extinguishers will be located throughout the plant with size, rating, and spacing in accordance with the Uniform Fire Code.

Fixed fire protection systems will be provided for the steam turbine generator bearings and lube oil equipment, cooling towers and station oil-filled generator step-up transformers.

The applicant will be required to provide the final Fire Protection and Prevention Program to staff and to the City of Burbank Fire Department, prior to demolition, construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

CUMULATIVE IMPACTS

Staff reviewed the potential for the demolition, construction and operation of MPP, combined with existing industrial facilities, to result in impacts on the fire and emergency service capabilities of the City of Burbank Fire Department and found that cumulative impacts were insignificant. The City's fire department stated that they feel adequately staffed and equipped to deal with any incident at the proposed facility (COBFD 2002). Given the industrial area where the project is proposed to be built, and the lack of unique fire hazards associated with a modern gas-fired power plant, staff finds that this project will not have any significant incremental burden on the department's ability to respond to a fire or medical emergency.

FACILITY CLOSURE

The project owner/operator is responsible for maintaining an operational fire protection system during closure activities. The project must also stay in compliance with all applicable health and safety LORS during that time. A facility closure plan will be developed prior to closure to incorporate these requirements.

CONCLUSION AND RECOMMENDATIONS

If the applicant for the proposed MPP provides a Project Demolition & Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program as required by conditions of certification **WORKER SAFETY-1** and **WORKER SAFETY-2**, staff believes that the project will incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable LORS. Staff also concludes that the proposed project will not have significant impacts on local fire protection services. The proposed facility is located within an area that is currently served by the local fire department. The fire risks of the proposed facility are similar to those of existing facilities in the immediate vicinity and thus pose no significant added demands on local fire protection services.

If the Commission certifies the project, staff recommends that the Commission adopt the following proposed conditions of certification. The proposed conditions of certification provide assurance that the Demolition and Construction Injury and Illness Prevention Program and the Operations Safety and Health Program proposed by the applicant will be reviewed by the appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable LORS.

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above.

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

- A Demolition and Construction Injury and Illness Program;
- A Demolition and Construction Personal Protective Equipment Program;
- A Demolition and Construction Exposure Monitoring Program;
- A Demolition and Construction Emergency Action Plan; and
- A Demolition and Construction Fire Protection and Prevention Plan.

The Injury and Illness Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and comment concerning compliance of the program with all applicable Safety Orders. The Demolition and Construction Fire Protection and Prevention Plan and Emergency Action Plan shall be submitted to the City of Burbank Fire Department for review and comment prior to submittal to the CPM.

Verification: At least 30 days prior to the start of demolition, the project owner shall submit to the Cal/OSHA Consultation Service, for review and comment and shall submit to the CPM for review and approval a copy of the Project Demolition and Construction Safety and Health Program. The project owner shall provide a letter from the City of Burbank Fire Department stating that they have reviewed and commented on the Demolition and Construction Fire Protection and Prevention Plan Emergency Action Plan.

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

- an Operation Injury and Illness Prevention Plan;
- an Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Protection and Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Protection Plan and the Emergency Action Plan shall also be submitted to the City of Burbank Fire Department for review and comment.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety & Health Program.

REFERENCES

1998 California Fire Code. Published by the International Fire Code Institute comprised of the International Conference of Building Officials, the Western Fire Chiefs Association, and the California Building Standards Commission. Whittier, CA.

1997 Uniform Fire Code, Vol. 1. Published by the International Fire Code Institute comprised of the International Conference of Building Officials and the Western Fire Chiefs Association, Whittier, CA.

City of Burbank Fire Department (COBFD). 2001. Personal communication with Captain Brian Rowley, Station 11. July 30, 2001.

City of Burbank Fire Department (COBFD). 2002. Personal communication with Captain Kenet Robertson, Station 11. August 26, 2002.

Magnolia Power Project. MPP 2001a. Application for Certification, Volumes I and II, Magnolia Power Project (01-AFC-6). Submitted to the California Energy Commission on May 14, 2001.

FACILITY DESIGN

Testimony of Brian Payne

INTRODUCTION

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

- verify that the laws, ordinances, regulations and standards (LORS) applicable to the engineering design and construction of the project have been identified;
- verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable engineering LORS, and in a manner that assures public health and safety;
- determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety; and
- describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the intent of the engineering LORS and any special design requirements.

FINDINGS REQUIRED

The Warren Alquist Act requires the commission to "prepare a written decision … which includes … (a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety … [and] (d)(1) Findings regarding the conformity of the proposed site and related facilities … with public safety standards … and with other relevant local, regional, state and federal standards, ordinances, or laws…." (Pub. Resources Code, §25523).

SUBJECTS DISCUSSED

Subjects discussed in this analysis include:

- Identification of the engineering LORS applicable to facility design;
- Evaluation of the applicant's proposed design criteria, including the identification of those criteria that are essential to ensuring public health and safety;
- Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable engineering LORS; and
- Conditions of Certification proposed by staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable engineering LORS.

SETTING

Southern California Public Power Authority (SCPPA) proposes to construct and operate a nominally rated 328 megawatt natural gas fired combined cycle power plant known as the Magnolia Power Project (MPP). The project will be located at the site of the existing City of Burbank Power Plant, which is located in the City of Burbank, Los Angeles County. The site will occupy approximately 3 acres of the existing 23 acre power plant site. For more information on the site and related project description, please see the **Project Description** section of this document. References to "the City" and "the County" designate the City of Burbank and Los Angeles County, respectively. Additional engineering design details are contained in the Application for Certification (AFC) and the AFC Appendices A though E (MPP 2001a).

The site lies in seismic zone 4, the zone of greatest seismic shaking in the United States. Engineering design information is presented in the AFC section 5.3 and Appendices A and B (MPP 2001a).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in Table 7.1-1 of the AFC (MPP 2001a) and the Data Adequacy Responses (MPP 2001c). Some of these LORS include the California Building Code (CBC) and standards promulgated by the American National Standards Institute (ANSI), the American Society of Mechanical Engineers (ASME), the American Society for Testing and Materials (ASTM), and the American Welding Society (AWS). The following appendices, included in the AFC, describe the applicable LORS and design standards for each engineering discipline (MPP 2001a):

- Appendix A - Foundations and Civil Engineering Design Criteria
- Appendix B – Structural and Seismic Engineering Design Criteria
- Appendix C - Mechanical Engineering Design Criteria
- Appendix D – Control Systems Engineering Design Criteria
- Appendix E – Electrical Engineering Design Criteria

ANALYSIS

The basis of this analysis is the applicant's proposed design and construction methods and the list of engineering LORS and design criteria set forth in the AFC.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as an onsite natural gas pipeline, onsite water supply and discharge pipelines, and onsite underground electric transmission lines. The applicant proposes to use accepted industry standards (see AFC Appendices A through E for a representative list of applicable industry standards), design practices, and construction methods in preparing and developing the site. Staff concludes that the

project, including its linear facilities, will likely comply with all applicable site preparation LORS, and proposes Conditions of Certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly to repair or replace, that require a long lead time to repair or replace, or that are used for the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment will be identified through compliance with proposed Condition of Certification **GEN-2** (below).

The AFC contains lists of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable engineering LORS, and that staff believes are essential to ensuring that the project is designed in a manner that protects public health and safety.

The project shall be designed and constructed to the 1998 edition of the California Building Code (CBC), and other applicable codes and standards in effect at the time design and construction of the project actually commence. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 1998 CBC is in effect, the 1998 CBC provisions, identified herein, shall be replaced with the applicable successor provisions.

Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff has included Proposed Condition of Certification **STRUC-1** (below), which in part requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction.

NATURAL GAS PIPELINE

A short, onsite, high pressure, natural gas pipeline and a new natural gas metering and regulating station are proposed for construction. The new line will connect to an existing Southern California Gas Company line either on-site, or adjacent to the site. The existing and proposed lines will be operated and maintained in accordance with U.S. Department of Transportation (DOT), Title 49, Code of Federal Regulations (CFR) Chapter 1, Part 192 "Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards," and the California Public Utilities Commission, General Order 112-E (CPUC GO 112-E). Compliance with these requirements will help reduce the likelihood of possible pipeline rupture by ensuring proper operation and maintenance of the existing and proposed line segments. Therefore, no mitigation beyond a pipeline operated and maintained to applicable regulations is necessary.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and ensure that all facility design Conditions of Certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegates typically include the local building official and/or independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff will invite the local building authority, either the City or the County, or a third party engineering consultant, to act as CBO for the project. When an entity has been identified to perform the duties of CBO, Energy Commission staff will complete a Memorandum of Understanding (MOU) with that entity that outlines its roles and responsibilities and those of its subcontractors and delegates.

Staff has developed proposed Conditions of Certification to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities and qualifications of the applicant's engineers responsible for the design and construction of the project (proposed Conditions of Certification **GEN-1** through **GEN-8**). Engineers responsible for the design of the civil, structural, mechanical, and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations, and specifications submitted to the CBO. These conditions require that no element of construction subject to CBO review and approval shall proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, these conditions are written to require that no element of construction of permanent facilities subject to CBO review and approval that would be difficult to reverse or correct may proceed without prior approval of plans by the CBO. For those elements of construction that are not difficult to reverse and are allowed to proceed without approval of the plans, the applicant shall bear the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's plan review and approval process.

FACILITY CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from “mothballing” to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe, and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of the following items:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans, and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. Staff has proposed general conditions (see the **General Conditions**) to ensure that these measures are included in the Facility Closure plan.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

There have been no public or agency comments related to Facility Design.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The laws, ordinances, regulations, and standards (LORS) identified in the AFC and supporting documents are those applicable to the project.

2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.

4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the **General Conditions** portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

RECOMMENDATIONS

Energy Commission staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;

2. The project be designed and built to the 1998 CBC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review); and

3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction, and Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

CONDITIONS OF CERTIFICATION

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

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

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

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

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

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	1
CT Accessory Packages (Mechanical, Electrical, and Starter) Foundations and Connections	1 Lot
CT Inlet and Filter Structure, Foundation and Connections	1
Combustion Turbine Generator (CTG) Foundation and Connections	1
CTG CO_2 Fire Protection Skid Foundation and Connections	1
Heat Recovery Steam Generator (HRSG) Structure, Foundation and Connections	1
HRSG Exhaust Stack, Foundation and Connections	1
HRSG Transition Duct Burner and Forced Draft Structure, Foundations and Connections	1
HRSG Blowdown Tank Foundation and Connections	1
Selective Catalytic Reduction Unit Structure, Foundation and Connections	1
Steam Turbine Generator (STG) Foundation and Connections	1
STG Building Structure, Foundation and Connections	1
STG Lube Oil Skid Foundation and Connections	1
Condenser Support Structures, Foundations and Connections	1 Lot
Fin Fan Cooler Support Structures, Foundations and Connections	1 Lot
Pipe and Cable Way Structures, Foundations and Connections	1 Lot
4,160V Auxiliary Transformer Foundation and Connections	1
69KV Step Up Transformer Foundations and Connections	2
Switchgear Equipment Foundations and Connections	1 Lot
Power Distribution Center Foundations and Connections	1 Lot
Natural Gas Filter/Separation Foundations and Connections	1 Lot

Equipment/System	Quantity (Plant)
Natural Gas Separator/Heater Foundations and Connections	1 Lot
Natural Gas Compressor Foundations and Connections	2
Natural Gas Metering and Regulating Station Foundations and Connections	1 Lot
All Building Structures, Foundations and Connections (e.g. Cooling Tower Electrical Building, Fuel Gas Compressor Building, Administration Building Expansion, Control Building Expansion, etc.)	1 Lot
Tank – Ammonia Storage Foundation and Connections	1
Tank – Various Chemical Foundations and Connections	1 Lot
Tank – Oily Water Separator Foundation and Connections	1
Tank – Condensate Foundation and Connections	1
Tank – Demineralized Water Foundations and Connections	2
Pump – Boiler Water Feed Pump Foundations and Connections	1 Lot
Pump – Closed Cycle Cooling Water Foundation and Connections	1
Pump – Condensate Pump Foundations and Connections	2
Pump – HP/IP Feed Water Pump Foundations and Connections	2
Pump – Condenser Mechanical Vacuum Pump Foundations and Connections	2
Pump – Circulating Water Pump Foundations and Connections	3
Ammonia Injection Skid Foundation and Connections	1
Air Compressor Foundations and Connections	1 Lot
Waste Water Dechlorination Facility Foundations and Connections	1 Lot
Heat Exchanger – Closed Cycle Cooling Water Foundation and Connections	1Lot
Pipeline – Water Supply and Discharge	1 Lot
Pipeline – Natural Gas	1
Potable Water Systems	1 Lot
Drainage Systems (including sanitary, storm drain, and waste)	1 Lot
Building Energy Conservation Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
High Pressure and Large Diameter Piping	1 Lot
HVAC and Refrigeration Systems	1 Lot
Switchyard and Buses	1 Lot
Electrical Duct Banks, Structures, Foundations and Connections	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be

negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 1998 CBC [Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

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

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

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

The RE shall:

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

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

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

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; and C) an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: D) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

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

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

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

A: The civil engineer shall:

1. Review the Foundation Investigations Report, Geotechnical Report or Soils Report prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;
2. Design, or be responsible for design, stamp, and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and
3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

1. Review all the engineering geology reports;
2. Prepare the Foundation Investigations Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [1998 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations];
3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33; Section 3317, Grading Inspections; (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and
4. Recommend field changes to the civil engineer and RE.

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

C: The engineering geologist shall:

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

2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33; Section 3317, Grading Inspections; (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both).

D: The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with engineering LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications and calculations.

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

F: The electrical engineer shall:

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

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

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

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

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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

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

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

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required [1998 CBC, Chapter 1, Section 108.4, Approval Required;

Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections]. The project owner shall retain one set of approved engineering plans, specifications and calculations at the project site or at another accessible location during the operating life of the project [1998 CBC, Section 106.4.2, Retention of Plans].

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next Monthly Compliance Report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing final approved engineering plans, specifications and calculations as described above, the project owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such documents.

CIVIL-1 The project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils report, Geotechnical Report or Foundation Investigations Report required by the 1998 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations].

