

Staff Assessment

CALIFORNIA
ENERGY
COMMISSION

AES HUNTINGTON BEACH GENERATING STATION RETOOL PROJECT

Application For Certification 00-AFC-13
Orange County

STAFF REPORT

MARCH 2001
(00-AFC-13)



Gray Davis, Governor

Staff Assessment

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GENERATING STATION
RETOOL PROJECT**

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Gray Davis, Governor

**CALIFORNIA
ENERGY
COMMISSION**

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EXECUTIVE SUMMARY

Testimony of Jack W. Caswell

INTRODUCTION

This Staff Assessment (SA) contains the California Energy Commission (Energy Commission) staff's evaluation of Huntington Beach Generation Station Retool (HBGS) Project Application for Certification (AFC) (00-AFC-13). The HBGS electric generating plant is under the Energy Commission's jurisdiction and cannot be constructed or operated without the Energy Commission's certification.

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

BACKGROUND

On December 1, 2000, the AES Huntington Beach Limited Liability Company, (AES), filed an Application for Certification (AFC) for the Huntington Beach Generation Station Retool Project (HBGSR). The Energy Commission staff has reviewed the AFC for data adequacy. The AFC was determined to be data adequate by the Energy Commission at the February 7, 2001 Business Meeting, thus beginning the Energy Commission's review of this project.

In light of California's energy emergency, Governor Davis issued Executive Order D-22-01, on February 8, 2001. This order requires the Energy Commission to expedite to the extent feasible, the processing of applications for certification for retooling projects like HBGS to be on line as soon as possible. The Energy Commission staff has proposed that this permitting process be completed in 60 days. Consequently, the Committee accepts that a schedule on the order of 60 days, as proposed by Staff, is the only way to certify the retooling project in a way which brings needed new generation online in a timely way to meet "gubernatorial-declared" emergency needs.

The analyses contained in this SA are based upon information from: 1) the AFC; 2) subsequent amendments; 3) responses to data requests, workshops and site visits; 4) supplementary information from federal, state and local agencies; and 5) existing documents and publications.

PROJECT DESCRIPTION

AES is proposing to retool and operate Units 3 and 4, which currently exist, but have been out of service at the HBGS since 1995. The steam turbine generators will be rebuilt with new natural gas burners, a burner management system, and new draft fans. Southern California Edison (SCE) took these units out of service in 1995 when it owned the HBGS. At that time SCE surrendered its operating permits to the South Coast Air Quality Management District. The Retool Project would restore these units to service. In addition to the boiler retooling, AES will be adding Selective Catalytic Reduction (SCR) equipment for emissions control. See **PROJECT DESCRIPTION Figure 1** for the local setting of the project and **PROJECT DESCRIPTION Figure 2** for the site layout. If the project is certified, AES plans to begin retooling construction in April, 2001, and to begin commercial operation by July, 2001.

The AES HBGS Project will be a nominal 450-megawatt (MW), natural gas-fired boiler retooling at the existing HBGSR located in the City of Huntington Beach, in Orange County. The 12-acre site is located at 21730 Newland Street, southeast of the intersection of Newland Street and the Pacific Coast Highway. The proposed Retool Project will be built entirely within the boundaries of the existing HBGSR. No additional transmission lines or related transmission facilities will be required. It will use an existing 230 kilovolt (kV) switchyard owned by SCE. The proposed project will use natural gas supplied by the Southern California Gas Company via an existing 30-inch diameter pipeline. No changes to the pipeline or onsite connection to the pipeline will be required. A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this SA.

STAFF'S ASSESSMENT

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

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

In this SA, the staff has been able to complete its analyses and make a preliminary recommendation in all of the technical areas contained in this SA (listed in the table below). In all but three of these topic areas, staff believes that if recommendations and conditions of certification are implemented, HBGSR will be in compliance with the applicable LORS, and no significant adverse direct, indirect, or cumulative impacts will occur.

| | |
|------------------------|---------------------------------|
| Air Quality | Public Health |
| Alternatives | Reliability |
| Biological Resources | Socioeconomic Resources |
| Cultural Resources | Soil & Water Resources |
| Efficiency | Traffic & Transportation |
| Facility Design | Transmission System Engineering |
| Geology & Paleontology | Visual Resources |
| Hazardous Materials | Waste Management |
| Land Use | Worker Safety |
| Noise | General Conditions & Compliance |

Noteworthy issues remain with air quality, biological resources and water quality.

Air Quality: As this summary is written, the Applicant does not yet have a complete offset package that satisfies South Coast Air Quality Management District (SCAQMD) and United States Environmental Protection Agency permitting requirements. The District cannot complete their Final Determination of Compliance (FDOC) until the Applicant provides a complete offset package. It is staff's expectation the SCAQMD will be able to complete the FDOC prior to the Committee's workshop and hearing held on March 15 and 16, an addendum will be prepared to communicate that information to the committee, intervenors and the public.

Biological Resources: Staff has identified several areas that need careful consideration. Regarding marine biological resources, staff concludes that impingement and entrainment impacts from the cooling water system are considered to be potentially significant at both the project-specific and cumulative levels. Cumulative impacts by the HBGS project and other Southern California generating stations and the proposed Poseidon Desalination Project will all be contributing factors to potentially significant impacts. It is anticipated that with the staffs recommended mitigation, these potential impacts can be mitigated to a less than significant level.

Water Quality: One issue remains potentially significant in regard to the proposed HBGS--determination of the relationship/impacts associated with the project's intake/discharge to the presence of indicator bacteria in the surf zone. Staff recommends an additional study for at least one year and no more than three years. This will ensure that the study is completed within the timeframe of the current National Pollutant Discharge Elimination System permit for the facilities and provide

an accurate understanding of possible plant operational impacts. Other conditions of certification are recommended to address remaining issues or impacts.

At this time, it cannot be determined whether the intake/outfall of the facility contributes to the bacterial problem in the surf zone; the study is targeted to address that question, and if the facility is found to contribute to the problem, it will be required to mitigate its contribution. Therefore, staff cannot determine whether or not there will be a significant environmental impact or whether it can be mitigated to below a level of significance. Until that determination can be made, we must assume for purposes of review of this application that the project would result in a significant environmental impact due to the transport of bacteria into the surf zone, which causes the closure of the beaches and denial of beach recreational opportunities to the residents of and visitors to the City of Huntington Beach.

For a more detailed review of the potential significant impacts for this project see the staff assessment section associated with the areas of concern identified above.

STAFF RECOMMENDATION

The staff has concluded that a monitoring plan, and/or study for Biology, and Water Quality must be developed and coordinated with the City of Huntington Beach, and other agencies identified in the analyses section of this staff assessment in order to provide a more accurate view of potential impacts to the environment. Additionally it is recommended that Air Quality issues identified in the analyses section of the staff assessment must be resolved in order to comply with LORS and CEQA.

In light of California's energy emergency, Governor Davis Executive Order D-22-01, staff is recommending a license be issued for a restricted time period consistent with AES's electrical generating contract with the Department of Water Resources or until September 30, 2006. This will allow the commission staff an opportunity to review the license for compliance with the Conditions of Certification and assess the results of the suggested study/monitoring plans. At the completion of the time period, staff will make further recommendations to the license Conditions of Certification and the Commission will decide whether the license should be granted permanent status with no further review necessary for that license.

AES HUNTINGTON BEACH RETOOL PROJECT (00-AFC-13)
STAFF ASSESSMENT

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INTRODUCTION

PURPOSE OF THIS REPORT

On December 1, 2000, AES Huntington Beach, Limited Liability Company (the applicant) filed an Application for Certification (AFC) seeking approval from the California Energy Commission (Energy Commission) to retool and operate Units 3 and 4 at the Huntington Beach Generating Station. Units 3 and 4 have been inactive since 1995, when Southern California Edison, the company then operating the facility, removed them from service. Permits to operate the units, issued by the South Coast Air Quality Management District, were surrendered. Units 1 and 2 have continued in operation, along with Unit 5, which is an auxiliary peaker unit.

The two units to be retooled would be nominally rated at 450 megawatts (MW) and fired exclusively on natural gas. The project would also install selective catalytic reduction (SCR) on Units 3 and 4 to reduce emissions on the retooled generators. Units 1 and 2 are currently being retrofitted with SCR emissions control equipment.

On February 7, 2001, the Energy Commission found the AFC to be data adequate. Staff thereby concluded that the application provided sufficient information to complete the application and to begin the staff analysis period for the project.

On February 8, 2001, the Governor of California issued Executive Order No. D-26-01. With this Executive Order, the Governor mandated that applications for certain power plant operations should be expedited, based on the existing electrical shortage emergency. The AES Huntington Beach Retool Project is one of the affected applications. While the timeline for processing the Application for Certification has been substantially abbreviated, staff remains under the stricture to review the application carefully, investigate the environmental impacts of the project, and provide an independent report for use by the Energy Commission in making its decision on the application.

The Staff Assessment (SA) presents the Energy Commission staff's independent analysis of AES Huntington Beach LLC's Application for Certification for the Retool Project. The SA is prepared pursuant to Title 20, California Code of Regulations, §1742, 1742.5, 1743 and 1744. The SA is a staff document. It is neither a Committee document nor a draft decision or proposed decision.

ORGANIZATION OF THE REPORT

The Staff Assessment describes the following:

1. the proposed project;
2. the existing environmental setting;
3. whether the facilities can be constructed and operated safely and reliably in accordance with applicable laws, ordinances, regulations and standards (LORS);

4. the environmental consequences of the project including potential public health and safety impacts;
5. cumulative analysis of the potential impacts of the project, along with potential impacts from other existing and known planned developments;
6. mitigation measures proposed by the applicant, staff, interested agencies and intervenors that may lessen or eliminate potential direct and cumulative impacts;
7. proposed conditions under which the project should be constructed, operated and closed, if it is certified; and
8. project alternatives.

The analyses contained in this SA are based upon information from: 1) the AFC; 2) supplements to the AFC; 3) responses to data requests; 4) information from local and state agencies; 5) information from concerned citizens; 6) existing documents and publications; and 7) independent field studies and research.

The analyses for most technical areas include discussions of proposed conditions of certification. Each proposed condition of certification is followed by a proposed means of verification. The verification is the Energy Commission Compliance Unit's method of ensuring post-certification compliance with adopted requirements. The SA presents conclusions and proposed conditions of certification that would apply to the design, construction, operation and closure of the proposed facility.

The SA contains an Executive Summary, Introduction, Project Description, and Project Alternatives. The environmental, engineering, and public health and safety analysis of the proposed project is contained in 19 technical areas. Each technical area is included in a separate chapter as follows: air quality, biological resources, cultural resources, facility design, geology (including geologic hazards, surface water hydrology, paleontological resources, geological resources), hazardous material management, land use, noise, power plant efficiency, power plant reliability, public health, socioeconomics, traffic and transportation, transmission line safety, transmission system engineering, visual resources, waste management, water resources, worker safety and fire protection. Each chapter contains a discussion of facility closure, project construction and operation compliance monitoring plans, and a list of staff that assisted in preparing this report.

Each of the 19 technical area assessments includes a discussion of:

1. laws, ordinances, regulations and standards (LORS);
2. the regional and site-specific setting;
3. project specific and cumulative impacts;
4. mitigation measures;
5. closure requirements;
6. conclusions and recommendations; and
7. conditions of certification for both construction and operation (if applicable).

ENERGY COMMISSION SITING PROCESS

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

The Energy Commission's siting regulations require staff to independently review the AFC and assess whether the list of environmental impacts contained is complete, and whether additional or more effective mitigation measures are necessary, feasible and available (Cal. Code Regs., Title 20, §1742 and 1742.5(a)).

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

Staff conducts its environmental analysis in accordance with the requirements of the California Environmental Quality Act (CEQA). An Environmental Impact Report (EIR) is not required, as the Energy Commission's site certification program has been certified by the Resources Agency (PRC, §21080.5 and Cal. Code Regs., Title 14, §15251 (k)). The Energy Commission acts in the role of the CEQA lead agency.

This SA presents the Energy Commission staff's analysis, conclusions, and recommendations. The SA serves as staff's testimony on a proposal and will be one part of the evidence considered by the Committee of Commissioners appointed to hear and consider the evidence, and to make a recommendation regarding the application to the full Commission. The Committee consists of two Commissioners.

Based on the workshop and written comments, staff will refine the analysis set forth in the SA, correct errors, and finalize conditions of certification to reflect areas where agreement regarding conditions has been reached with the parties. Responses to written comments on the SA will be included in the Presiding Member's Proposed Decision (PMPD).

At the public evidentiary hearings conducted by a hearing officer and held before the Committee, all parties will be afforded an opportunity to present evidence, cross examine witnesses, and rebut the testimony of other parties, thereby creating a hearing record on which a decision on the project can be based. The hearing before the Committee allows all parties to argue their respective positions on disputed matters, if any. The hearing also provides a forum for the Committee to receive comments from the public and other governmental agencies.

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Members' Proposed Decision (PMPD). The PMPD is released for written public comments for a period of 7 days. At the conclusion of the comment period, the Committee may prepare a revised PMPD, which would be required to undergo a 15-day comment period. At the close of the comment period for PMPD, or the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision. Within 30 days of the Energy Commission decision, any party may appeal the decision to the Energy Commission.

A Compliance Monitoring Plan and General Conditions will be assembled from conditions contained in the SA and other evidence presented at the hearings. The Compliance Monitoring Plan and General Conditions will be presented in the PMPD. The Energy Commission staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed in compliance with the conditions adopted by the Energy Commission. The proposed Compliance Monitoring Plan and General Conditions are included at the end of the SA.

PUBLIC AND AGENCY COORDINATION

The AES Huntington Beach Retool Project is proposed on land currently zoned for General Industrial use. A publicly noticed workshop was held on February 21, 2001, in Huntington Beach, at which time the Commissioners comprising the Committee heard comments regarding air quality, water resources, biological resources, cultural resources, traffic and transportation, and other issues. The workshop was well attended and produced comments that highlighted issues for consideration in the Staff Assessment.

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

PROJECT DESCRIPTION

Testimony of Jack Caswell and Tom Murphy

NATURE AND PURPOSE OF THE PROJECT

AES Huntington Beach, Limited Liability Company (referred to as either “AES,” or the “applicant”) is proposing to retool and operate Units 3 and 4, which currently exist, but are out of service at the Huntington Beach Generating Station. Southern California Edison (SCE) took these units out of service in 1995 when it owned the subject generating station. AES’ retool project would restore these units to service.

The applicant’s objectives include: provide increased electrical generation while taking advantage of the existing infrastructure at the existing Huntington Beach facility, including the gas supply, transmission facilities, water supply and discharge facilities; minimize the environmental and socioeconomic impacts of the project; and utilize proven technology while incorporating high-efficiency pollution control technology.

PROJECT LOCATION

The site for the proposed project is located in the City of Huntington Beach, at 21730 Newland Avenue, southeast of its intersection with Pacific Coast Highway. See **Project Description Figure 1, Regional Location**.