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next Monthly

Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

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

Verification: The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

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

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO and the CPM [1998 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

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

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

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

The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

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

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

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

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations and other required documents of the designated major structures at least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents]; and
4. Ensure that the final plans, calculations and specifications clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in **Facility Design Table 1** of Condition of Certification **GEN-2** above,

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

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

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

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

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

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

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

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

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

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

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **Facility Design Table 1**, Condition of Certification **GEN-2**, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 1998 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but not be limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);

- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Specific City/County code.

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

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 1**, Condition of Certification **GEN-2** above, the project owner shall submit to the CBO for design review and approval the final plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

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

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

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all

of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

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

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

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

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

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 1998, Section 106.3.2, Submittal documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations and substations) are

handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

A. Final plant design plans to include:
   1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and
   2. system grounding drawings.

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

C. The following activities shall be reported to the CPM in the Monthly Compliance Report:
   1. Receipt or delay of major electrical equipment;
   2. Testing or energization of major electrical equipment; and
   3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

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

REFERENCES

Magnolia Power Plant. MPP 2001a. Application for Certification and request for six-month review process. Submitted to the California Energy Commission on May 14, 2001.

Magnolia Power Plant. MPP 2001c. Data Adequacy Responses, Magnolia Power Project (01-AFC-6). Submitted to the California Energy Commission on September 4, 2001.

GEOLOGY AND PALEONTOLOGY

Testimony of Dr. Dal Hunter

INTRODUCTION

The geology and paleontology section discusses the proposed project's potential impacts regarding geological hazards, geological and paleontological resources, and surface water hydrology. The purpose of this analysis is to verify that the applicable laws, ordinances, regulations, and standards (LORS) have been identified and that the project can be designed and constructed in accordance with all applicable LORS, and in a manner that protects environmental quality and assures public health and safety. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts to significant geological and paleontological resources, and surface water hydrology during project construction, operation and closure. The section concludes with staff's proposed monitoring and mitigation measures with respect to geological hazards, geological, and paleontological resources and surface water hydrology, with the inclusion of seven Conditions of Certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The applicable LORS are listed in sections 8.14, 8.15 and 8.16 of the AFC (MPP 2001a). A detailed description of the LORS for surface water hydrology is presented in the **Water Resources** section of the staff assessment. A brief description of the LORS for paleontological resources, and geological hazards and resources follows.

FEDERAL

The proposed Magnolia Power Project (MPP) is not located on or adjacent to federal property. There are no federal LORS for geological hazards and resources or grading for the proposed project. The Federal Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 *et seq*.; 34 Stat. 25), in part, protects paleontological resources from vandalism and unauthorized collection on federal land. The National Environmental Policy Act of 1969, as amended, requires analysis of potential environmental impacts to important historic, cultural and natural aspects of our national heritage (42 United States Code, Sections 4321 through 4347; 40 Code of Federal Regulations, Section 1502.25).

STATE AND LOCAL

The California Building Code (CBC) 1998 edition is based upon the *Uniform Building Code* (*UBC*), 1997 edition, which was published by the International Conference of Building Officials. The *CBC* is a series of standards that are used in investigation, design (Chapters 16 and 18) and construction (including grading and erosion control; Appendix Chapter 33). The *CBC* supplements the grading and construction requirements of the *UBC*.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures (SVP 1994) is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by The Society of Vertebrate Paleontology (SVP), a national organization.

ENVIRONMENTAL SETTING

Energy Commission staff toured the site on October 29, 2001 prior to the Informational Hearing. The MPP is located on an existing 23-acre power plant site in Section 11, Township 1 north, Range 14 west, in Burbank, California. The existing power generating plant produces about 226 megawatts (MW) and has been owned and operated by the City of Burbank since 1941. Two of the generating units are decommissioned and two are on stand-by. Changes proposed by the MPP would result in a nominal increase in output of 328 MW (MPP, 2001a).

The MPP site is located at 164 West Magnolia Boulevard, about 1/8 of a mile west of Interstate 5. Current site access is from either Magnolia Boulevard and through a South Gate entrance off of Olive Avenue. The facility also has additional emergency ingress/egress through three gates located along Lake Street. The northeast property boundary is the Burbank Western Channel, while the southeast boundary is Olive Avenue. The existing site is surrounded by industrial or commercial property and sits at an elevation of 560 feet above mean sea level. The site is essentially flat but slopes very slightly to the southeast. Surface water drainage is collected by engineered swales and storm drains, and discharged to the north into the Burbank Western Channel. Most of the existing 23-acre property is occupied by generating/cooling equipment, buildings, pavement or storage yards with little open space. The MPP will occupy about 3 acres made available by demolition of Magnolia Generating Units 1 and 2, which have been decommissioned.

The proposed MPP is situated in the eastern end of the San Fernando Basin, a portion of the Transverse Range Geomorphic province in Southern California (Norris and Webb, 1990). This province is one of the most seismically active areas of the state and consists of east-west trending mountain ranges separated by a number of structurally controlled basins, including the San Fernando Basin. The eastern portion of the Basin lies between the Santa Monica Mountains to the south and the Verdugo Mountains to the north. The San Fernando Basin is underlain by a thick sequence of unconsolidated, mostly marine sediments. A group of active faults, including the San Andreas, lie within a 30-mile radius of the MPP. No faults of any age are documented as crossing the project and the area does not lie within an Alquist-Priolo Special Studies Zone. The

project geotechnical investigation (URS, 2001) found ground water at a depth of about 100 feet.

ANALYSIS AND IMPACTS

GEOLOGICAL HAZARDS

Faulting and Seismicity

At least 14 active earthquake faults or segments of faults lie within a 30-mile-radius of the site, with many more within a 50-mile-radius. The five closest faults to the MPP site are:

FAULT NAME	Distance from MPP	Maximum Credible Earthquake	CBC Classification
Verdugo-Eagle Rock	1.2 miles	6.7	B
Santa Monica Mountains	4 miles	7.2	B
Sierra Madre	5 miles	7.1	B
Northridge Hills	8 miles	6.9	B
Puente Hills	8 miles	6.5	B

The *CBC* (1998) classifies active faults as A, B or C on the basis of slip rate and potential magnitude. Type A faults, such as the San Andreas Fault System, are those with an average annual slip rate greater than 5 mm per year and the potential to generate a moment magnitude (M_w) earthquake of at least 7.0. Type C faults are those with a slip rate of 2 mm or less per year and a maximum moment earthquake of less than 6.5. Type B faults, the largest grouping, are all active faults not defined as Type A or C.

The well-known and very active San Andreas fault system lies bout 28 miles northeast of the site and is thought to be capable of producing a magnitude 8.0 earthquake. The Newport-Inglewood fault, thought to be the second-most active structure in southern California, lies about 10 miles south-southwest of the City of Burbank. Numerous earthquakes in historic time have been recorded on or assigned by geologic evidence to faults lying within 30 miles of the MPP parcels (Ziony and Jones, 1989). While any one of the faults presented above, and many others, could cause ground shaking at the MPP site, there are no known faults of any age or activity level crossing the site, or in fact, located less than one mile from the MPP. The site does not lie within an Alquist-Priolo Special Studies Zone (Hart, 1997).

As is typical for most of southern California, ground shaking from an earthquake is a significant geologic hazard at the MPP site, even though ground rupture is probably not. Mapping by the California Division of Mines and Geology (CDMG, 1996) indicates that there is a 10 percent probability that a peak ground acceleration (PGA) of 0.60 to 0.70g will be exceeded in any 50-year interval. The applicant (URS, 2001) conducted a detailed geotechnical investigation for the site that included both deep (100 feet) borings and down-hole measurement of shear wave velocities. The measured shear wave

velocities demonstrate that the 1998 *California Building Code (CBC)* seismic soils profile is S_D. Using *CBC* methodology they found that the Verdugo fault system governs seismic design with a PGA of 0.53g. The geotechnical consultant also performed a probabilistic assessment of seismic shaking. In this evaluation they estimated that a PGA of 0.60 had a 10 percent probability of being exceeded in a 50-year period and that a PGA of 0.74 had a 2 percent chance of being exceeded in any 50-year interval. These values are equivalent to recurrence intervals of 475 years and 950 years, respectively. The current *CBC* is the standard adopted by the California Energy Commission such that no more stringent design criteria are required. Seismic concerns will be addressed as a result of proposed Condition of Certification **GEN-1**, included in the **Facility Design** section of this Final Staff Assessment (FSA). Proper design in accordance with this condition should adequately mitigate seismic hazards to the current standards of practice.

Ground Rupture, Liquefaction, Hydrocompaction, Landslides, Subsidence, Expansive Soils, and Flooding

As previously discussed, the potential for surface rupture at the MPP site is considered low, due to the distance from any known active faults. Seismic Hazard Zone mapping by the CDMG (1999) for the Burbank 7-1/2 minute quadrangle indicates that the MPP site, and the existing power plant, lie within an area with a "potential for permanent displacements" as the result of liquefaction. Liquefaction is a condition in which a cohesionless or even slightly plastic soil may lose shear strength due to a sudden increase in pore water pressure. Four of the parameters used to assess the potential for liquefaction are the density, depth to groundwater, texture, and the peak horizontal ground acceleration estimated for the site. Borings by the applicant's geotechnical consultant (URS, 2001) indicate that the ground water table is sufficiently deep that both liquefaction and seismically induced lateral spreading would be negligible. Using the standard and accepted method of Tokimatsu and Seed (1987) the geotechnical consultant calculated that a ground surface settlement of about ¼-inch would occur as a result of a PGA of 0.53. Settlements of this magnitude would not be considered significant so the seismic settlement hazard is low.

Certain types of clay soils will shrink or swell with changes in available moisture. Such soils, generally termed expansive clays, result in millions of dollars in damage to civil improvements every year. Other types of soils, most commonly fine-grained sand and silts deposited in flash flooding-type environments, are both of low density and weakly cemented by soluble salts. Such soils, termed hydrocollapsible, tend to consolidate severely under foundation loads, particularly with the application of moisture. Based on the soils borings and testing performed by the applicant, neither expansive nor collapsible soils appear to be a potential hazard on this site.

Another, more regional, ground movement hazard affecting some sites is subsidence. This hazard is the result of fluid withdrawal, most commonly water but also petroleum and even natural gas. The magnitude of subsidence is normally measured in feet rather than inches and in rare cases can be catastrophic to civil improvements. Most commonly the subsidence is over such an area that the relatively localized developments simply settle uniformly with little damage. The same is not always true

for buried pipelines. There is documentation or suggestion of subsidence at the proposed MPP site.
The highest soils-related risk in this site is the presence of uncontrolled (no documentation of material density or quality) fill at the existing City of Burbank Power Plant. This fill was placed in the former course of the Burbank Western Channel during initial grading of the area and is as much as 18 feet deep. Failure to properly mitigate this fill, as described in the geotechnical investigation (URS, 2001), could result in unacceptable levels of total and differential settlement.

The Federal Emergency Management Agency (FEMA) has mapped the MPP site as lying within Flood Zone C. Flood Zone C is outside the 500-year flood, such that the potential for surface flooding from storm water is considered to be low. The project site does lie within the flood inundation area that would result from the catastrophic failure of the Hansen Dam, which is located about 7 miles upstream of the MPP. Such a failure would likely be the result of an earthquake. Since the Hansen Dam is a flood control structure, impounding water only during very intense storms, the probability of an earthquake occurring while the dam is full or nearly full is very low.

Conditions of Certification **GEN-2** and **CIVIL-1**, included in the **Facility Design** section of this FSA, should mitigate the above hazards to a less than significant level.

Landslides

Because the site and surrounding area are flat, there is no potential for landslides under either static or earthquake conditions. No permanent slopes will be required by project construction so that post-construction slope stability is also not an issue. Temporary slopes excavated during construction, including trenches, are always stability concerns and must be designed and constructed with applicable federal, state and local regulations. The applicants geotechnical report (URS, 2001) provides guidelines for slope stability and shoring, as required. Condition of Certification **GEN-2**, included in the **Facility Design** section of this FSA, would address landslides; however, the site topography dictates a less than significant hazard.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The CDMG (1979; 1987) has designated the MPP site as lying within Mineral Resources Zone 2 (MRZ-2). Zones designated as MRZ-2 are defined as “areas where adequate information indicates that significant mineral deposits are present, or where it is judged that high likelihood exists for their presence.” The report also recognizes, however, that the site is within an “existing urbanized area.” The proposed MPP will be located within a relatively small portion of the site of an existing power plant that has been operational since 1941. There are no known sand and gravel aggregate resources on or near the site, and soils exploration performed by the applicant (MPP, 2001a; URS, 2001) does not suggest that high quality aggregates are present. There are no other known mineral resources throughout the site. There are no known gas or oil fields near the project and the site does not overlie a known oil or gas field (CDOGGR, 2001).

Energy Commission staff has reviewed the Paleontological Resources technical report (MPP, 2001a, Appendix K and Section 5.8). No paleontological resources have been

documented at the MPP site. Only one significant paleontological find has occurred within a five-mile radius of the site. The proposed MPP site has been severely disturbed by placement of up to eighteen feet or more of artificial fill, structures and pavements. Underlying native soils most likely consist of a veneer of young (Holocene-age or later) sediments that are considered to be of limited paleontological interest. Deeper materials are thought to consist of older (Quaternary-age) alluvium overlying Quaternary sediments at depth. The Quaternary-age sediments are likely too deep to be disturbed by construction activities at the MPP site, with the possible exception of deep foundations, which would disturb only very localized areas. The overlying older alluvium materials have been assigned a moderate to high sensitivity rating for any excavations beneath existing asphalt and artificial fills. The off-site laydown/parking areas and temporary use sites are given the same ratings in the event that any excavation should extend below the level of existing fill materials. Energy Commission staff has proposed Conditions of Certification **PAL-1** through **PAL-7** that will enable the applicant to mitigate impacts upon paleontological resources, to a less than significant level, should they be encountered during construction, operation, and/or closure of the project.

SURFACE WATER HYDROLOGY

The average annual rainfall, measured in the project area, is reportedly about 15 inches (MPP, 2001a). As is typical for southern California, this rainfall comes primarily in the winter and spring months, supplemented by infrequent, sporadic but intense thunderstorms. The project site lies outside the 500-year flood zone, as designated by FEMA (1999).