The project would retool generating Units 3 and 4 at the existing power plant site. The retool project would disturb approximately 12-acres of the existing 53-acre Huntington Beach Generating Station site. **Project Description Figure 2** shows the site plan for the existing plant, and location of the retooling project.

The project site is located in the southeast corner of Section 13, T6S, R11, San Bernardino Base and Meridian. The Assessor Parcel Number is 114-150-82.

POWER PLANT

The AES Huntington Beach Retool Project would retool and place in operation Units 3 and 4 at the existing Huntington Beach Generating Station, which was previously owned by SCE. SCE had retired Units 3 and 4 in 1995 because of limited use. Permits to operate Units 3 and 4 issued by the South Coast Air Quality Management District were subsequently surrendered. AES acquired the site in 1998 and have operated only Units 1, 2, and 5 for the last several years.

The existing facility contains two steam turbine generating units, Units 1 and 2, each of which generate 215-megawatts (MW). Unit 5, a 133-MW combustion turbine unit, is used primarily to serve peaking loads. Units 3 and 4, for which this project is the subject of, would each be rated at 225-MW. Total generating capacity at the plant, if Units 3 and 4 were approved, would be 1,103-MW.

Project Description Figure 1, Regional Location

(Need a regional figure—most likely the Base Map, Newport Beach, 7.5 minute)

Project Description Figure 2

(Use AFC Figure 5.4-2, Plant Surface Designations, or AFC Figure 3.2-1, Site Layout)

Units 3 and 4 are located on approximately 12 acres in the north-central portion of the existing 53-acre site. The plant is surrounded by industrial and commercial uses to the northeast and east, residential uses to the northwest, wetlands to the southeast, and the Pacific Coast Highway and beaches to the west and southwest.

The retooling project would occur entirely within the boundaries of the existing plant property. No off-site construction would be involved. The existing natural gas and electrical transmission facilities would be utilized, as well as existing facilities for potable water and wastewater. The existing facility has intake and outfall facilities in the Pacific Ocean, which would be utilized as part of the operations.

Modifications made to the steam generators as part of the retooling project would include replacement of combination fuel oil and natural gas burners with new burners that use only natural gas; new gas burner cameras (to monitor the flame characteristics), soot blowers, burner management control system and larger forced draft fans; new inlet air filtration and natural gas fuel system; and a new fire protection system.

The project would install a selective catalytic reduction (SCR) emission control technology on Units 3 and 4. The SCR would use a urea-to-ammonia system, which would eliminate the need to store aqueous ammonia onsite.

The existing power plant facility has two self-supporting steel stacks, each 214-feet tall. Each stack serves two generating units: one serving Units 1 and 2, the other Units 3 and 4. Each stack includes associated appurtenances.

Existing buildings at the site include the administration building, control building, Reverse Osmosis/Electro De-ionization (RO/EDI) building, as well as a warehouse and shop building. No new buildings would be constructed as part of the project, nor would any buildings be demolished or significantly modified.

AES and Poseidon Company have filed for a Conditional Use Permit with the City of Huntington Beach to construct and operate a water desalination plant on a portion of the 53-acre AES site. The City is conducting an environmental impact analysis that will probably require 9 to 12 months to complete. No definitive time frame for the development of the desalination plant has been indicated. The possible development of a desalination plant would not have an effect on the land use considerations relevant to the proposed project. Any land use impacts generated by the desalination facility would be identified and evaluated in the City's environmental analysis.

TRANSMISSION LINE AND NATURAL GAS FACILITIES

No additional electrical transmission lines would be needed as a result of the retooling of Units 3 and 4. The existing transmission lines and adjacent switchyard would be used.

An existing 30-inch diameter natural gas transmission line supplies natural gas from Southern California Gas Company. No additional pipeline capacity is required, and no changes would be made in the pipeline as part of the project.

WATER SUPPLY AND WASTE WATER TREATMENT

The facility is served by an existing water line, with water supplied by the City of Huntington Beach. The project would make no change to the existing water connection.

Sanitary sewage flows by gravity to a sewage ejector station located northwest of the warehouse. The sewage system is of adequate size to accommodate the operation of Units 3 and 4.

CONSTRUCTION AND OPERATION

No site grading or earthwork would be required for the project. Construction would occur entirely within the boundaries of the AES site, and all construction laydown areas would be located within the site boundaries.

On-site construction and equipment re-tooling needed for the project would require approximately three months. At peak employment, the retooling project would employ approximately 530 craft and professional personnel on the site. The applicant anticipates that parking during construction would be located entirely within the site boundary. If parking is inadequate, the applicant has indicated that it would lease off-site parking facilities and provide shuttle service to the project site.

The project is estimated to have a capital cost of approximately \$130 million.

At project completion, the applicant expects to employ a staff of approximately 43 full-time, on-site employees. Current employment at the project site is 33 full-time employees.

FACILITY CLOSURE

The planned economic life of the re-tooled facility is five to eight years. However, the applicant has indicated that if the facility were economically viable at the end of the five- to eight-year operating period, it could continue to operate for a longer period of time. The applicant expects that with future upgrades and maintenance the facility would have value beyond its planned 5- to 8-year life.

AIR QUALITY

Testimony of W. Walters, N. Behmanesh and K. Golden

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to planned retooling and operation of Units 3 and 4 (Retool Project) at the Huntington Beach Generating Station (HBGS), as proposed by the AES Huntington Beach, LLC. 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 (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), reactive organic gases (ROG), and particulate matter less than 10 microns in diameter (PM₁₀).

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

- whether the HBGS Units 3 and 4 Retool Project is likely to conform with applicable Federal, State and South Coast Air Quality Management District (SCAQMD) air quality laws, ordinances, regulations and standards, as required by Title 20, California Code of Regulations, section 1742.5 (b);
- whether the HBGS Units 3 and 4 Retool 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 HBGS Units 3 and 4 Retool 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 (LORS)

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. The non-attainment area NSR requirements apply to areas that have not been able to demonstrate compliance with national ambient air quality standards. The entire program, including both PSD and non-attainment NSR permit reviews, is referred to as the federal NSR program.

The U.S. Environmental Protection Agency (EPA) has reviewed and approved the South Coast Air Quality Management District's (SCAQMD's) regulations and has

delegated to the District the implementation of the federal PSD, Non-attainment NSR, 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 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 5.25.4 of the AFC, the return of Units 3 and 4 to operational status will be a major modification and thus will trigger a modification to the existing HBGS Title V permit. The Applicant must submit permit applications to revise the existing Title V permit within 12 months after startup of the refurbished units.

The HBGS Units 3 and 4 Retool 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 refurbished Units 3 and 4 must comply with the requirements of Subpart D (a); however, local emission limitation rules or BACT requirements are more restrictive than the NSPS requirements. For example, the controlled NOx emissions from HBGS Units 3 and 4 will be no more than 5 parts per million by volume dry (ppmvd) at 3 percent excess oxygen (ppmvd@3%O₂), significantly less than the NSPS allowable limit of 75 ppm@15%O₂. The standards also include a SOx emissions concentration of no more than 150 ppm@15%O₂.

The U.S. 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 U.S. 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 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 U.S. 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. Therefore, compliance with the SCAQMD's rules and regulations will most likely result in compliance with federal requirements.

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 HBGS Units 3 and 4 Retool Project, the SCAQMD will prepare and present to the Commission a Determination of Compliance/Permit to Construct (DOC/PTC). The DOC will evaluate whether and under what conditions the proposed project will comply with the District's applicable rules and regulations, as described below.

The project is subject to the 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 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, start-up/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 on the No. 1 Ringelman Chart (US Bureau of Mines).

Rule 402 — Nuisance

This rule restricts the discharge of any contaminant in quantities which 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 PM10 emissions (between up and down wind measurements) to less than 50 ug/m³ 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 maybe required if so determined by the US EPA.

Rule 407 — Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppm and SO₂ emissions to 500 ppm, averaged over 15 minutes. However, internal combustion engines are exempt from the SO₂ limit, as are equipment that comply with rule 431.1. The applicant will comply with rule 431.1 and thus the sulfur limit of rule 407 will not apply.

Rule 408 — Circumvention

This rule allows the concealment of emissions released to the atmosphere 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% CO₂, averaged over 15 minutes. This rule does not apply to 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 H₂S. 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 (PM10) 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% O₂ (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 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, SO₂ and NO₂ emissions from the facility as well as monitoring and test method requirements.

REGULATION XI — SOURCE SPECIFIC STANDARDS

RULE 1110.1 — EMISSIONS FROM STATIONARY INTERNAL COMBUSTION ENGINES

This rule generally applies to engines larger than 50 brake horsepower (bhp) and places restriction on rich-burn or lean-burn engines. These restrictions are in the form of NO_x and CO emission limits and the required submittal of a control plan to demonstrate compliance. Emergency standby engines, operating less than 200 hours per year are exempt from Rule 1110.1.

RULE 1110.2 — EMISSIONS FROM GAS AND LIQUID FUELED ENGINES

This rule establishes NO_x, VOC and CO emissions limits for stationary and portable engines over 50 bhp in rated capacity. Emergency standby engines, operating less than 200 hours per year are exempt from Rule 1110.2.

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 or SO_x emissions, which are regulated by Regulation XX (RECLAIM).

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. It is likely that the HBGS will trigger PSD for NO_x only.

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 supercedes other district rules, where there are conflicts. As a result, 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). RECLAIM also has its own banking rule, RECLAIM Trading Credits (RTCs), which is established in Rule 2007. The HBGS 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 permit 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 the other.

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 V 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 CO₂ emissions from the facility.

SETTING

METEOROLOGY AND CLIMATE

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 basin 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 Los Angeles 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 Los Angeles 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.

Onshore sea breeze dominates the wind pattern in the project area. The sea breeze normally builds in strength from sunrise, peaking during the mid afternoon. In the winter, down-slope "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 project site is located adjacent to the Huntington State Beach and is on flat terrain. The area within a six-mile radius from the project site is on a flat terrain except for some hills and bluffs at the Costa Mesa and Newport Heights area to the east of the project site.

Atmospheric stability and mixing height are important parameters in the determination of pollutant dispersion. In the project area, the frequent occurrence of the marine layer over the coast limits the mixing height and the availability of air for dilution. Atmospheric stability in the project area ranges from unstable to neutral

during daytime, which is typically sunny or partially sunny with a moderate onshore breeze. In contrast, the stable atmospheric condition typically occurs during nighttime or early morning hours before sunrise when there is little air turbulence.

Temperature and precipitation data, collected at the Newport Beach Harbor meteorological station, show that average summer temperatures (°F) range from average lows of low-60s to average highs of mid-70s to low-80s. In winter, the average lows are in the mid to upper 40s and the average highs are in the low to mid-60s. Annual precipitation in the project area is an average of 11.5 inches, about 85 percent of which occurs between November and March. Very little precipitation occurs during the summer months (less than 0.04 inch average between June and September) due to the strong high-pressure system that blocks migrating storm systems.

EXISTING AMBIENT AIR QUALITY

The Environmental Protection Agency (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/m³ and µg/m³, 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 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**

| Chapter 33 Pollutant | Averaging Time | Chapter 34 Federal Standard | Chapter 35 California Standard |
|---------------------------------------------------|------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ozone (O ₃) | 1 Hour | 0.12 ppm (235 $\mu\text{g}/\text{m}^3$) | 0.09 ppm (180 $\mu\text{g}/\text{m}^3$) |
| | 8 Hour | 0.08 ppm (160 $\mu\text{g}/\text{m}^3$) | — |
| Carbon Monoxide (CO) | 8 Hour | 9 ppm (10 mg/m^3) | 9 ppm (10 mg/m^3) |
| | 1 Hour | 35 ppm (40 mg/m^3) | 20 ppm (23 mg/m^3) |
| Nitrogen Dioxide (NO ₂) | Annual Average | 0.053 ppm (100 $\mu\text{g}/\text{m}^3$) | — |
| | 1 Hour | — | 0.25 ppm (470 $\mu\text{g}/\text{m}^3$) |
| Sulfur Dioxide (SO ₂) | Annual Average | 0.03 ppm (80 $\mu\text{g}/\text{m}^3$) | — |
| | 24 Hour | 0.14 ppm (365 $\mu\text{g}/\text{m}^3$) | 0.04 ppm (105 $\mu\text{g}/\text{m}^3$) |
| | 3 Hour | 0.5 ppm (1300 $\mu\text{g}/\text{m}^3$) | — |
| | 1 Hour | — | 0.25 ppm (655 $\mu\text{g}/\text{m}^3$) |
| Respirable Particulate Matter (PM ₁₀) | Annual Geometric Mean | — | 30 $\mu\text{g}/\text{m}^3$ |
| | 24 Hour | 150 $\mu\text{g}/\text{m}^3$ | 50 $\mu\text{g}/\text{m}^3$ |
| | Annual Arithmetic Mean | 50 $\mu\text{g}/\text{m}^3$ | — |
| Sulfates (SO ₄ (2-)) | 24 Hour | — | 25 $\mu\text{g}/\text{m}^3$ |
| Lead | 30 Day Average | — | 1.5 $\mu\text{g}/\text{m}^3$ |
| | Calendar Quarter | 1.5 $\mu\text{g}/\text{m}^3$ | — |
| Hydrogen Sulfide (H ₂ S) | 1 Hour | — | 0.03 ppm (42 $\mu\text{g}/\text{m}^3$) |
| Vinyl Chloride (chloroethene) | 24 Hour | — | 0.010 ppm (26 $\mu\text{g}/\text{m}^3$) |
| Visibility Reducing Particulates | 1 Observation | — | In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. |

AIR QUALITY Table 2
Federal and State Area Designation of
South Coast Air Quality Management District

| Chapter 36 Pollutants | Federal Classification | State Classification |
|------------------------------|-------------------------------|-----------------------------|
| Ozone | Extreme Non-Attainment | Non-Attainment |
| PM10 | Non-Attainment | Non-Attainment |
| CO | Serious Non-Attainment | Non-Attainment |
| NO2 | Attainment | Attainment |
| SO2 | Attainment | Attainment |

AIR QUALITY Table 3 and **AIR QUALITY Figure 1** summarize the historical air quality data for the project location, recorded at the Costa Mesa, Mesa Verde Drive air monitoring station for ozone, NO_x, CO and SO₂, and at Anaheim, Harbor Blvd. Station for PM₁₀. **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 CAAQS or NAAQS was violated.