The existing City of Burbank power plant site, on which the proposed MPP will occupy 3 acres, is fully developed and entirely paved. Storm run-off at the existing plant is collected through a system of drop-inlets and subsurface drain pipes that feed to a common 36-inch storm drain line discharging into the Burbank Western Channel. The MPP is expected to control surface run-off by a combination of site grading and a subsurface drainage system tying into the existing 36-inch storm drain. Condition of Certification **CIVIL-1**, included in the **Facility Design** section of this FSA, along with specific conditions presented under **Water Resources** section of the FSA, are expected to mitigate surface water impacts to less than significant levels.

SITE SPECIFIC IMPACTS

No known geological resources will be impacted by the construction and operation of the project. The confidential Paleontological Resources technical report (MPP, 2001a; Appendix K) assigns ratings of “Moderately to Highly Sensitive” to the geologic units that may underlie the pavement and fill at this site. No vertebrate fossils are known to have been found at the project site. Since the site is covered by pavement and artificial fill, Energy Commission staff believes there is a low probability of encountering paleontological resources. The recommended Conditions of Certification are expected to mitigate potential geologic/paleontologic impacts to less than significant levels.

CUMULATIVE IMPACTS

The MPP lies in an area of no known or likely geologic resources such as minerals, aggregates, oil or natural gas. In the event that paleontological resources are revealed during grading, a mitigation plan will be in place to assure proper protection and recovery.

As a consequence of the above factors, it is staff's opinion that the potential for a significant adverse cumulative impact on paleontological resources, geological resources, or surface water hydrology is unlikely, if the project is constructed according to the recommended Conditions of Certification.

FACILITY CLOSURE

A definition and general approach to closure is presented in the **General Conditions** section of this document. Facility closure activities are not anticipated to impact geological or paleontological resources. This is because no paleontological or geological resources are known to exist at the MPP location. In addition, decommissioning and closure of the power plant should not negatively affect geological or paleontological resources since the majority of the ground disturbed in plant decommissioning and closure would have been disturbed in the construction and operation of the plant. Surface water hydrology impacts will depend upon the closure activities proposed.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Energy Commission staff have received no comments regarding geology, paleontology or surface water from the public or City, County, State, or Federal agencies at this time.

MITIGATION

As mitigation for potential impacts to geological hazards, surface water hydrology and paleontological resources, staff proposes specific Conditions of Certification.

CONCLUSIONS AND RECOMMENDATIONS

The project should have no adverse impact on geological and paleontological resources and surface water hydrology. To assure compliance with applicable LORS for geological hazards and surface water hydrology, staff proposes the Conditions of Certification listed below.

PROPOSED CONDITIONS OF CERTIFICATION

Some of the Conditions of Certification in this section have been changed from the SA based on staff's efforts to standardize Conditions of Certification to the extent feasible based on recent experience in the certification and compliance process. These

changes do not affect the substance of the requirements in the Condition, and the modified Conditions are supported by the analysis outlined in the text above.

General Conditions of Certification with respect to Geology are covered under Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section of this FSA. Conditions of Certification related to paleontological resources are presented below.

PAL-1 The project owner shall provide the CPM with the resume and qualifications of its Paleontological Resource Specialist (PRS) and Paleontological Resource Monitors (PRMs) for review and approval. If the approved PRS or one of the PRMs is replaced prior to completion of project mitigation and report, the project owner shall obtain CPM approval of the replacement.

The resume shall include the names and phone numbers of contacts. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1) institutional affiliations or appropriate credentials and college degree;
2) ability to recognize and recover fossils in the field;
3) local geological and biostratigraphic expertise;
4) proficiency in identifying vertebrate and invertebrate fossils;
5) publications in scientific journals; and
6) the PRS shall have at least three years of paleontological resource mitigation and field experience in California, and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

1) BS or BA degree in geology or paleontology and one year experience monitoring in California; or
2) AS or AA in geology, paleontology or biology and four years experience monitoring in California; or
3) Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: (1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work. (2) At least 20 days prior to ground disturbance, the PRS or project owner

shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM for approval. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties. (3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would normally be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification: (1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings. (2) If there are changes to the footprint of the project, revised maps and drawings shall be provided at least 15 days prior to the start of ground disturbance. (3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner shall submit to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of the Vertebrate Paleontologists (SVP, 1995) and shall include, but not be limited to, the following:

1) Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation will be performed according to the PRMMP procedures;
2) Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and all conditions for certification;
3) A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
4) An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained beds;
5) A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed schedule for the monitoring;
6) A discussion of the procedures to be followed in the event of a significant fossil discovery, including notifications;
7) A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8) Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources; and
9) Identification of the institution that has agreed to receive any data and fossil materials salvaged, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and,
10) A copy of the paleontological conditions of certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for

all project managers, construction supervisors and workers who operate ground disturbing equipment or tools. Workers to be involved in ground disturbing activities in sensitive units shall not operate equipment prior to receiving worker training. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

The Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources. In-person training shall be provided for each new employee involved with ground disturbing activities, while these activities are occurring in highly sensitive geologic units, as detailed in the PRMMP. The in-person training shall occur within four days following a new hire for highly sensitive sites and as established by the PRMMP for sites of moderate, low, and zero sensitivity. Provisions will be made to provide the WEAP training to workers not fluent in English.

The training shall include:

1) A discussion of applicable laws and penalties under the law;
2) For training in locations of high sensitivity, the PRS shall provide good quality photographs or physical examples of vertebrate fossils that may be expected in the area;
3) Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4) Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5) An informational brochure that identifies reporting procedures in the event of a discovery;
6) A Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and
7) A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: (1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow. (2) At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training. (3) If an alternate paleontological trainer is requested by the owner, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval. Alternate trainers shall not conduct training prior to CPM authorization. (4) The project owner shall provide in the Monthly Compliance Report the WEAP copies of the Certification of Completion forms with the

names of those trained and the trainer for each training offered that month. The Monthly Compliance Report shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP, all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall ensure that the PRS notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1) Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter from the PRS and the project owner to the CPM prior to the change in monitoring. The letter shall include the justification for the change in monitoring and submitted to the CPM for review and approval.

2) The project owner shall ensure that the PRM(s) shall keep a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.

3) The project owner shall ensure that the PRS immediately notify the project owner and the CPM of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.

4) For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM immediately (no later than the following morning after the find, or Monday morning in the case of a weekend) of any halt of construction activities.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports. The summary will include the name(s) of PRS or monitor(s) active during the month, general descriptions of training and construction activities, and general locations of excavations, grading, etc. A section of the report will include the geologic units or subunits encountered, descriptions of sampling within each unit, and a list of fossils identified in the field. A final section of the report will address any issues or concerns about

the project relating to paleontologic monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the project shall include a justification in summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submit the summary of monitoring and paleontological activities in the Monthly Compliance Report.

PAL-6 The project owner, through the designated PRS, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in their compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report. The project owner shall be responsible to pay curation fees for fossils collected and curated as a result of paleontological monitoring and mitigation.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the salvaged fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but not be limited to, a description and inventory of salvaged fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated.

Verification: Within ninety (90) days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover.

Certification of Completion of Worker
Environmental Awareness Program

MAGNOLIA POWER PROJECT (DOCKET #01-AFC-06)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on Cultural, Paleontology & Biology Resources for all personnel (i.e. construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand and shall abide by the guidelines set forth in the Program materials. Please include this completed form in your Monthly Compliance Report.

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Cul Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Bio Trainer: _____ Signature:_____ Date: ___/___/____

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POWER PLANT EFFICIENCY

Testimony of Shahab Khoshmashrab

INTRODUCTION

The Energy Commission makes findings as to whether energy use by the Magnolia Power Project (MPP) will result in significant adverse impacts on the environment, as defined in the California Environmental Quality Act (CEQA). If the Energy Commission finds that the MPP's consumption of energy creates a significant adverse impact, it must determine whether there are any feasible mitigation measures that could eliminate or minimize the impacts. In this analysis, staff addresses the issue of inefficient and unnecessary consumption of energy.

In order to support the Energy Commission's findings, this analysis will:

- determine whether the facility will likely present any adverse impacts upon energy resources;
- determine whether these adverse impacts are significant; and, if so,
- determine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality Act Guidelines

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F).

LOCAL

No local or county ordinances apply to power plant efficiency.

SETTING

Southern California Public Power Authority (SCPPA) proposes to construct and operate the 328 MW (nominal maximum output) Magnolia Power Project (MPP) combined cycle merchant power plant to generate peaking, load following and/or base load power, selling energy under contract with the SCPPA Participating Members (the cities of Anaheim, Burbank, Colton, Glendale, and Pasadena) and on the deregulated market (MPP 2001a, AFC §§ 1.1, 1.2, 2.1, 2.2, 2.3). (Note that this nominal rating is based upon preliminary design information and generating equipment manufacturers' guarantees. The project's actual maximum generating capacity may differ from this figure.) The MPP will consist of one General Electric GE 7FA combustion turbine generator with inlet air evaporative cooling system and steam injection producing approximately 181 MW, one multi-pressure reheat type heat recovery steam generator (HRSG) with duct burners, and one condensing-induction type reheat steam turbine generator producing a maximum of 147 MW, arranged in a one-on-one combined cycle train, totaling approximately 328 MW. The gas turbine and HRSG will be equipped with dry low-NOx combustors and Selective Catalytic Reduction to control air emissions (MPP 2001a, AFC §§ 3.4.3.1, 3.4.3.2, 3.4.3.3, 3.4.9). Natural gas will be delivered from the Southern California Gas Company (SoCalGas) through the existing supply piping near the plant site (MPP 2001a, AFC §§ 1.3.4, 3.4.6, 3.7.2, 4.2.3). Power from the MPP will be transmitted via the existing Olive Switchyard located on the City of Burbank (COB) power plant property, the existing COB transmission system, and the Los Angeles Department of Water and Power (LADWP) Receiving Station E (MPP 2001a, AFC §§ 1.1, 1.2, 3.1).

ANALYSIS

ADVERSE IMPACTS ON ENERGY RESOURCES

The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient and unnecessary consumption of fuel or energy.

Project Energy Requirements And Energy Use Efficiency

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. The MPP will burn natural gas at a nominal rate of 44.7 billion Btu per day lower heating value (LHV) (MPP 2001a, AFC § 5.2.4.2.1). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 55 percent LHV (MPP 2001c, Figure EFF-1A). This can be compared to the average fuel efficiency of a typical 1960s-era utility company baseload power plant at approximately 35 percent LHV. Also, in relation to simple cycle peaking

power plants with fuel efficiency of about 38 percent LHV, the fuel efficiency of the proposed combined-cycle MPP compares favorably. As will be seen below, the project's fuel efficiency compares favorably to other alternative technologies.

Adverse Effects On Energy Supplies And Resources

The applicant has described its sources of supply of natural gas for the project (MPP 2001a, AFC §§ 1.3.4, 3.4.6, 3.7.2, 4.2.3). Natural gas for the MPP will be supplied from SoCalGas through the existing supply piping near the plant site. The SoCalGas system is capable of delivering the required quantity of natural gas to the MPP. Furthermore, the SoCalGas natural gas supply infrastructure is extensive, offering access to vast reserves of gas. This source represents far more gas than would be required for a project this size. Energy Commission predictions are that natural gas supplies will be adequate for many years into the future. It is therefore highly unlikely that the project could pose a substantial increase in demand for natural gas in California.

Additional Energy Supply Requirements

Natural gas fuel will be supplied to the project via the existing supply line near the plant site (MPP 2001a, AFC §§ 1.3.4, 3.4.6, 3.7.2, 4.2.3.1). Various large and diverse gas supplies and conveyance systems are currently available for supplying natural gas to the MPP and further improvements are anticipated (MPP 2001a, AFC § 4.2.3.1). Fuel availability for the proposed project is considered to be adequate. There is no real likelihood that the MPP will require the development of additional energy supply capacity.

Compliance With Energy Standards

No standards apply to the efficiency of the MPP or other non-cogeneration projects.

Alternatives To Reduce Wasteful, Inefficient And Unnecessary Energy Consumption

The MPP could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.

Project Configuration

The MPP will be configured as a combined cycle power plant, in which electricity is generated by one gas turbine, and additionally by a reheat steam turbine that operates on heat energy recuperated from the gas turbine's exhaust (MPP 2001a, AFC §§ 1.3.2, 3.4.1, 3.4.3.2). By recovering this heat, which would otherwise be lost up the exhaust stack, the efficiency of any combined cycle power plant is increased considerably from that of the gas turbine or steam turbine operating alone. Such a configuration is well suited to the large, steady loads met by a baseload plant, intended to supply energy efficiently for long periods of time.

The SCPPA proposes to use inlet air evaporative coolers, steam injection power augmentation capability, HRSG duct burner (re-heaters), dual-pressure HRSG and

steam turbine units and circulating water system (MPP 2001a, AFC §§ 1.3.2, 3.1, 3.4.1, 3.4.3). Staff believes these features contribute to meaningful efficiency enhancement to the MPP.

The MPP includes HRSG duct burners, partially to replace heat to the steam turbine cycle during high ambient temperatures when combustion turbine capacity drops, and partially as added power. Duct firing also provides a number of operational benefits, such as load following and balancing and optimizing the operation of the steam turbine cycle.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The F-class gas turbine to be employed in the MPP represents some of the most modern and efficient machines now available. The applicant will employ one large advanced model General Electric GE 7FA gas turbine generator in a one-on-one combined cycle power train (MPP 2001a, AFC §§ 1.1, 1.3.2, 3.1, 3.4.1). This GE 7FA configuration is nominally rated at 263 MW and 56.0 percent efficiency LHV at ISO conditions[1] (GTW 2000).

One possible alternative machine is the Alstom Power ABB KA24, a gas turbine nominally rated at 260 MW with a slightly higher efficiency rated at 56.5 percent LHV at ISO conditions (GTW 2000).

Any differences among the GE 7FA, ABB KA24, and W501F in actual operating efficiency will be insignificant. Selecting among these machines is thus based on other factors, such as generating capacity, cost, commercial availability, and ability to meet air pollution limitations.

Efficiency Of Alternatives To The Project

The project objectives include generating efficient energy for California's electricity market and locating the generating station near the center of demand for maximum efficiency and system benefit (MPP 2001a, AFC §§ 2.2, 2.2.1). The MPP proposes to accomplish these objectives by employing the most efficient technologies available today that are feasible for the project and by locating the generating center near the center of demand, at the existing COB power plant site. The primary reasons for choosing the proposed technologies to be employed in the MPP in lieu of the alternatives include commercial availability, ability to reduce air emissions, desirable generating capacity, and cost. Staff believes that combined cycle technology utilizing F-class combustion turbine generator, dry low NOx combustors and Selective Catalytic Reduction, inlet air evaporative cooling system, and water cooled evaporative cooling tower are the most efficient technologies for large power plants wishing to compete in the power market.