AIR QUALITY Table 3
Ambient Air Quality Monitoring Data
Costa Mesa – Mesa Verde Drive, unless otherwise stated

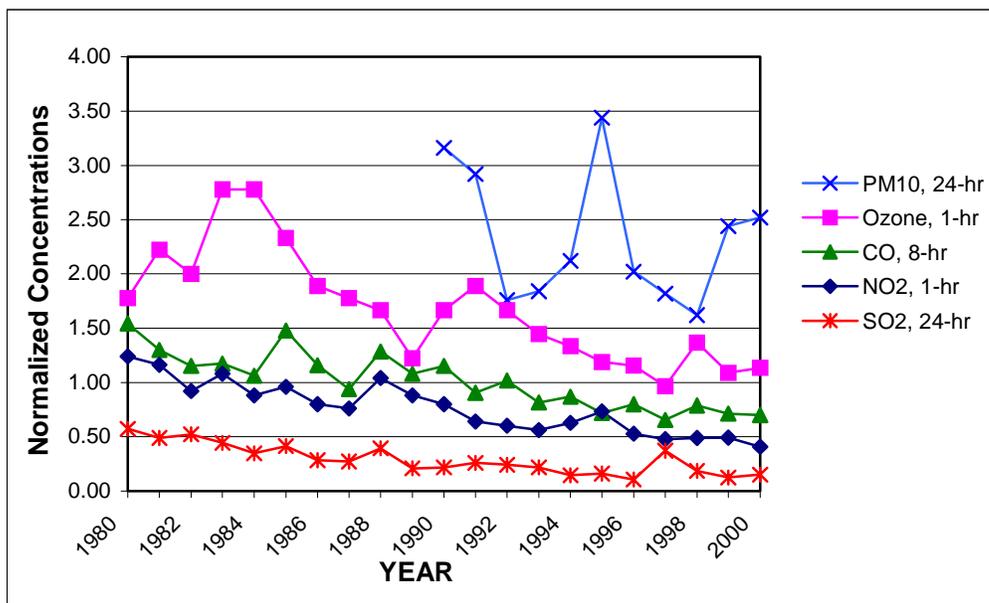
| Chapter 37 Pollutant | | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | Most Restrictive Ambient Air |
|----------------------|--------------------------------------------|-------|-------|-------|-------|-------|-------|------------------------------------|
| | | | | | | | | Chapter 37 QUALITY Standard |
| Ozone | Maximum 1-hr Average (ppm) | 0.117 | 0.114 | 0.110 | 0.113 | 0.110 | 0.112 | 0.09 (CA AQS) |
| | # of days with violation of CAAQS | 3 | 1 | 0 | 5 | 1 | 1 | — |
| | Maximum 8-hr Average (ppm) | 0.081 | 0.088 | 0.077 | 0.085 | 0.075 | 0.086 | 0.08 (NA AQS) |
| | # of days with violation of NAAQS | 0 | 0 | 0 | 1 | 0 | 1 | — |
| PM10 (a) | Maximum 24-hr Average (µg/m ³) | 172 | 101 | 91 | 81 | 122 | 126 | 50.0 (CA AQS) |

| | | | | | | | | |
|--------------------------------------------------------------------------------|-----------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|
| | # of days calculated with violation of CAAQS | 7 8 | 3 6 | 6 6 | 7 2 | 9 0 | 1 5 | — |
| | Annual Geometric Mean ($\mu\text{g}/\text{m}^3$) | 3 5 9 | 3 1 8 | 3 6 3 | 3 3 0 | 4 3 4 | 3 3 5 | 30 (CA AQS) |
| | Annual Arithmetic Mean ($\mu\text{g}/\text{m}^3$) | 4 3 5 | 3 5 2 | 3 8 8 | 3 5 8 | 5 3 5 | 3 7 3 | 50 (NA AQS) |
| NO ₂ | Maximum 1-hr Average (ppm) | 0 1 8 3 | 0 1 3 2 | 0 1 1 9 | 0 1 2 2 | 0 1 2 3 | 0 1 0 2 | 0.25 (CA AQS) |
| | Average annual Conc. (ppm) | 0 0 2 3 | 0 0 1 9 | 0 0 1 9 | 0 0 1 9 | 0 0 2 0 | n a | 0.05 3 (NA AQS) |
| CO | Maximum 1-hr Average (ppm) | 7 9 | 8 7 | 7 3 | 9 0 | 7 9 | n a | 20 (CA AQS) |
| | Maximum 8-hr Average (ppm) | 6 4 6 | 7 2 0 | 5 9 0 | 7 0 9 | 6 4 1 | 6 2 9 | 9.0 (CA AQS) |
| SO ₂ | Maximum 24-hr Average (ppm) | 0.006 | 0.004 | 0.015 | 0.007 | 0.005 | 0.006 | 0.04 (CAAQS) |
| | Annual Average (ppm) | 0.002 | 0.001 | 0.001 | 0.001 | 0.002 | 0.002 | 0.03 (NAAQS) |
| (a) Data from Anaheim – Harbor Blvd. Monitoring Station Source: (CARB 2001) | | | | | | | | |

In **AIR QUALITY Figure 1**, the short term normalized concentrations are provided from 1980 to 2000 for ozone, CO, NO₂ and SO₂; and from 1990 to 2000 for PM₁₀. PM₁₀ data are from Anaheim-Harbor Blvd. Station. For all other pollutants, data from 1980 to 1989 were collected at Costa Mesa - Placentia Station and from 1990 to 2000 collected at Costa Mesa – Mesa Verde Drive 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: 1980-2000. Costa Mesa, unless otherwise stated



A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1998 the highest 1-hour average ozone concentration measured in Costa Mesa was 0.123 ppm. Since the most stringent ambient air quality standard is 0.09 ppm, the 1998 normalized concentration is $0.123/0.09 = 1.37$.

The PM10 data are from Anaheim, Harbor Blvd. monitoring station, the closest station to the project area that records PM10 concentrations.

Source: (CARB 1999).

Following is a more in-depth discussion of ambient air quality conditions in the Project area for O3, CO, NO2, and PM10.

OZONE

In the presence of the ultraviolet radiation, both NO_x and ROG 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 because it violates both National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

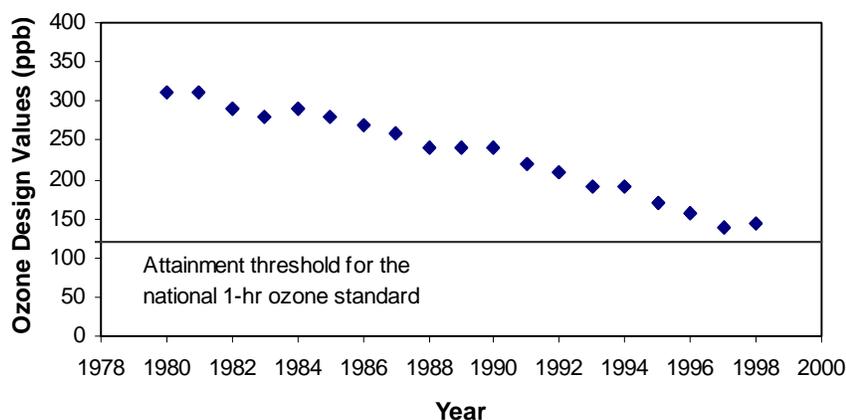
**AIR QUALITY Table 4
Ozone Air Quality Summary, 1991-1999**

| Year | Costa Mesa-Mesa Verde Dr. | | | Anaheim-Harbor Blvd. | | | El Toro | | |
|------|---------------------------|---------------------------------|---------------------------------|----------------------|---------------------------------|-------------|---------------------------------|--|--|
| | Max Days | Month Violations Occurred | Month Violations Occurred | Max Days | Month Violations Occurred | Max Days | Month Violations Occurred | | |
| 1991 | 0 | Ap, S | Ap, S | 0 | Ap, JI, Au | 0 | Ap, Au, S | | |
| 1992 | 1 | Ap, S | Ap, S | 2 | JI, Au, S | 2 | S | | |
| 1993 | 3 | Au, S, O | Au, S, O | 2 | Ju, Au, S | 1 | Ju, Au, S | | |
| 1994 | 3 | Au, O | Au, O | 1 | Ju, Au, S, O | 1 | Ju, JI, Au, S | | |
| 1995 | 1 | Ju | Ju | 9 | May, Ju, Au | 2 | May, Ju, Au, O | | |
| 1996 | 0 | -- | -- | 1 | May | 8 | May, JI, Au, S | | |
| 1997 | 5 | JI, Au | JI, Au | 1 | JI, Au | 1 | JI, Au | | |
| 1998 | 0 | O | O | 1 | Ap | 2 | Ap | | |
| 1999 | 0 | May | May | 9 | Ap, May, Au | 3 | May, JI | | |

California Ambient Air Quality Standard: 0.09 ppm
National Ambient Air Quality Standard: 0.12 ppm
Month abbreviations: Ap-April, Ju-June, Jl-July, Au-August, S-September, O-October
Source: CARB web site, <http://www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/>

Ozone formation is influenced significantly by year-to-year changes in atmospheric conditions. For this reason, a long-term trend in ambient ozone levels is needed to understand whether or not a region is experiencing reductions in its ambient ozone concentrations. As shown in **AIR QUALITY Figure 2**, the long-term statistics of ozone levels in the Orange County region shows that this region has made significant strides toward attainment of the previous federal ozone 1-hour standard. However, the County is still in violation of the State and Federal ozone standards.

AIR QUALITY Figure 2



DISTRICT OZONE DESIGN VALUE 1970-2000

Each design value represents the fourth highest concentration recorded in the air basin during the previous three years. For example in 1982 some site's 4th highest value for 1980-1982 was 180 ppb. Design values are used to determine attainment status. Source: (District 2000).

CARBON MONOXIDE (CO)

As **AIR QUALITY Table 3** 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 mobile sources are the principal source of the CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. Industrial sources, typically constitute less than one percent of the CO emissions in Orange County. According to the data recorded in different monitoring stations, there have been no violations of California Ambient Air Quality Standards or National Ambient Air Quality Standards since 1992 for the one-hour or the eight-hour CO standards in Orange County (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 the mobile sector (cars, trucks, busses) is the main source of CO, we expect ambient concentrations of CO to be highly dependent on emissions from the mobile sector. In fact, the peak CO concentrations occur during the rush hour traffic in the morning and afternoon. Carbon monoxide concentrations in Orange 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. Today, all the counties in California, with the sole exception of Los Angeles County, are in compliance with the CO ambient air quality standards.

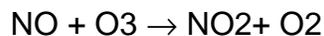
**AIR QUALITY Table 5
CO Air Quality Summary, 1992-2000**

| Year | Costa Mesa – Mesa Verde Drive | | Anaheim-Harbor Blvd. | | El Toro | |
|------|-----------------------------------------|-----------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| | Maximum 1-hr Average ^a | Maximum 8-hr Average ^b | Maximum 1-hr Average | Maximum 8-hr Average | Maximum 1-hr Average | Maximum 8-hr Average |
| 1992 | 13.0 | 9.14 | 15.0 | 9.38 | 10.0 | 7.25 |
| 1993 | 10.0 | 7.33 | 15.0 | 7.71 | 7.0 | 4.13 |
| 1994 | 9.7 | 7.81 | 12.0 | 8.60 | 8.3 | 5.54 |
| 1995 | 7.9 | 6.46 | 9.9 | 7.97 | 6.2 | 4.03 |
| 1996 | 8.7 | 7.20 | 8.9 | 7.41 | 6.2 | 4.05 |
| 1997 | 7.3 | 5.90 | 8.4 | 5.98 | 5.5 | 3.76 |
| 1998 | 9.0 | 7.09 | 8.3 | 5.26 | 5.8 | 3.15 |
| 1999 | 7.9 | 6.41 | 8.3 | 5.34 | 4.1 | 2.56 |
| 2000 | na | 6.29 | na | 4.67 | Na | 2.24 |

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: a - CARB Air Quality Data CD, 1999
b - CARB web site, <http://www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/>

NITROGEN DIOXIDE (NO2)

As shown in **AIR QUALITY Table 6** the maximum one-hour and annual concentrations of NO₂ in Orange County are lower than California Ambient Air Quality Standards. Approximately 90 percent of the NO_x emitted from combustion sources is NO, while the balance is NO₂. NO is oxidized in the atmosphere to NO₂ but some level of photochemical activity is needed for this conversion. This is why the highest concentrations of NO₂ 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 sun light). In the summer the conversion rates of NO to NO₂ are high but the relatively high temperatures and windy conditions (atmospheric unstable conditions) disperse pollutants, preventing the accumulation of NO₂ to levels approaching the 1-hour ambient air quality standard. The formation of NO₂ in the summer with the help of the ozone is according to the following reaction.



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
NO2 Air Quality Summary, 1992-2000**

| Year | Costa Mesa – Mesa Verde Drive | | Anaheim-Harbor Blvd. | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------|----------------------------|------------------------------|
| | Maximum 1-hr Average | Maximum Annual Average | Maximum 1-hr Average | Maximum Annual Average |
| 1992 | 0.150 | 0.025 | 0.210 | 0.039 |
| 1993 | 0.140 | 0.022 | 0.200 | 0.035 |
| 1994 | 0.157 | 0.023 | 0.188 | 0.038 |
| 1995 | 0.183 | 0.023 | 0.175 | 0.037 |
| 1996 | 0.132 | 0.019 | 0.144 | 0.032 |
| 1997 | 0.119 | 0.019 | 0.130 | 0.033 |
| 1998 | 0.122 | 0.019 | 0.135 | 0.033 |
| 1999 | 0.123 | 0.020 | 0.117 | na |
| 2000 | 0.102 | na | 0.109 | na |
| California Hourly Ambient Air Quality Standard: 0.250 ppm National Annual Ambient Air Quality Standard: 0.053 ppm Source: CARB web site, http://www.arb.ca.gov/adam/cgi- bin/db2www.exe/adamquery.mac/ | | | | |

INHALABLE PARTICULATE MATTER (PM10)

As **AIR QUALITY Table 7** indicates, the project area also annually experiences a number of violations of the state 24-hour PM10 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.

PM10 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 NOx, SOx and ROG from turbines, and ammonia from NOx control equipment, given the right meteorological conditions, can form particulate matters in the form of nitrates (NO3), sulfates (SO4), 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 NOx emissions from combustion sources. The nitrate ion concentrations during the wintertime are a significant portion of the total PM10, and should be even a higher contributor to particulate matter of less than 2.5 microns (PM2.5). 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, a

much higher estimate of PM nitrate contributions to the total PM can be inferred than the values included in the table.