[1] International Standards Organization (ISO) standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure (equivalent to sea level).

Alternative Generating Technologies

Alternative generating technologies for the MPP are considered in the AFC (MPP 2001a, AFC § 3.11.3). $SCONO_X$™ air emission control technology, natural gas, coal, oil, solar, wind, hydroelectric, biomass, and geothermal technologies were all considered. One of the project's stated objectives is to generate efficient energy near the center of demand (MPP 2001a, AFC § 2.2). Given the project objectives, location and air pollution control requirements, staff agrees with the applicant that only natural gas-burning technologies are feasible.

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel-efficient machinery.

Capital cost is also important in selecting generating machinery. Recent progress in the development of large, stationary gas turbines, aided by the incorporation into these machines of technological advances made in the development of aircraft (jet) engines, has created a situation in which several large manufacturers compete vigorously to sell their machines. This, combined with the cost advantages of assembly line manufacturing, has driven down the prices of these machines. Thus, the power plant developer can purchase a turbine generator that not only offers the lowest available fuel costs, but at the same time sells for the lowest per-kilowatt capital cost.

One possible alternative to an F-class gas turbine is a G-class machine, such as the Siemens-Westinghouse 501G gas turbine generator, which employs partial steam cooling of the combuster-to-turbine transition duct to allow slightly higher temperatures, yielding slightly greater efficiency. The 501G is still relatively new; the first such machine only recently began operation at the McIntosh plant in Florida owned by Lakeland Electric and Water, and at PG&E National Energy's Millennium plant in Charlton, Massachusetts (GTW 2001, p. 45). Given the minor efficiency improvement promised by the G-class turbine and the lack of a proven track record for the 501G, the applicant's decision to purchase F-class machines is a reasonable one.

Another possible alternative to the F-class gas turbine is an H-class machine with a claimed fuel efficiency of 60 percent LHV at ISO conditions (GTW 1999b). This high efficiency is achieved through higher firing temperature, made possible by cooling the initial turbine stages with steam instead of air. This first Frame 7H application was expected to enter service at the end of 2003 at Sithe Energy's Independence Station in Scriba, New York, but the project has been cancelled. However, the first Frame 9H version of this system is expected to make its global debut at a power plant in South Wales, U.K. with startup scheduled this summer (Power 2002, p. 22). Given the lack of proven performance, staff agrees with the applicant's decision to employ F-class machines.

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods. The three commonly used techniques are the evaporative cooler, the fogger and the chiller. These devices increase power output by cooling the gas turbine inlet air. A mechanical chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An absorption chiller uses less electric power, but necessitates the use of a substantial inventory of ammonia. An evaporative cooler or a fogger boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The difference in efficiency among these techniques is relatively insignificant.

The applicant proposes to employ inlet air evaporative cooler (MPP 2001a, AFC § 3.4.3.1). Given the climate at the project site and the relative lack of clear superiority of one system over the other, staff agrees that the applicant's approach will yield no significant adverse energy impacts.

In conclusion, the project configuration (combined cycle) and generating equipment (F-class gas turbines) chosen appear to represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

Staff knows of three major nearby natural gas-fueled power plant projects. These are the 1056 MW Mountainview Power Plant Project (00-AFC-2), the 450 MW Huntington Beach Modernization Project (00-AFC-13), and the 630 MW El Segundo Power Redevelopment Project (00-AFC-14). Also, at the MPP site, are the existing Olive and Magnolia units (226 MW total output) that are either utilized at low capacity, or are standby units used as peaking reserves (MPP 2001a, §§ 1.3.2, 3.7.2, 3.8.4, 3.11.2, 5.18.1). These units and the above projects hold the potential for cumulative energy consumption impacts when aggregated with the MPP. Due to the robust nature of the deregulated market for natural gas, and to the active participation of the pipeline companies that compete to serve California, staff believes there will be no cumulative impacts on fuel supplies due to the MPP.

Staff further believes that construction and operation of the project will not bring about indirect impacts in the form of additional fuel consumption that would not have occurred but for the project. The older, less efficient power plants, such as the existing Units 1 and 2 (proposed to be replaced by the MPP), consume more natural gas per megawatt to operate than the new, more efficient plants such as the MPP. California's electric power will be generated by those power plants that bid most successfully to sell their output to the competitive market. Since no significantly more efficient power plants are envisioned to compete against the MPP, no direct impacts are likely.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, will not influence, nor will it be influenced by, project efficiency. Any efficiency impacts due to closure of the project would be on the electric system as a whole. Yet the vast size of the electric system serving California, the number of generating plants offering to sell power into it, and the existence of the California Independent System Operator to ensure the efficient management of the system, all lend assurance that closure of this facility will not produce significant adverse impacts on efficiency.

CONCLUSIONS AND RECOMMENDATIONS

The MPP, if constructed and operated as proposed, would generate 328 MW (nominal maximum output) of electric power at an overall project fuel efficiency around 55 percent LHV. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources.

No cumulative impacts on energy resources are likely. Facility closure would not likely present significant impacts on electric system efficiency.

From the standpoint of energy efficiency, staff recommends certification of the MPP. No Conditions of Certification are proposed.

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POWER PLANT RELIABILITY

Testimony of Shahab Khoshmashrab

INTRODUCTION

In this analysis, Energy Commission staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because the resulting project would likely not degrade the overall reliability of the electric system it serves (see **Setting** below).

The scope of this power plant reliability analysis covers:

- equipment availability;
- plant maintainability;
- fuel and water availability; and
- power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While the Southern California Public Power Authority (SCPPA) has predicted an availability of above 90 percent for the Magnolia Power Project (MPP) (see below), staff uses the benchmark identified above, rather than the applicant's projection, to evaluate the project's reliability.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the Energy Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). Staff takes the approach that a project's reliability is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system (see **Setting** below).

SETTING

In the regulated monopoly electric industry of past decades, the utility companies assured overall system reliability, in part, by maintaining a "reserve margin." This amounted to having on call, at all times, sufficient generating capacity, in the form of standby power plants, to quickly handle unexpected outages of generating or transmission facilities. The utilities generally maintained a seven- to ten-percent reserve margin, meaning that sufficient capacity was on call to quickly replace from seven to ten percent of total system resources. This margin proved adequate, in part because of the reliability of the power plants that constituted the system.

Now, in the newly restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California Independent System Operator (Cal-ISO), which purchases, dispatches and sells electric power throughout the state. How Cal-ISO will ensure system reliability is currently being determined. Protocols are being developed and put in place that will, it is anticipated, allow sufficient reliability to be maintained under the competitive market system. "Must-run" power purchase agreements and "participating generator" agreements are two mechanisms being employed to ensure an adequate supply of reliable power (Mavis 1998, pers. comm.).

The Cal-ISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the Cal-ISO (Detmers 1999, pers. comm.).

The Cal-ISO's mechanisms to ensure adequate power plant reliability apparently have been devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures may act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants exhibit individual reliability sufficiently lower than this historical level, the assumptions used by Cal-ISO to ensure system reliability will prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone a shakeout period, and the effects of varying power plant reliability are thoroughly understood and compensated for, staff deems it wise to encourage power plant owners to continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

The applicant proposes to operate the 328 MW (nominally rated) Magnolia Power Project (MPP), providing energy and capacity to the owner-members of the Southern California Public Power Authority (MPP 2001a, AFC §§ 1.1, 1.2, 2.2). The project is expected to operate at an overall availability of above 90 percent (MPP 2001a, AFC §§ 4.2.1, 4.2.1.2), and at a capacity factor, over the life of the plant, of 50 to 100 percent of base load (MPP 2001a, AFC § 3.4.9.1).

ANALYSIS

The availability factor for a power plant is the percentage of the time that it is available to generate power; both planned and unplanned outages subtract from its availability. Measures of power plant reliability are based on its actual ability to generate power when it is considered available and are based on starting failures and unplanned, or forced, outages. For practical purposes, reliability can be considered a combination of these two industry measures, making a reliable power plant one that is available when

called upon to operate. Throughout its intended 25-year life (MPP 2001a, AFC § 3.10.2), the MPP will be expected to perform reliably. Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the project and compares them to industry norms. If they compare favorably, staff can conclude that the MPP will be as reliable as other power plants on the electric system, and will therefore not degrade system reliability.

EQUIPMENT AVAILABILITY

Equipment availability will be ensured by use of appropriate quality assurance/ quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems (discussed below).

Quality Control Program

The MPP will be constructed and operated by the SCPPA, whose five members are the cities of Anaheim, Burbank, Colton, Glendale, and Pasadena. The project site is at the existing City of Burbank (COB) power plant. The COB has operated an electrical generating plant at this site since 1941 (MPP 2001a, AFC § 1.1). The MPP will be constructed on the existing site and will be operated by the SCPPA. Considering that the SCPPA has a long history of providing reliable electricity to its customers, it is expected to operate the new MPP reliably (MPP 2001a, AFC §§ 1.4, 4.1.2). Therefore, it is most likely that the SCPPA will implement an appropriate QA/QC program during design, procurement, construction, and operation of the plant. Equipment will be purchased from qualified suppliers, based on technical and commercial evaluations. The project owner will perform receipt inspections, test components, and administer independent testing contracts. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

Equipment Redundancy

A generating facility called on to operate in baseload service for long periods of time must be capable of being maintained while operating. A typical approach for achieving this is to provide redundant examples of those pieces of equipment most likely to require service or repair.

The applicant plans to provide appropriate redundancy of function for the combined cycle portion of the project (MPP 2001a, AFC § 4.2.2, Appendix F). Further, the plant's distributed control system (DCS) will be built with typical redundancy (MPP 2001a, AFC §§ 3.9.2.3, 3.9.2.6, 3.9.2.7, 4.2.2.3). Other balance of plant equipment will be provided with redundant examples (MPP 2001a, AFC § 4.2.2.2, Appendix F), thus:

- two 100 percent condensate pumps;

- two 100 percent boiler feed-water pumps;
- two 100 percent capacity air compressors; and
- redundant closed cooling water pumps and heat exchangers.

With this opportunity for continued operation in the face of equipment failure, staff believes that equipment redundancy would be sufficient for a project such as this.

Maintenance Program

The applicant proposes to establish a plant maintenance program typical of the industry (MPP 2001a, AFC §§ 1.4, 3.9, 4.1.2, 4.2.1). Equipment manufacturers provide maintenance recommendations with their products; the applicant will base its maintenance program on these recommendations. For example, the gas turbine will be scheduled for a week to 10 days per year off-line (at times of low electricity demand) in order to perform annual inspections and cleaning. Every third year, the gas turbine will undergo a hot gas path inspection lasting up to three weeks. Every sixth year, the gas turbine will undergo a major maintenance turnaround that typically lasts at least four weeks. The program will encompass preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. In light of these plans, staff expects that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

For any power plant, the long-term availability of fuel and of water for cooling or process use is necessary to ensure reliability. The need for reliable sources of fuel and water is obvious; lacking long-term availability of either source, the service life of the plant may be curtailed, threatening the supply of power as well as the economic viability of the plant.

Fuel Availability

The MPP will burn natural gas from the Southern California Gas Company (SoCalGas) through the existing supply piping near the plant site (MPP 2001a, AFC §§ 1.3.4, 3.4.6, 3.7.2, 4.2.3). The SoCalGas natural gas system represents a resource of considerable capacity. This system offers access to adequate supplies of gas from sources in California, Southwest, the Rocky Mountains, and Canada (MPP 2001a, AFC § 4.2.3). Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs.

Water Supply Reliability

The MPP will obtain water from the COB potable water distribution system and the Burbank Water Reclamation Plant operated by the Burbank Public Works Department. The reclaimed water will be used as a makeup water source to the facility's evaporative cooling tower. Potable water from the city will be used at the facility during operations as cooling water, service water, and as supply to the cycle makeup treatment system (MPP 2001a, AFC §§ 1.3.5, 3.4.7, 3.7.3, 4.2.4). Staff believes these sources yield sufficient likelihood of a reliable supply of water. For further discussion of water supply, see that portion of this document entitled **Soil and Water Resources**.

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, tsunamis (tidal waves) and seiches (waves in inland bodies of water) will not likely represent a hazard for this project, but flooding and seismic shaking (earthquake) present credible threats to reliable operation (see those portions of this document entitled **Facility Design** and **Geology and Paleontology**).

Seismic Shaking

The site lies within Seismic Zone 4 (MPP 2001a, AFC §§ 1.4, 4.1.1.1, Appendix B.3.1.5); see that portion of this document entitled **Geology and Paleontology**. The project will be designed and constructed to the latest appropriate LORS (MPP 2001a, AFC §§ 1.4, 4.1.1, Appendix B.3). Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

Flooding

The site is relatively flat, with a slight slope running from the north to the south. The existing elevation of the site is approximately 560 feet. The site is in an area determined to be outside the 500-year flood plain (MPP 2001a, AFC §§ 3.3.1, 4.1.1.2). Site grading contours will provide for control of both stormwater drainage and proper channeling of winter and spring runoff flows (MPP 2001a, AFC §§ 3.3.1, 3.5.7, 3.5.9). Staff believes that there are no special concerns with the power plant functional reliability due to flooding events. For further discussion, see that portion of this document entitled **Soil and Water Resources**.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1994 through 1998 (NERC 1999):

For Combined Cycle units (All MW sizes)
Availability Factor = 91.49 percent

The applicant's prediction of an annual availability factor of above 90 percent (MPP 2001a, AFC §§ 4.2.1, 4.2.1.2) appears reasonable compared to the NERC figure for similar plants throughout North America (see above). In fact, the gas turbine that will be employed in the project, the General Electric GE 7FA (MPP 2001a, AFC § 1.1), has

been on the market for several years now, and can be expected to exhibit typically high availability and reliability compared to the older machines that make up the NERC statistics. In addition, control systems, which were once a frequent cause of plant outages, have improved significantly and now include redundant computer-based control systems (MPP 2001a, AFC §§ 3.9.2.3, 3.9.2.6, 3.9.2.7, 4.2.2.3). These state-of-the-art systems have contributed to achieving high plant availability observed in the new power plants such as the proposed MPP.