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 U.S. 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
PM₁₀ Air Quality Summary, 1992-2000
Maximum 24-hr Average Concentration (µg/m³)

| Year | Anaheim – Harbor Blvd | | | El Toro | | |
|------|--------------------------------------------|---------------------------|---------------------------|--------------------------------------------|----------------------------------------|---------------------------|
| | Maximum Daily Average (µg/m ³) | Days Above State Standard | Month Violations Occurred | Maximum Daily Average (µg/m ³) | Days Above State Standard (calculated) | Month Violations Occurred |
| 1992 | 88.0 | 66 | J, N, Ap, S | 83.0 | 30 | J, Ap, S, N |
| 1993 | 92.0 | 78 | O, N, D | 115.0 | 42 | S, O, N |
| 1994 | 106.0 | 66 | O, D, J | 91.0 | 42 | O, D, J |
| 1995 | 172.0 | 78 | N, D | 122.0 | 66 | N, D |
| 1996 | 101.0 | 36 | O, J, F | 79.0 | 24 | O, J, F |
| 1997 | 91.0 | 66 | O, N, Jl | 86.0 | 24 | O, N, Jl |
| 1998 | 81.0 | 72 | O, N, Ap | 70.0 | 36 | Au, S, Ap |
| 1999 | 122.0 | 90 | O, D | 111.0 | 36 | O, N, F |
| 2000 | 126.0 | 15 | J, M, S | 60.0 | 6 | J |

California Ambient Air Quality Daily Standard: 50 µg/m³
National Ambient Air Quality Daily Standard: 150 µg/m³
Month abbreviations: J-January, F-February, M-March, Ap-April, Jl-July, S-September,
O-October, N-November, D-December
Source: CARB web site, <http://www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/>

* The figures in these columns represent the potential number of violations. PM₁₀ is monitored approximately once every six days, so the potential number of violation days is calculated by the actual number of days of violations multiplied by six.

SULFUR DIOXIDE (SO₂)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO₂ emissions when combusted. By contrast fuels high in sulfur content such as lignite (a type of coal) emit very large amounts of SO₂ when combusted. Sources of SO₂ 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 SO₂ state and federal ambient air quality standards. **AIR QUALITY Table 8** shows the historic 1-hour, 24-hour and annual average SO₂ concentrations measured at the Costa Mesa – Mesa Verde Drive monitoring station. As **AIR QUALITY Table 8** and **AIR QUALITY Figure 1** show, concentrations of SO₂ are far below the state and federal SO₂ ambient air quality standards.

AIR QUALITY Table 8
SO₂ Air Quality Summary, 1992-2000

| Year | Costa Mesa – Mesa Verde Drive | | |
|------|-----------------------------------------|------------------------------------------|-------------------------------------------|
| | Maximum 1-hr Average ^a (ppm) | Maximum 24-hr Average ^b (ppm) | Maximum Annual Average ^b (ppm) |
| 1992 | 0.020 | 0.010 | 0.0006 |
| 1993 | 0.010 | 0.009 | 0.0005 |
| 1994 | 0.015 | 0.006 | 0.0023 |
| 1995 | 0.015 | 0.006 | 0.0025 |
| 1996 | 0.013 | 0.004 | 0.0007 |
| 1997 | 0.034 | 0.015 | 0.0009 |
| 1998 | 0.020 | 0.007 | 0.0014 |
| 1999 | 0.016 | 0.005 | 0.0020 |
| 2000 | Na | 0.006 | 0.0020 |

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 0 | | | |
| 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: a - CARB Air Quality Data CD, 1999 | | | |
| b - CARB web site, | | | |
| http://www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/ | | | |

PROJECT DESCRIPTION

This section describes the project design and criteria pollutant control devices as described in the HBGS Retool Project AFC (AES 2000), and data request responses (AES 2001).

PROPOSED EQUIPMENT

The major equipment proposed in the application include the following:

- Retooled Units 3 and 4 of the HBGS, each rated at 215 MW. These units will be refurbished with TODD low-NOx burners. Additionally, this project will include the addition of Selective Catalytic Reduction (SCR) for oxides of nitrogen (NOx) control, and an oxidation catalyst for Carbon Monoxide (CO) control.
- Urea to Ammonia generating system.
- Existing utility and cooling systems will be refurbished as necessary for use.
- A continuous emission monitoring (CEM) system.

FACILITY OPERATION

This facility is comprised of a total of 5 power units. These power units were originally constructed in the 1950's and 1960's. Units 3 and 4, the subject of the AFC, were retired in 1995. Units 1 and 2, which are currently in operation, are rated at 215 MW each. Unit 5 is comprised of 8 simple cycle turbine generators, rated at 133 MW total, which are operated as peaking units and are limited to 1,300 hours per year of operation. Currently, there are no emission controls on Units 1, 2 or 5. The addition of SCR for NOx control is proposed for Units 1 and 2, and is currently scheduled by AES to be completed during the Spring of 2001.

Units 3 and 4 are each comprised of a main combustion boiler, with a maximum rating of 215 MW. These boilers operate with once through cooling from sea water which eliminates the need for cooling towers. Units 3 and 4 will be operated in accordance with the California Independent System Operator (ISO) requirements. This project is expected to operate seasonally, with the majority of its operation occurring during the summer power demand peak. However, this plant will be permitted to operate anytime during the year. The boilers will burn only natural gas; there are no provisions for any other fuel as a back up.

EMISSION CONTROLS

The Unit 3 and 4 boilers will be equipped with flue gas recirculation (FGR), low-NOx burners, SCR and oxidation catalyst systems to reduce NOx and CO emissions. The low-NOx burners, with a maximum induced FGR rate of 10%, are guaranteed to limit the NOx concentration to 100 ppmvd (@ 3% O2). The SCR system will use ammonia vapor in the presence of a catalyst to further reduce NOx concentrations

to 5.0 ppmvd (@ 3% O₂) in the exhaust gas. An oxidation catalyst will reduce CO concentrations to no more than 5.0 ppmvd (@ 3% O₂).

Continuous emission monitors (CEMs) are proposed by the Applicant to be installed on the exhaust stack to monitor NO_x, CO and oxygen concentrations to assure adherence with the proposed emission limits. Staff also recommends, in Condition of Certification AQ-5, that the feasibility of an ammonia CEM be investigated by the applicant and installed if determined to be feasible. 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 PM₁₀ and SO₂ 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.

ESTIMATED PROJECT EMISSIONS

The proposed project will generate air emissions during the construction and operation of the facility. The following is a summary of the air emissions from these sources:

CRITERIA POLLUTANTS GENERATED FROM CONSTRUCTION ACTIVITIES

The proposed project construction schedule will extend over approximately 3 months, based on a 13 hours per day, six days per week construction schedule (7 am to 8pm daily). During the construction period, air emissions will be generated from the exhaust of the heavy equipment such as cranes and forklifts. Fugitive dust emissions from the construction is considered to be insignificant as the work areas are paved. **AIR QUALITY Table 9** summarizes the different levels of criteria pollutants that are estimated to be generated from the construction activities at the HBGS site (AES, 2001).

**Air Quality: Table 9
Estimated Construction Emissions from the HBGS Retool Project
(Maximum Hourly Emissions and Total Tons)**

| NO _x | | CO | | ROG | | SO ₂ | | PM ₁₀ | |
|-----------------|---|----|---|-----|---|-----------------|---|------------------|---|
| L | t | L | t | L | t | l | t | l | T |
| b | o | b | o | b | o | b | o | b | o |
| s | n | s | n | s | n | s | n | s | n |
| / | s | / | s | / | s | / | s | / | s |
| h | | h | | h | | h | | h | |
| r | | r | | r | | r | | r | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | 1 | 6 | 1 | 4 | 0 | 0 | 1 | 0 |
| 1 | 5 | 7 | 6 | 1 | . | . | . | . | . |
| . | . | 2 | . | . | 8 | 5 | 2 | 8 | 9 |
| 8 | 5 | . | 7 | 4 | | | | | |
| | | 8 | | | | | | | |

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 (AES 2001). 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-C2, and use somewhat dated emission factors that may overestimate the potential equipment emissions.

The HBGS Retool Project will use existing natural gas, cooling water, potable water and sanitary waste systems. Therefore, no new linear facilities will require construction for this project.