The applicant's estimate of plant availability therefore appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, cannot impact power plant reliability. Reliability impacts on the electric system from facility closure, should there be any, are dealt with in that portion of this document entitled **Transmission System Engineering**.

CONCLUSION

The applicant predicts an equivalent availability factor of above 90 percent, which staff believes is achievable in light of the industry norm of 91.5 percent for this type of plant. Based on a review of the proposal, staff concludes that the plant will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No Conditions of Certification are proposed.

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TRANSMISSION SYSTEM ENGINEERING

Testimony of S.Arachchige, D.Bucaneg Jr. -PE

INTRODUCTION

The Transmission System Engineering (TSE) analysis provides the basis for the findings in the Energy Commission's Decision relating to the Magnolia Power Project. This staff analysis indicates whether or not the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations, and standards (LORS) required for safe and reliable electric power transmission.

The Southern California Public Power Authority (SCPPA), the applicant, proposes to connect their project, the Magnolia Power Plant (MPP), a nominal 250 megawatt (MW), with peaking capacity of 328 MW to the existing City of Burbank (COB) Olive switchyard at 69 kilovolts (kV). The interconnection will consist of two short 69 kV underground transmission lines within the project site. The output is expected to serve electrical load in the Cities of Anaheim, Burbank, Colton, Glendale, and Pasadena. The applicant indicated the project was expected to be on line in the second quarter of 2004 (MPP 2001a). For purposes of transmission planning the applicant submitted an interconnection study with the Application For Certification.

Under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the action," which may include facilities not licensed by the Energy Commission (Cal. Code of Regs., tit. 14, §15378). Therefore, in addition to its review of the facilities noted above that are under its direct licensing authority, the Energy Commission must identify and evaluate the environmental effect of construction and operation of any new or modified transmission facilities beyond the project's interconnection with the existing transmission system that are required as a result of the power plant addition to the California transmission system. This staff assessment indicates whether or not the applicant has accurately identified all interconnection facilities and conformance with all applicable LORS.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.
- California Public Utilities Commission (CPUC) General Order 128 (GO-128), "Rules for Construction of Underground Electric Supply and Communications Systems," formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation or use of underground electric lines and to the public in general.

- The National Electric Safety Code, 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- North American Reliability Council (NERC)/Western Systems Coordinating Council (WSCC) Planning Standards merge the WSCC Planning Standards into the NERC Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. Certain aspects of the NERC/WSCC standards are either more stringent or more specific than the NERC standards. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WSCC system is based to a large degree on Section I.A of the standards, "NERC and WSCC Planning Standards with Table I and WSCC Disturbance-Performance Table," and on Section I.D, "NERC and WSCC Standards for Voltage support and Reactive Power". These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) and to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines in a right of way and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WSCC 2001).
- North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions; however, the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Reliability Criteria also provide policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid. It also applies when there are any impacts to the Cal-ISO grid due to facilities

interconnecting to adjacent controlled grids not operated by the Cal-ISO (Cal-ISO 2002a).

PROJECT DESCRIPTION

The applicant proposes to construct and operate a nominal 250-megawatt (MW) with peaking capacity of 328 MW, combined-cycle power plant located in the existing City of Burbank (COB) Magnolia Generating Station. The project would consist of the demolition of the remaining components of existing Magnolia Units #1 and #2 and construction of the project on the site subsequent to demolition and removal. The project is located within the City of Burbank and is situated at 164 Magnolia Boulevard, approximately 1/8 mile west of Interstate 5. The site is bordered by industrial properties on all sides. The site is approximately 23 acres in size, and the project requirements are for approximately three acres of the existing 23-acre site.

The power plant would be interconnected to the transmission system through the existing Olive 69 kV switchyard owned and operated by COB. Parallel cable with a minimum of 1,500 kcmil copper (or equivalent) conductor will be utilized for the interconnection. Final ampacity calculations will be performed based on soil substructure, thermal ratings along the line route, and operational design criteria.

EXISTING FACILITIES AND RELATED SYSTEMS

The plant site is located within the existing Magnolia generation station. The project will connect to the existing Olive switchyard of COB and to the Los Angeles Department of Water and Power (LADWP) transmission grid through Receiving Station E.

An interconnection study (IS) was provided with the application for certification. The Cal-ISO has reviewed the IS and commented that there are no impacts on any facilities under Cal-ISO control. The study indicates flow on facilities owned by Southern California Edison (SCE), and as such SCE may review and comment on the findings of the study. The IS provides the basis for the Staff assessment and conditions for certification included herein.

ANALYSIS AND IMPACTS

INTERCONNECTION FACILITIES

The proposed electrical interconnection will employ two 69 kV underground transmission circuits from the proposed project to the existing Olive 69 kV switchyard. The connection involves building a new underground 69 kV circuit for line for approximately 1,380 feet from the combustion turbine generator step up transformer, and approximately 1,240 feet from the steam turbine generator step up transformer.

The radial interconnection will require the following modifications at the Olive Substation.

- Two new bays and all associated equipment are required for the interconnection of the new switchyard from the project.
- Associated protection and communication systems revision and addition as necessary to accommodate plant output and interconnection.

Substation and Switchyard

The proposed project will interconnect with the existing Olive switchyard. The switchyard is located on the site property and in close proximity to the generation project. The interconnection route to the switchyard is adjusted in order to provide clearance for existing equipment.

The Olive 69kV switchyard is arranged in a double-bus, single-breaker configuration with twelve existing bays. A bus tie-breaker separates each double bus section. The existing switchyard will be expanded to the east of the existing facility and the expanded area will measure approximately 118 feet by 93 feet. The expansion will occur behind an existing 12-foot block wall (MPP 2001a, Section 3).

Transmission Line

The proposed interconnection would be provided with two 69 kV circuits. The circuits connect at the project site to the generator step up transformers (GST). One GST is provided for the combustion turbine generator island and one GST is provided for the steam turbine generator island. The interconnection will be underground in a duct system with parallel conductors no smaller than 1,500-kcmil copper (or equivalent). The circuits will be designed and constructed by the applicant to meet all system reliability requirements and all applicable LORS. The line exits the new switchyard to the south, changes direction in various positions to avoid existing equipment and then enters the Olive switchyard to the west (MPP 2001a, Section 3, Figure 3.4-2).

SYSTEM RELIABILITY

Introduction

A system reliability study is performed to determine the effects of connecting a new power plant to the existing electric grid. The study identifies impacts and also ways negative impacts can be minimized or negated. Any new transmission facilities, such as the power plant switchyard, the outlet line, and downstream facilities, required for connecting a project to the grid are considered part of the project and are subject to review during the certification process.

System Reliability Study

A system reliability evaluation determines whether the new project would cause thermal overloads, voltage violations (voltages too high or low), and/or electric system instability (excessive oscillations). In addition to the above analysis, studies may be performed to verify that sufficient reactive power (see Definition of Terms) is available. The reliability evaluation must be conducted for all credible "emergency" conditions. Emergency conditions could include the loss of a single or double circuit line, the loss of a transformer or generator, or a combined loss of these facilities. The IS provides a summary of the modifications necessary for integration of the power generation facility with the electric grid. The criteria used in these evaluations include the WSCC Planning

Criteria, NERC Planning Standards and applicable Cal-ISO reliability criteria. The reliability implications of the project and the need for additional facilities are determined by the IS.

The IS provided by the applicant analyzed the impacts on the electrical grid from interconnection of proposed project. Model analysis and conclusions are based on existing conditions without the project, addition of the project at the appropriate time, and overall plans for system improvement and new generation proposed for the time frame for study purposes. Analysis performed includes normal conditions with all facilities in service, single line and/or equipment outages, multiple equipment outages, short circuit analysis, and stability analysis. Impacts are defined as those conditions where equipment and/or lines are overloaded beyond planning criteria. For the proposed project, the IS was separated into the analysis for a 250 MW and 328 MW output. The IS provided did not include a discussion of short circuit analysis but did indicate such analysis was completed. The IS identified no system impacts for a 250 MW project and identified two impacts with the interconnection of a 328 MW plant (SCCPA 2001a, Appendix Q).

Scope of Reliability Studies

For purposes of planning studies, SCCPA used the 2005 summer peak base case prepared by SCE for use in the SCE 2000 Transmission Assessment. The base case was then modified to account for projects being developed. Supplemental project base cases were developed to test the ability of the system to deliver the project output to the LADWP interconnection point with LADWP under off peak load conditions. These cases analyze the impacts of the project at times where the impacts would be worst case. The studies then provide assessment of the overloads under normal and contingency conditions.

Any impacts associated with the results of the study were broken into a discussion on COB systems and external systems from COB.

The base scenario study provides a basis for analysis that includes assumptions related to planned system improvements and proposed additional generation facilities. The following were assumptions used for the assessment of this project:

- The project was modeled at both 250 MW and 328 MW.
- The addition of the Pastoria 750 MW project.
- The addition of the 560 MW Nueva Azalea Project.
- The addition of an 870 MW project interconnected with the Laguna Bell 230 kV substation.
- An additional 740 MW of generation at Alamitos and Huntington Beach.
- The addition of detailed system models for the Cities of Burbank, Glendale, and Pasadena.
- The addition of 547 MW LADWP generation at Valley.
- The addition of 100 MW LADWP generation at Haynes.
- The addition of 235 MW LADWP generation at Harbor.
- The addition of the 273 MW Florida Power Light Energy wind farm project.

For the studies under LADWP off peak conditions, the following assumptions were included:

- The load on the Burbank system was equal to approximately 60% of the 330 MW peak level in the summer peak scenario.
- Project generation was modeled at 250 and 328 MW.
- Existing generation at the Olive and Magnolia plants was taken off line.
- The Burbank-Glendale ties were open.

Normal (Category A) conditions

Under normal operating conditions, no overloads were identified due to the addition of the proposed project for either internal or external systems.

Contingency (Category B and C) conditions

Under contingency conditions no system overloads were identified due to the addition of a 250 MW project for either internal or external systems.

Under contingency conditions, no system overloads were identified due to the addition of a 328 MW project for external systems.

Under contingency conditions, the following system overloads were identified due to the addition of a 328 MW project for internal systems:

- A 20% overload on one of the Project-Olive interconnection lines was identified with an outage of the other Project-Olive interconnection lines.
- If the Burbank-Glendale 69 kV ties are operated closed, overloads of as much as 19% are noted on the 69 kV facilities supporting the Burbank-Glendale ties for various contingency conditions.

Mitigation

The following mitigation was identified for the impacts described above.

- At maximum generation of 328 MW , each Project-Olive interconnection line would have to be rated with sufficient capacity (greater than 2,000 amps) to mitigate the 20% overload caused by an outage of the other Project-Olive interconnection line.
- At maximum generation of 328 MW, a Remedial Action Scheme (RAS) is necessary to mitigate the 19% overload on the 69 kV facilities supporting the Burbank-Glendale ties when the Burbank-Glendale 69 kV ties are operated in a closed fashion.

Short Circuit Study Results

The applicant prepared the short circuit studies. Results were incorporated in the revised Appendix Q dated July 2001. However, separate short circuit study is being conducted LADWP to ascertain any short circuit impacts on its facilities. SCE completed its short circuit re-study and the mitigation is being negotiated between applicant and SCE. These facilities, SCE and LADWP, are external to the proposed project. Should circuit breaker replacements or upgrades be required, they will occur inside the fence line of the existing substation and will cause no environmental impacts.

Stability Study Results

Dynamic stabilities studies were conducted to determine if the proposed project addition would result in adverse impact on the stable operation of the transmission system. Selected disturbances as outlined in the IS were simulated for this purpose (MPP 2001a, Appendix Q).

The results indicate there were no identified transient stability concerns for integration of the project.

Cal-ISO Review

The Cal-ISO has reviewed the study only for assessment of impacts to the Cal-ISO grid. Discussions with the Cal-ISO indicate that the facilities under Cal-ISO control are not impacted by the project.

Cumulative Impacts

There are cumulative impacts as outlined above for integration of the Magnolia Power Project into the electrical grid. Appropriate mitigation has been established by the IS as part of the overall impact assessment.

ALTERNATIVE TRANSMISSION LINE ROUTES

Because of the proximity of the proposed plant to the existing Olive switchyard and the proposed interconnection is in the project site property, the applicant did not consider alternative transmission line routes (SPPCA 2001a, Section 3.11). The use of underground interconnection circuits was selected as an alternative to overhead construction due to existing and planned facilities at the site. Staff has determined that no interconnection alternatives need to be analyzed for this project.

COMPLIANCE WITH LORS

- The applicant states its intention to comply with CPUC GO-95, CPUC GO-128 and standards for the reliable connection of parallel generating stations connected to participating transmission owners.
- All WSCC Reliability Criteria, Cal-ISO Reliability Criteria, NERC policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system are planned to be met.

Staff concludes that, assuming the applicant complies with the proposed Conditions of Certification, the project will meet the requirements and standards of all applicable LORS.

FACILITY CLOSURE

The parallel operation of generating stations is controlled by the City of Burbank (COB) and Los Angeles Department of Water & Power (LADWP). A ‘Generator Special Facilities Agreement’ between COB and LADWP should be developed to provide backup or other power service during extended periods of non-operation and codify procedures to be followed during parallel operation. Procedures for planned,

unexpected temporary closure and unexpected permanent closure must be developed or verified to facilitate effective communication and coordination between the generating station owner, and Participating Transmission Owner (PTO) to ensure safety and system reliability. This will satisfy the Condition of Certification TSE-5g.

CPUC General Order 95, Rule 31.6 requires that "lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property." Condition of certification **TSE-5a** requires compliance with this rule.

The ability of the above LORS to reasonably assure safe and reliable conditions in the event of facility closure was evaluated for three scenarios: Planned Closure, Unexpected Temporary Closure, and Unexpected Permanent Closure. Planned Closure occurs in a planned and orderly manner such as at the end of its useful economic or mechanical life or due to gradual obsolescence. Under such circumstances the requirement for the owner to provide a closure plan 12 months prior to closure in conjunction with applicable LORS is considered sufficient to provide adequately for safety and reliability. For instance, a planned closure provides time for the owner to coordinate with the PTO[1] to assure (as one example) that the PTO's system will not be closed into the outlet thus energizing the power plant switchyard. Alternatively, the owner may coordinate with the PTO to maintain some power service via the outlet line to supply critical station service equipment or other loads.

Unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly for a short term due to unforeseen circumstances such as a natural or other disaster or emergency. During such a closure the facility cannot insert power into the utility system. Closures of this sort can be accommodated by establishment of an on-site contingency plan (see **General Conditions Including Compliance Monitoring and Closure Plan**). Unexpected permanent closure occurs when the project owner closes the facility suddenly and/or unexpectedly or abandons the facility 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. An on-site contingency plan that is in place and approved by the CPM prior to the beginning of commercial operation of the facilities will be developed to assure safety and reliability (see **General Conditions Including Compliance Monitoring and Closure Plan**).

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No agency or public comments related to the TSE discipline have been referred to TSE staff for this case.

[1] For the Magnolia Project the PTOs are members of the SCPPA. The applicant has identified five members participating in the proposed project.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff concludes that the proposed Magnolia Power Project has impacts on the transmission system which will be mitigated.

1. The project interconnection will be two 69 kV transmission lines with individual step up transformers to the existing Olive 69 kV switchyard. The circuits will be designed and constructed by the applicant to meet all system reliability requirements and all applicable LORS. One new circuit will take off from the combustion turbine generator step up transformer and traverse approximately 1,380 feet to the Olive switchyard (SPPCA 2001a, Section 3). One new circuit will take off from the steam turbine generator step up transformer and traverse approximately 1,240 feet to the Olive switchyard (SPPCA 2001a, Section 3). Conditions of Certification **TSE-1** through **TSE-7** apply to the design, construction and operation of these facilities.
2. Staff concludes there are system impacts associated with the integration of the project to the electrical transmission grid.
   a. If a 328 MW project is built, each Project-Olive interconnection line would have to be rated with sufficient capacity (greater than 2,000 amps) to mitigate the overload caused by an outage of the other Project-Olive interconnection line.
   b. If a 328 MW project is built, a Remedial Action Scheme (RAS) is necessary to mitigate the overload on the 69 kV facilities supporting the Burbank-Glendale ties when the Burbank-Glendale 69 kV ties are operated in a closed fashion.

   Condition of Certification **TSE-5** applies to this conclusion.
3. Staff cannot conclude at this time that short circuit duties will be maintained within current ratings. **TSE-5** assures that short circuit duties will be maintained.
4. The power plant switchyard, outlet lines, and termination are acceptable and will comply with LORS if proposed Conditions of Certification **TSE-1** through **TSE-7** are implemented.
5. The power plant and related facilities will not have an adverse impact on the electrical system if the proposed Conditions of Certification **TSE-1** through **TSE-7** are implemented.

RECOMMENDATIONS

If the Commission approves the Magnolia Power Plant the following Conditions of Certification should be required.

CONDITIONS OF CERTIFICATION FOR TSE

Note: This set of Conditions for Certification (COC) is acceptable with CEC Compliance Group as per Al McCuen. It was coordinated on July 23, 2002.

TSE-1 The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for equipment (see a list of major equipment in **Table 1: Major Equipment** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Equipment

DESCRIPTION
Circuit breakers
Surge arresters
Switchyards
Buses
Underground cables
Disconnect switches
Take off facilities
Overhead lines
Switchyard control building
Step-up transformers
Instrument transformers
Grounding system

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

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

geotechnical or civil and design engineer assigned in conformance with Facility Design condition **GEN-5**, may be responsible for design and review of the TSE facilities.

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

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

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

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

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

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

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

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

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

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

a) The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), CPUC General Order 128, Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", National Electric Code (NEC) and related industry standards.
b) Breakers and buses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.
c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.
d) Termination facilities shall comply with applicable interconnection standards.
e) Each plant interconnection circuit shall be sized to accommodate the maximum output from the plant and necessary ampacity provided for an outage of the other interconnection circuit.
f) All existing equipment shall be within short circuit ratings upon the addition of the project.
g) The project owner shall provide an executed Generator Special Facilities Agreement.

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

a) Design drawings, specifications and calculations conforming with CPUC General Order (GO) 95 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC GO-128 (where applicable), applicable interconnection standards and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, underground cables, grounding systems and major switchyard equipment.
b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[2] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC GO-128 (where applicable), applicable interconnection standards, and related industry standards.
c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through g) above.
d) The Generator Special Facilities Agreement and a signed letter from the applicant stating that any required mitigation is acceptable shall be provided concurrently to the CPM and CBO. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CBO approval.

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

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

TSE-7 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", applicable interconnection standards, CPUC GO-128, NEC and related industry standards. In case of non-conformance, the project owner shall inform

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

the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

a) "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", CPUC GO-128, and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

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

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

REFERENCES

Cal-ISO (California Independent System Operator). 1998a. Cal-ISO Tariff Scheduling Protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated.

Cal-ISO (California Independent System Operator). 1998b. Cal-ISO Dispatch Protocol posted April 1998.

Cal-ISO (California Independent System Operator). 2002a. Cal-ISO Planning Standards, February 7, 2002.

NERC (North American Electric Reliability Council). 1998. NERC Planning Standards, September 1997.

Magnolia Power Project. MPP 2001a. Application for Certification by the Southern California Public Power Authority (01-AFC-6). Submitted to the California Energy Commission May 14, 2001.

WSCC (Western Systems Coordinating Council). 2001. NERC/WSCC Planning Standards, June 2001.

DEFINITION OF TERMS

AAC — All Aluminum conductor.

Ampacity — Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

Bus — Conductors that serve as a common connection for two or more circuits.

Conductor — The part of the transmission line (the wire) that carries the current.

Congestion Management
Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports) will not violate criteria.

Emergency Overload
See Single Contingency. This is also called an L-1.

Kcmil or kcm
Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.

Kilovolt (kV)
A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.

Loop — An electrical cul de sac. A transmission configuration that interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.

Megavar — One megavolt ampere reactive.

Megavars — Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA)
A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW)
A unit of power equivalent to 1,341 horsepower.

Normal Operation/ Normal Overload
When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.

N-1 Condition
See Single Contingency.

Outlet Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.

Power Flow Analysis
A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.

Reactive Power
Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.

Remedial Action Scheme (RAS)
A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.

SF6 Sulfur hexafluoride is an insulating medium.

Single Contingency
Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

Solid dielectric cable
Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

Switchyard A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.

Thermal rating
See ampacity.

TSE Transmission System Engineering.

Tap

A transmission configuration creating an interconnection through a sort single circuit to a small or medium sized load or a generator. The new single circuit line is inserted into an existing circuit by utilizing breakers at existing terminals of the circuit, rather than installing breakers at the interconnection in a new switchyard.

Undercrossing

A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

Underbuild

A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

ALTERNATIVES

Testimony of James W. Reede, Jr.

INTRODUCTION

This section considers potential alternatives to the construction and operation of the proposed Magnolia Power Project (MPP) project. The purpose of this alternatives analysis is to comply with California's environmental laws by providing an analysis of a reasonable range of feasible alternatives that could substantially reduce or avoid any potentially significant adverse impacts of the proposed project (Cal. Code Regs., tit. 14, §15126.6; Cal. Code Regs., tit. 20, §1765). This section identifies potentially significant impacts of the proposed project and analyzes different technologies and alternative sites that may reduce or avoid significant impacts. Staff also analyzes the impacts that may be created by locating the project at alternative sites.

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations Section 15126.6(a), provide direction by requiring an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the No Project Alternative (Cal. Code Regs., tit. 14, §15126.6(e)).

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. The California Environmental Quality Act (CEQA) states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative (Cal. Code Regs., tit. 14, §15125(d)(5)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (City of Santee v. County of San Diego (4th Dist. 1989) 214 Cal. App. 3d 1438).

The California Environmental Quality Act (CEQA) allows a state agency, such as the California Energy Commission, to utilize its own "regulatory program" review process in lieu of the "environmental impact report" (EIR) review process specified in CEQA. However, to do so the agency's regulatory program must be "certified" by the Secretary of the Resources Agency. (Public Resources Code Section 21080.5). The Energy Commission's Power Plant Siting Regulatory Program is such a "certified regulatory program" under CEQA.

With regard to the "Alternatives" analysis required in a certified siting proceeding such as the Magnolia Power Project (MPP) application, the CEQA Guidelines (Cal. Code Regs., tit. 14, Section 15252) state that:

"The document used as a substitute for an EIR or negative declaration in a certified program shall include at least the following items:

(b) Either:

(1) Alternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment, or
(2) A statement that the agency's review of the project showed that the project would not have any significant or potentially significant effects on the environment and therefore no alternatives or mitigation measures are proposed to avoid or reduce any significant effects on the environment. This statement shall be supported by a checklist or other documentation to show the possible effects that the agency examined in reaching this conclusion."

The Warren-Alquist Act specifies that a party filing an "Application for Certification" of a natural gas fired power plant "modification" (such as the MPP project) is not required to provide any information *in its application* on alternative *sites* for the proposed facility. (Public Resources Code Section 25540.6(a) and (b)). However, the Energy Commission's Siting Regulations (Cal. Code Regs., tit. 20, Section 1765) require that:

"At the hearings . . . on an application exempt from the [Notice Of Intent] requirements pursuant to Public Resources Code section 25540.6, the parties shall present information on the feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment."

In light of these provisions, staff presents information in this section on the "feasibility of available site and facility alternatives to the applicant's proposal that substantially lessen the significant adverse impacts of the proposal on the environment" (Cal. Code Regs., tit. 20, §1765). Staff also analyzes whether there are any feasible alternative designs or alternative technologies, including the "no project alternative," that may be capable of reducing or avoiding any potential impacts of the proposed project while achieving its major objectives.

SCOPE AND METHOD FOR THIS ALTERNATIVES ANALYSIS

The CEQA Guidelines provide direction regarding the proper scope of an "alternatives" analysis by requiring evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project objectives but would avoid or substantially lessen any of the significant effects of the project," (Cal. Code Regs., tit. 14, §15126.6(a)). In addition, the analysis must address the "no project" alternative (Cal. Code Regs., tit. 14, §15126.6(e)).

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. The CEQA Guidelines specifically state that "Alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the [review] need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." (Cal. Code Regs., tit. 14., Section 15126.6(f))

To prepare the alternatives analysis, staff used the methodology summarized below:

- Identify the basic objectives and potential significant impacts of the project.
- Determine whether there are any feasible *site alternatives* for analysis by evaluating the extent to which most of the project objectives can be achieved at alternative sites and the degree to which any significant impacts of the project would be substantially lessened at such alternative sites.
- Identify and evaluate facility design and related facilities alternatives to the project as proposed.
- Identify and evaluate technical alternatives to the project. The principle project alternatives examined that do not require the construction of a natural gas-fired facility are increased energy efficiency (or demand side management) and the construction of alternative technologies (e.g. wind, solar, or geothermal).
- Evaluate the feasibility and impacts of not constructing the project (the *"no project" alternative*).

STAFF'S ALTERNATIVES ANALYSIS

Staff's alternatives analysis begins by identifying the basic objectives of the project, describing the project and project setting, and listing potential significant impacts from the project as currently proposed. The analysis then turns to a consideration of various alternatives to the proposed MPP project. These alternatives were developed in response to information received from the Energy Commission's staff and from other agencies.

BASIC OBJECTIVES OF THE PROJECT

After studying the applicant's Application for Certification (AFC), staff has determined that the project's major objectives are to :

- Locate the project close to the load center of the participating members in the Southern California Public Power Authority (SCPPA) to utilize the existing transmission system, to increase local reliability, and to reduce transmission congestion;
- Select a generating unit that is highly efficient to maintain reasonable cost of generation;
- Select equipment that utilizes tested and reliable technology to assure reliable generation;
- Utilize Best Available Control Technology (BACT) to minimize air pollution emissions;
- Locate the project at a site currently used for generation to minimize the need for new infrastructure improvements such as water, fuel supply and transmission facilities; and
- Assure that the interests of local citizens are addressed.

Staff recognizes that applicant's stated objectives include taking "advantage of the existing site and area infrastructure" (MPP 2001a, AFC page 2-2). Existing infrastructure in the immediate vicinity of the project site does include adequate natural gas and reclaimed water supplies, waste discharge and transmission facilities for the needs of the project.

PROJECT DESCRIPTION AND SETTING

A more complete description of the project and its setting is presented in the **Project Description** section of this document.

Project Site

The applicant proposes to modify an existing power plant site in Burbank, California, an incorporated city in Los Angeles County. The applicant intends to locate the project on a 23-acre site in Burbank, California, an incorporated city in Los Angeles County, at 164 West Magnolia Boulevard. The site is bound by Magnolia Blvd. on the north, Lake Avenue on the west, Olive Avenue on the south, and the Western Burbank Flood Control Channel, railway switching yards and Interstate 5 to the east of the proposed project.

The proposed plant will be constructed at the existing Magnolia Power Station that is owned and operated by the City of Burbank Water and Power Department. Burbank Water and Power currently operates and maintains existing gas fired combustion turbine units and gas fired steam units on this 23-acre site. The MPP will occupy about 3 acres made available by demolition of Magnolia Generating Units 1 and 2, which have been decommissioned. See **Project Description Figure 2**.

Power Plant

The proposed Magnolia Power Plant Project would be a nominal 328-megawatt (MW), natural gas-fired combined cycle power plant. Site improvements would include demolition of some of the older power generating and fuel storage facilities. The proposed plant would incorporate one General Electric (GE) 7FA dual-shaft, 1-on-1, combined-cycle combustion turbine electric generator (CTG), one heat recovery steam generator (HRSG) with supplemental duct firing, and one steam turbine electric generator (STG). Hot exhaust gas from the CTG would flow through the HRSG, that would when built, extract heat from the exhaust to produce steam that powers the STG. The new facility would provide a range of 238 MW to 277 MW base load capacity, depending on ambient conditions and the final configuration. Additional peaking capacity of up to 68 MW would be incorporated using steam injection and duct firing enhancements to the base unit. Estimated heat rates for the units range up to 6900 Btu/kWh (HHV) at full load, depending on ambient conditions and the final configuration. The plant is expected to have an overall availability up to 95 percent. The CTG and STG would produce approximately 160 MW and 90 MW (gross), respectively. The overall combined cycle thermal efficiency would be about 54 percent.

To control Nitrogen Oxide (NO_x) and Carbon Monoxide (CO) emissions, Selective Catalytic Reduction (SCR) and a Carbon Monoxide catalyst will be incorporated into the project. NO_x emissions from the CTG will be controlled by dry low NO_x combustors and a post-combustion emission control system that will be a SCR to meet current Best

Available Control / Lowest Achieveable Emission Rate (BACT/LAER) limits for NO_x and CO.

An aerial view of the plant layout **Project Description Figure 2** shows the existing power plant site and electrical substation. **Project Description Figure 3** provides a view of how the plant will look on the site. **Project Description Figure 4** shows elevations of the power plant facilities.

Related Facilities

Transmission System Interconnection

Electrical output will be delivered to the existing transmission grid via the existing facility substation. The new combined cycle unit will be connected to the grid by an underground connection with the existing Olive 69 Kilovolt (kV) switchyard with overhead transmission from the Olive switchyard to the Los Angeles Department of Water and Power (LADWP) system at Receiving Station E.

No new offsite transmission lines are required for the project. Two new generator step-up transformers will be installed and connected to the existing 69 kV switchyard. The connections to the switchyard will be made via new 69 kV underground lead lines on-site, 69kV high-voltage circuit breakers and new associated switchgear.

Natural Gas Supply Pipeline

The existing natural gas supply pipeline owned by Southern California Gas has sufficient capacity to supply the needs of the proposed plant site.

Raw Water Supply

Water requirements for the project are estimated at a maximum of 6.546 million gallons per day at full operation and will be supplied from a combination of sources. The new units will use reclaimed water to the maximum extent feasible with potable water augmentation only in cases of emergency.

The project applicant will be constructing a 2.2 million-gallon reclaim water storage tank to manage diurnal fluctuations in the available volume of reclaimed water. A cooling tower blowdown tank will also be constructed to minimize the impacts of City of Burbank (COB) Reclamation Plant upsets that may occur.

The COB, through purchases from the Metropolitan Water District, will supply potable water. The plant will be using approximately 2,000 gallons per day for domestic uses and fire protection.

The COB Reclamation Plant will supply up to 6,546,000 gallons of reclaimed water per day for cooling water makeup, cycle makeup, evaporative cooling and other plant processes.

Wastewater Disposal

The applicant amended the proposed project to use a Zero Liquid Cooling Water Discharge (ZLD) system. This system would result in no cooling tower blowdown / wastewater added to the existing reclaimed water stream which flows to the Burbank Water Reclamation Plant Outfall 001 and discharges into the Burbank Western Channel.

The cooling tower blowdown / wastewater from the power plant will be treated to remove hardness minerals by lime precipitation and deionization using a recirculated solids type clarifier and mobile demineralizer trailers for the final hardness and mineral removal. The wastewater will then enter a reverse osmosis unit for removal of other contaminants with the reject brine processed through a thermal crystallizer/filter press/sludge dryer combination to remove the final amount of water. The permeate from the reverse osmosis unit will be returned to the cooling tower as makeup. Dry solids will then be transported to an off site land fill.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

In the Staff Assessment and initial Issues Identification Report (IIR), staff identified potential significant environmental effects of the proposed project on air quality, visual resources and water resources (CEC 2000a). Since that time, additional information has caused staff to revise its assessment of some potential impacts. Staff's current assessment of the expected environmental consequences of the proposed project is summarized below for technical areas where issues have been identified. Staff's assessment is presented in more detail in the individual sections of this document.

Air Quality

Staff initially identified air quality issues relating to emission reduction credits (ERCs) and Best Available Control Technology (BACT) that could have resulted in significant impacts or affected the project schedule. When staff filed the SA and the IIR, a portion of the necessary ERCs for the Magnolia Power Project remained inadequately identified. Staff is currently satisfied that MPP has made the progress needed to obtain sufficient ERCs to offset the project's emissions.

Staff also expressed concern in the IIR that MPP's BACT analysis would not be considered sufficient by the U.S. Environmental Protection Agency (EPA). Staff worked with the MPP, the air district, and the EPA during the Discovery and Analysis Processes to resolve these issues and assuming that all necessary offsets are secured, will comply with all LORS.

Visual

Current staff analysis had identified potentially significant visual impacts from various key observation points. MPP included in its application mitigation measures for visual impacts, including its intention to work with the City of Burbank to screen views of the project (MPP 2001a, AFC section 5.13). Based on the information gathered to date, staff believes the visual impacts of the project can be mitigated to less than significant levels through the appropriate use of landscaping and screening treatments. A more detailed analysis of these impacts and their potential mitigation is discussed in the staff assessment **VISUAL RESOURCES** section.

Water

Water requirements for the project are estimated at a maximum of 6.546 million gallons per day at full operation and will be supplied from a combination of sources. The new units will use reclaimed water to the maximum extent feasible with potable water augmentation only in cases of emergency.

The project applicant will be constructing a 2.2 million-gallon reclaim water storage tank to manage diurnal fluctuations in the available volume of reclaimed water. An 180,000-gallon cooling tower blowdown tank will also be constructed to minimize the impacts of City of Burbank Reclamation Plant upsets that may occur.

The City of Burbank (COB), through purchases from the Metropolitan Water District, will supply potable water. The plant will be using approximately 2,000 gallons per day for domestic uses and fire protection.

The COB Reclamation Plant will supply up to 6,546,000 gallons of reclaimed water per day for cooling water makeup, cycle makeup, evaporative cooling and other plant processes.

ALTERNATIVES TO THE PROJECT

As discussed above, the Energy Commission siting regulations require the parties in a siting case exempt from the Notice of Intention proceedings to present "information on the feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment" (Cal. Code Regs., tit. 20 §1765).

Site Alternatives

Consistent with the CEQA Guidelines, the scope of staff's consideration of alternative sites was guided by consideration of whether most project objectives could be accomplished at alternative sites, and whether locating the project at an alternative site would substantially lessen any identified significant impacts of the project (Cal. Code Regs., tit. 14 §15126.6(a)). As discussed below, staff has determined that locating the project at an alternative site would not achieve one of the major objectives of the project and would not substantially lessen currently identified impacts of the project. Under these circumstances, staff has applied the "rule of reason" and decided that it need not perform a detailed analysis of alternative *sites*.

Meeting Major Objectives Of The Project

MPP's basic objectives are to provide reliable and economically competitive electricity in Southern California while minimizing impacts and costs by making use of an existing power plant site and related infrastructure to the extent feasible. The project as proposed in the AFC would make use of all of the infrastructure of the existing site, including the existing reclaimed and potable water supply, natural gas supply line, and access to the onsite switchyard to connect to the transmission grid. The project will include the addition of a new combined cycle power plant unit, and new storage tanks to supply both potable and reclaimed water in event of emergency. As such, the project is a "modification" that will make substantial use of the existing site and infrastructure, but will also require minimal new infrastructure.

Based on this analysis, staff has determined that the proposed project makes substantial use of the existing infrastructure. A “stand-alone” combined cycle power plant at an alternative site that makes no use of the infrastructure at the existing site is possible. However, this alternative would not achieve one of the major objectives of this project, namely the avoidance of the significant impacts and costs of the project by using existing on-site infrastructure to the extent feasible.

Reducing Significant Environmental Impacts

Staff’s review of the proposed project has identified no potentially significant impacts. Staff’s analysis of these impacts is discussed below. Staff’s assessment has not identified any impacts that would be substantially lessened by locating the project at an alternative site.

Air Quality

Staff identified two air quality issues in the IIR. At the time the AFC was accepted, MPP had not adequately identified the ERCs needed for the project, and staff was not satisfied that EPA would find MPP’s BACT analysis sufficient. Both issues have since been resolved, and neither would be affected substantially by locating the project at an alternative site.

Traffic and Transportation

The construction phase will cause increased roadway demand resulting from the daily movement of workers and materials. This will result in traffic increases causing the LOS for various roadways to increase beyond LOS thresholds established by local and regional authorities. Although these impacts are expected to be short-term they have the potential to be significant. In the AFC, MPP proposed to provide appropriate traffic control mitigation measures to avoid significant impacts from this construction activity. Based on staff’s analysis, if the proposed mitigation measures are properly implemented, no significant traffic impacts are likely to occur.

Visual

Staff has identified potentially significant visual impacts from various key observation points. In the AFC, MPP proposed to screen views of the project as a visual mitigation measure. Based on the information gathered to date, staff believes the visual impacts of the project can be mitigated to less than significant levels. A more detailed analysis of the degree to which MPP’s proposed mitigation would reduce these impacts is discussed in detail in the Visual Resources staff analysis section.

Water Resources

The project as proposed in the AFC does not impose potentially significant impacts on water supply through the use of large volumes of reclaimed water for cooling. The most feasible means of further reducing these impacts would be by reducing the project’s use of water. Developing the project at an alternative site would require identification and use of substantial alternative water supplies. Therefore, the water resources impacts of the original proposal do not require analysis of alternative sites.

"Site" Alternatives Conclusion

Staff's analysis of alternative sites, presented above, is based on a review of the major objectives of the project, and the impacts identified in this document. Staff first considered whether the project's objectives could be accomplished at alternative sites. Staff found that while developing a similar project at an alternative site is possible, this would not further minimize impacts and costs by making use of the existing site and infrastructure, which is one of the major objectives of the project.

Staff also considered whether locating the project at an alternative site would substantially lessen any identified impacts of the project. Locating a similar project at an alternative location would not substantially reduce any of the impacts of the project identified to date. Based on these two factors, staff has applied the "rule of reason" and determined that a detailed alternative sites analysis is not needed.

Facility Design Alternatives

MPP analyzed five facility design alternatives to its proposed project that made use of the existing facility but represented significant design differences from the proposal. Staff has considered other design alternatives as well, namely: plant configurations / arrangements, other base-load combined cycle equipment, alternative cooling technologies, and alternative air emission control technologies. These alternatives are discussed in detail in the various engineering sections of this FSA. Staff has determined that the alternative facility designs are inferior to the proposed design and would not lessen the impacts of the proposed project.

Related Facilities Alternatives

Natural Gas Supply Pipeline

The current natural gas supply to the existing plant is sufficient to supply the proposed combined cycle units.

Wastewater Disposal

MPP proposes to discharge wastewater into a Zero Liquid Discharge system. Originally the applicant had proposed sending wastewater through the existing 36-inch wastewater discharge outfall into the Burbank Western Channel system. Because the applicant removed that option from the project description and withdrew the NPDES application from review by the Los Angeles Regional Water Quality Board, no alternatives for the wastewater disposal were considered in this analysis.

Transmission Lines

MPP proposes to connect to the regional electric transmission grid through the onsite switchyard. No additional offsite transmission lines and no transmission line upgrades are required to accommodate the output of the proposed facility.

TECHNOLOGY ALTERNATIVES

Conservation and Demand-Side Management

Conservation and demand-side management (DSM) include a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that will address this issue is the Energy Commission's California Energy Outlook. Thus, such alternatives are not included in this analysis.

Since 1975, the displaced peak demand from all of these efforts has been roughly the equivalent of eighteen 500-MW power plants. At a state level, the annual impact of building and appliance standards has increased steadily, from 600 MW in 1980 to 5,400 MW in 2000, as more new buildings and homes are built under increasingly efficient standards. Savings from energy efficiency programs implemented by utilities and state agencies have also increased (from 750 MW to 3,300 MW). Recent demand reducing proposals from the Governor and Legislature have proven to have an impact by reducing consumption by an average of 3,500 MW during the summer of 2001 (CEC 2002a). In addition, voluntary conservation measures adopted by residential and commercial/industrial users led to a 7.5 percent drop in electricity use throughout the state as of August 2001, but that dropped to 1.5 percent in October 2001 (CEC 2002a). There was a 0.7 percent increase in energy used in February 2002 compared to February 2001 (CEC 2002b). However, in comparison to February 2000, there was a 5.5 percent decrease in energy consumption in February 2002 (CEC 2002b).

Generation Technology Alternatives

Staff compared various alternative technologies with the proposed project, scaled to meet the project's objectives. Technologies examined were those principal electricity generation technologies that do not burn fossil fuels such as geothermal, solar and wind. Each of these technologies could be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions.

Renewable Energy Alternatives

Solar and wind resources require large land areas in order to generate 328 MW of electricity. Specifically, utility scale solar thermal projects require between four and ten acres per megawatt depending on the type of system (parabolic trough, parabolic dish, or central receiver) (CEC 1996, pp. B.15.1-2). A project comparable to MPP's proposed 328 MW would require more than 1,300 acres, or more than 80 times the amount of space taken by the proposed plant site. Wind generation "farms" generally require about 17 acres per megawatt, with 328 MW requiring more than 4,250 acres, more than 225 times the amount of space taken by the proposed plant site and linear facilities (CEC 1996, pp. B.16.1). The alternative technologies discussed above have the potential for significant land use impacts due to the large land areas required. Consequently, staff does not believe that solar and wind technologies present feasible alternatives to the proposed project.

Geothermal Resources

Geothermal resources are available in limited areas of California. The primary geothermal resources in southern California are present in Imperial County, primarily in the Imperial Valley (CEC 2000). Sixteen geothermal power plants with a combined online capacity of approximately 480 MW are present in Imperial County (CEC 2000). The Energy Commission has recently received and found Data Adequate, an AFC for a new 185 MW geothermal power plant project in Imperial County, the Salton Sea Unit 6 project (02-AFC-02). While this AFC demonstrates that development of additional geothermal resources in southeastern California is possible, geothermal power is not a feasible alternative at the scale of the proposed 328 MW Magnolia Power Project.

The "No Project" Alternative

CEQA Guidelines and Energy Commission regulations require consideration of the "no project" alternative. This alternative assumes that the project is not constructed, and is compared to the proposed project. A determination is made whether the "no project" alternative is superior, equivalent, or inferior to the proposed project.

In the AFC, MPP evaluated the "no project" alternative and determined that it would make less efficient use of the region's infrastructure and energy resources (MPP 2001a, AFC page 5-1). Without construction of the new units, SCPPA would have to purchase power at times of peak demand. Electricity demand, which is expected to grow in Southern California in particular, would be met either by increased use of existing facilities or the development of other new power plants.

Staff views the "no project" alternative as feasible. If this project is not built, the same market conditions that encouraged it to be proposed will encourage other similar projects. It is quite feasible that a substantial amount of additional generating capacity will be proposed even in the absence of this project. Staff can reasonably expect California's need for new plants to be filled with or without the proposed project. There is no reason to assume that the total amount of capacity actually built would differ with or without this project.

It follows then, that the extent to which nuclear and older fossil generation resources will be replaced by new resources can be expected to be the same with or without this project. The extent to which generation from existing power plants would consume fuel and emit pollutants would be the same with or without this project. And whatever effect new plants might have insulating ratepayers and taxpayers from risk will occur whether or not the proposed plant is included among the new plants actually built.

The "no project" alternative would eliminate the expected economic benefits which the proposed project would bring to the City of Burbank and Los Angeles County. These include construction equipment and materials purchases estimated to be between $250 million and $290 million, with approximately $20 million in sales tax revenues generated for the City of Burbank and Los Angeles County. MPP estimates an operations payroll staring at approximately $2 million per year for the first year of operation (MPP 2001a).

Staff has determined that the "no project" alternative is environmentally inferior to the project as originally proposed. This is because the original proposal would have

reduced environmental impacts. Not constructing and operating an (unmitigated) power plant would continue these impacts. However, as stated above, staff believes that use of the Conditions of Certification and other mitigations described in the FSA will reduce any impacts to less than significant levels. In addition, staff recognizes potential economic benefits will be derived from the project. Therefore, staff believes that, overall, the "no project" alternative is not the preferred alternative.

CONCLUSIONS REGARDING ALTERNATIVES

Staff has analyzed in detail alternatives to the project design and related facilities, alternative technologies, and the "no project" alternative. Staff did not analyze in detail alternative sites for the project. Staff determined that developing the project at an alternative site would not allow MPP to make use of infrastructure at the existing site, one of the objectives of the project, and would not substantially lessen the impacts of the project identified in the staff's assessment. Additionally, the applicant withdrew the wastewater discharge option and NPDES permit application prior to staff being able to perform an analysis therefore it is not considered a viable alternative

Staff has determined that the preferable alternative is the proposed project. Staff does not believe that energy efficiency measures and alternative technologies (geothermal, solar, wind, and hydroelectric) present any feasible alternatives to the proposed project.

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GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

Testimony of Ila Lewis

INTRODUCTION

The project General Conditions Including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in compliance with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of elements that:

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- state procedures for settling disputes and making post-certification changes;
- state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions;
- establish requirements for facility closure plans; and
- include specific conditions of certification that follow each technical area and contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

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

SITE MOBILIZATION

Moving trailers and related equipment onto the site, usually accompanied by minor ground disturbance, grading for the trailers and limited vehicle parking, trenching for construction utilities, installing construction utilities, grading for an access corridor, and other related activities. Ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access

and parking for the occupants. Site mobilization is for temporary facilities and is, therefore, not considered construction.

GROUND DISTURBANCE

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

GRADING

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

CONSTRUCTION

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

a) the installation of environmental monitoring equipment;

b) a soil or geological investigation;

c) a topographical survey;

d) any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; or

e) any work to provide access to the site for any of the purposes specified in a., b., c., or d.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” is that phase of project development which begins after the completion of start-up and commissioning, where the power plant has reached steady-state production of electricity with reliability at the rated capacity. For example, at the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

A Compliance Project Manager (CPM) will oversee the compliance monitoring and shall be responsible for:

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

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

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate staff and management.

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

Pre-Construction and Pre-Operation Compliance Meeting

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

Energy Commission Record

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

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

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate. A summary of the General Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section. The designation after each of the following summaries

of the General Compliance Conditions (**Com-1, Com-2,** etc.) refers to the specific General Compliance Condition contained in **Compliance Table 1.**

Construction Milestones, COM-1

The following is the procedure for notifying the CPM of applicable construction milestones, or amending previously established milestones, for pre-construction and construction phases of the project. As noted in the **Air Quality** section of this FSA, the applicant may elect to use priority reserve Emission Reduction Credits (ERCs). Use of the priority reserve ERCs would require the project to be fully and legally operational within three years following issuance of a Permit to Construct or Energy Commission certification, whichever is later. Once established, the date established to begin operation is subject to extension consistent with South Coast Air Quality Management District rules. Therefore, construction milestones have been included as noted below and will be applicable should the applicant use priority reserve ERCs. This issue will be revisited in the Presiding Members Final Decision depending on the applicant's final offset strategy. If priority reserve ERCs are used, the milestones and method of verification must be established and agreed upon by the project owner and the CPM no later than 60 days after docketing of the Commission's final decision.

I. ESTABLISH PRE-CONSTRUCTION MILESTONES TO ENABLE START OF CONSTRUCTION WITHIN ONE YEAR OF CERTIFICATION

1. Obtain site control.
2. Obtain financing.
3. Mobilize site.
4. Begin rough grading for permanent structures (start of construction).

II. ESTABLISH CONSTRUCTION MILESTONES FROM DATE OF START OF CONSTRUCTION

1. Begin pouring major foundation concrete.
2. Begin installation of major equipment.
3. Complete installation of major equipment.
4. Begin gas pipeline construction.
5. Complete gas pipeline interconnection.
6. Begin T-line construction.
7. Complete T-line interconnection.

8. Begin commercial operation within three years of the Commission's final decision.

The CPM will negotiate the above-cited pre-construction and construction milestones with the project owner based on an expected schedule of construction. The CPM may agree to modify the final milestones from those listed above at any time prior to or during construction if the project owner demonstrates good-cause for not meeting the originally-established milestones. Otherwise, failure to meet milestone dates without a finding of good cause is considered cause for possible forfeiture of certification or other penalties.

III. A FINDING THAT THERE IS GOOD CAUSE FOR FAILURE TO MEET MILESTONES WILL BE MADE IF ANY OF THE FOLLOWING CRITERIA ARE MET:

1. The change in any milestone does not change the established commercial operation date milestone.

2. The milestone will be missed due to circumstances beyond the project owner's control.

3. The milestone will be missed, but the project owner demonstrates a good-faith effort to meet the project milestone.

4. The milestone will be missed due to unforeseen natural disasters or acts of God which prevent timely completion of the milestones.

5. The milestone will be missed due to requirements of the California ISO to maintain existing generation output.

The project owner has the right to appeal a finding of no good cause, or any recommended remedial action to the full Energy Commission.

Access, COM-2

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

Compliance Record, COM-3

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

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

Compliance Verification Submittals, COM-4

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

Verification of compliance with the conditions of certification can be accomplished by:

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

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

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

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

All submittals shall be addressed as follows:

Compliance Project Manager
Magnolia Power Project (01-AFC-6)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

Pre-Construction Matrix & Tasks Prior to Start of Construction, COM-5

Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be in the same format as the compliance matrix referenced below under General Compliance Conditions **Com-6**.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times (e.g., 30, 60, 90 days) for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development.

Project owners frequently anticipate starting project construction as soon as the project is certified. In those cases, it may be necessary for the project owner to file compliance submittals prior to project certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval of pre-certification submittals by Energy Commission staff is subject to change based upon the Final Decision.

COMPLIANCE REPORTING

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

COMPLIANCE MATRIX, COM-6

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

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

3. a brief description of the verification action or submittal required by the condition;
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. the expected or actual submittal date;
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;
7. the compliance status of each condition (e.g., “not started,” “in progress” or “completed” (include the date); and
8. the project’s pre-construction and construction milestones, including dates and status.

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

MONTHLY COMPLIANCE REPORT, COM-7

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the **Key Events List. The Key Events List Form is found at the end of this section.**

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

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix which shows the status of all conditions of certification and pre-construction and construction milestones (fully satisfied conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions and milestones that have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to conditions of certification;
7. a listing of any filings with, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification or milestones;
9. a listing of the month's additions to the on-site compliance file; and
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file.

ANNUAL COMPLIANCE REPORT, COM-8

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file;
9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section]; and
10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved complaints, and the status of any unresolved complaints.

CONSTRUCTION AND OPERATION SECURITY PLAN, COM-9

Prior to commencing construction, a site-specific Security Plan for the construction phase shall be developed and maintained at the project site. At least 60 days prior to the initial receipt of hazardous materials on-site, a site-specific Security Plan and Vulnerability Assessment for the operational phase shall be developed and maintained

at the project site. The project owner shall notify the CPM in writing that the Plan is available for review and approval at the project site.

Construction Security Plan

The Construction Security Plan must address:

1. site fencing enclosing the construction area;
2. use of security guards;
3. check-in procedure or tag system for construction personnel and visitors;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
5. evacuation procedures.

Operation Security Plan

The Operations Security Plan must address:

1. permanent site fencing and security gate;
2. use of security guards;
3. security alarm for critical structures;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. evacuation procedures;
6. perimeter breach detectors and on-site motion detectors;
7. video or still camera monitoring system;
8. fire alarm monitoring system;
9. site personnel background checks; and
10. site access for vendors and requirements for Hazardous Materials vendors to conduct personnel background security checks.

In addition, the project owner shall prepare a Vulnerability Assessment and implement site security measures addressing hazardous materials storage and transportation consistent with US EPA and US Department of Justice guidelines.

The CPM may authorize modifications to these measures, or may require additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

CONFIDENTIAL INFORMATION, COM-10

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et seq.

DEPARTMENT OF FISH AND GAME FILING FEE, COM-11

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of $850. The payment instrument shall be provided to the Energy Commission's Project Manager (PM), not the CPM, at the time of project certification and shall be made payable to the California Department of Fish and Game. The PM will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS, COM-12

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded inquiries shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at:

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html

Any changes to the telephone number shall be submitted immediately to the CPM who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).

FACILITY CLOSURE

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

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

CLOSURE DEFINITIONS

Planned Closure

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

Unplanned Temporary Closure

An unplanned 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.

Unplanned Permanent Closure

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

Planned Closure, COM-13

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

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

In the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are

inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

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

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

Unplanned Temporary Closure/On-Site Contingency Plan, COM-14

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

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

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

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

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

In the event of an unplanned temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and

shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

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

Unplanned Permanent Closure/On-Site Contingency Plan, COM-15

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

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

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

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. Commission staff retains CBO authority when selecting a delegate CBO including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental control when conducting project monitoring.

ENFORCEMENT

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

whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider. Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

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

Informal Dispute Resolution Procedure

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

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

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

Request for Informal Investigation

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

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven working days of the CPM's request, provide a written report of the results

of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within 48 hours, followed by a written report filed within seven days.

Request for Informal Meeting

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

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

Formal Dispute Resolution Procedure-Complaints and Investigations

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

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Energy Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Cal. Code Regs., tit. 20, §§ 1232-1236).

POST CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES, COM-16

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Energy Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

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

AMENDMENT

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

INSIGNIFICANT PROJECT CHANGE

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

VERIFICATION CHANGE

As provided in Title 20, Section 1770 (d), California Code of Regulations, a verification may be modified by staff without requesting an amendment to the decision if the change does not conflict with the conditions of certification.

KEY EVENTS LIST

PROJECT: **Magnolia Power Project**

DOCKET #: 01-AFC-6

COMPLIANCE PROJECT MANAGER: Ila Lewis

EVENT DESCRIPTION	DATE
Certification Date/Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
Synchronization with Grid and Interconnection	
Complete T/L Construction	
FUEL SUPPLY LINE ACTIVITIES	
Start Gas Pipeline Construction and Interconnection	
Complete Gas Pipeline Construction	
WATER SUPPLY LINE ACTIVITIES	
Start Water Supply Line Construction	
Complete Water Supply Line Construction	

TABLE 1
COMPLIANCE SECTION
SUMMARY of GENERAL CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COM-1	Construction Milestones	The project owner shall establish specific performance milestones for pre-construction and construction phases of the project.
COM-2	Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-3	Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COM-4	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COM-5	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: ▪ property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, ▪ a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, ▪ all pre-construction conditions have been complied with, ▪ the CPM has issued a letter to the project owner authorizing construction.
COM-6	Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance conditions of certification.
COM-7	Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.

CONDITION NUMBER	SUBJECT	DESCRIPTION
COM-8	Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports (ACRs) which include specific information. The first ACR is due after the air district has issued a Permit to Operate.
COM-9	Security Plans	Prior to commencing construction, the project owner shall submit a Construction Security Plan. Prior to commencing operation, the project owner shall submit an Operation Security Plan.
COM-10	Confidential Information	Any information the project owner deems confidential shall be submitted to the Commission's Dockets Unit.
COM-11	Dept of Fish and Game Filing Fee	The project owner shall pay a filing fee of $850 at the time of project certification.
COM-12	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COM-13	Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least twelve months prior to commencement of a planned closure.
COM-14	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COM-15	Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COM-16	Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

ATTACHMENT A

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: **Magnolia Power Project** AFC Number: 01-AFC-6
COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date and time complaint received: Indicate if by telephone or in writing (attach copy if written): Date of first occurrence:
Description of complaint (including dates, frequency, and duration):
Findings of investigation by plant personnel: Indicate if complaint relates to violation of a CEC requirement: Date complainant contacted to discuss findings:
Description of corrective measures taken or other complaint resolution: Indicate if complainant agrees with proposed resolution: If not, explain: Other relevant information:
If corrective action necessary, date completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct. Plant Manager's Signature: _____ Date:

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

MAGNOLIA POWER PROJECT
PREPARATION TEAM

Executive Summary ..... James W. Reede, Jr.

Introduction ..... James W. Reede, Jr.

Project Description ..... James W. Reede, Jr.

Air Quality ..... James B. Birdsall, Lisa Blewitt and Will Walters

Public Health ..... Alvin Greenberg

Worker Safety and Fire Protection ..... Alvin Greenberg

Transmission Line Safety and Nuisance ..... Obed Odoemelam

Hazardous Materials Management ..... Alvin Greenberg

Waste Management ..... Alvin Greenberg

Land Use ..... David Flores

Traffic and Transportation ..... James Fore

Noise ..... Fred Greve

Visual Resources ..... William Kanemoto

Cultural Resources ..... Mary Maniery

Socioeconomic Resources ..... James Adams and Negar Vahidi

Biological Resources ..... Natasha Nelson and Julie Colyer

Soil and Water Resources ..... R. Sapudar, J. Schoonmaker, J. Scroggs and R. Sidor

Geology and Paleontology ..... Dal Hunter

Facility Design ..... Bryan Payne

Power Plant Reliability ..... Shahab Khoslmashrab

Power Plant Efficiency ..... Shahab Khoslmashrab

Transmission System Engineering ..... S. Arachchige and D. Bucaneg Jr.

Alternatives.....James W. Reede, Jr.

Compliance Monitoring and Facility Closure..... Ila Lewis

Project Secretary ..... Pat Owen