CRITERIA POLLUTANTS GENERATED FROM PROJECT OPERATION

Air emissions will be generated from operating the major project components. **AIR QUALITY Tables 10 and 11** summarize the maximum (worst-case) estimated levels of the different criteria pollutants associated with project operation. The assumptions used in calculating the air emissions in the table include:

- manufacturer guaranteed emission factors,
- the facility operating 24 hours per day, 8,760 hours per year,
- For NO_x and CO emissions calculations one cold start-up per unit per day for maximum daily emissions calculations and 10 cold start-up/shutdowns per year per unit for maximum annual emissions calculations, which assume the following:
 - a. an 11 hour cold start-up period that has elevated emission profiles for NO_x and CO.
 - b. the cold start-up/shutdown emissions estimate provided by the Applicant in AFC Appendix C7 (AES 2001).
- For maximum VOC, SO₂, PM₁₀ and NH₃ emissions calculations 100% load operation for both units for all time periods.
- For the first year (defined as from July 1, 2001 through June 30, 2002), the facility will be limited to 2,500 hours of operation (AFC Appendix D), or to exceed this number of hours, the Applicant will have to provide documentation that they hold sufficient RECLAIM trading credits. The first year NO_x and CO emissions estimate includes the incremental emissions from initial commissioning and 10 cold start-up/shutdown events. The first year VOC, SO₂, PM₁₀ and NH₃ emissions are based on 2500 hours per year at 100% load (i.e. maximum basis).

The proposed project's hourly emissions of criteria air pollutants are shown in **AIR QUALITY Table 10**. As this Table shows, the highest NOx and CO emissions occur during cold start-up. These higher emissions occur because the SCR catalyst is not at the optimum temperature range for effective NOx control and the CO catalyst is not as effective at the lower temperatures that occur during cold start-up. The emissions control systems are at operational temperatures during shutdown; therefore, shutdown emissions are not believed to be higher than those during normal 100% load operation.

Air Quality: Table 10
Project Hourly Emissions
(pounds per hour, lb/hr)

| Operational Profile | N O x | C O | R O G (a) | S C x (a) | P M 1 0 (a) | N H 3 |
|-----------------------------------------|--------------|---------------|----------------------------|----------------------------|---------------------------------|--------------|
| Cold Start-up per unit (b) | 3 8 .4 | 21 .2 | 1 .8 4 | 1 .2 3 | 1. 6 5 | 5 .6 |
| Both Units @100% load | 3 0 .3 | 18 .4 | 3 .6 8 | 2 .4 6 | 3. 2 9 | 1 1 .2 |
| Both Units @75% load | 2 2 .7 | 13 .8 | 2 .7 6 | 1 .8 5 | 2. 4 7 | 8 .4 |
| Both Units @50% load | 1 5 .2 | 9. 22 | 1 .8 4 | 1 .2 3 | 1. 6 5 | 5 .6 |
| One Unit @100% load | 1 5 .2 | 9. 22 | 1 .8 4 | 1 .2 3 | 1. 6 5 | 5 .6 |
| One Unit @75% load | 1 1 .4 | 6. 92 | 1 .3 8 | 0 .9 2 | 1. 2 3 | 4 .2 |
| One Unit @50% load | 7 .6 | 4. 61 | 0 .9 2 | 0 .6 2 | 0. 8 2 | 2 .8 |
| One Unit @100% load, One Unit @75% load | 2 6 .5 | 16 .1 4 | 3 .2 2 | 2 .1 5 | 2. 8 8 | 9 .8 |
| One Unit @100% load, One Unit @50% load | 2 2 .7 | 13 .8 3 | 2 .7 6 | 1 .8 5 | 2. 4 7 | 8 .4 |
| One Unit @75% load, One Unit @50% load | 1 8 .9 | 11 .5 3 | 2 .3 0 | 1 .5 4 | 2. 0 6 | 7 .0 |

- (a) Emissions of ROG, PM10 and SOx are a function of quantity of fuel burned, thus they will be highest when the boilers operate at maximum fuel consumption.
- (b) These emissions represent the highest hourly emissions estimated during a cold start-up event per unit. The cumulative NOx and CO start-up emissions per unit are 305.28 lbs and 106.84 lbs, respectively during the 11-hour start-up period. For comparison the 100% load emissions per unit for NOx and CO are 116.7 lbs and 101.4 lbs, respectively for an 11-hour period.

AIR QUALITY Table 11 summarizes the maximum (worst case) daily and annual estimated criteria pollutants emissions from the project, using the assumptions provided above. Annual emissions are estimated based on the 100% load, including cold start-up/shutdown emissions.

**Air Quality: Table 11
Estimated Maximum Emissions from the HBGS Retool Project**

| Pollutant | N Ox | CO | RO G | SO x | PM 10 | NH 3 |
|-----------------------------------------|-----------------|-----------|----------|----------|----------|-----------|
| Daily Emissions (Lb/day) (a) | 1,0 04. 5 | 45 3.4 | 88. 3 | 59. 0 | 79. 0 | 26 8.8 |
| Annual Emissions (Tons/year)(b) | 13 4.1 | 80. 8 | 16. 1 | 10. 8 | 14. 4 | 49. 1 |
| First Year Emissions (Tons/year) (c) | 40. 0 | 23. 3 | 4.6 | 3.1 | 4.1 | 14. 0 |

- (a) Assumes one startup/shutdown event per unit per day and 100% baseload for the balance of hours during that day.
- (b) Assumes 10 cold startup/shutdown events/hours per year and 100% base load operation the balance of the year for NOx and CO and 100% base load operation for all other pollutants.
- (c) The first year emissions will occur between July 1, 2001 and June 30, 2002.

In order to assess the cumulative effect of the entire Huntington Beach Generating Station's impacts, the Units 1, 2 and 5 emission sources were included in the modeling analysis. **AIR QUALITY Table 12** summarizes the maximum (worst case) hourly emissions from Units 1 and 2 and Unit 5.

**Air Quality: Table 12
Estimated Maximum Emissions from the HBGS Units 1 and 2 and Unit 5**

| Unit | NO x | CO | RO G | SO x | PM 10 | NH 3 |
|--------------------------------|------------------|-----------|---------|---------|----------|-----------------|
| Unit 1 and 2 (Lbs/hour) (a) | 24. 57 (c) | 1,2 38 | 4.2 | 2.7 | 3.5 3 | 14. 6 (d) |
| Unit 5 (Lbs/hour) (b) | 625 .9 | 160 .4 | 4.1 | 6.6 | 12. 9 | -- |

- (a) Assumes 100% load operation for both units. The CO, ROG, SOx, and PM10 emissions data for Units 1 and 2 are from source tests conducted in November, 2000.
- (b) Total emissions for all 8 turbines operating at 100% load.

- (c) The Unit 1 and 2 NOx and NH3 emission total assumes the SCR system is operational. The pre-SCR NOx emissions total is 510 lbs/hour.
- (d) Estimated based on an ammonia limit of 5 ppm.

The Unit 5 emissions estimates, provided by the Applicant (AES 2001) are based on emission factors presented in AP-42 Section 3.1 (EPA 2000). Since the Unit 5 turbines were installed in the 1960's, have never been source tested, and may have significantly higher emissions than the average emission factors presented in AP-42, or the emission factors used by the District in the HBGS Permit to Operate, staff recommends that the emissions from Unit 5 be source tested in Condition of Certification **AQ-3**.

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.

During the initial commissioning phase for this project the boilers will need to operate, without the SCR and oxidation catalysts systems operating, at a reduced load for a limited period. The Applicant has committed that, of each boiler's 24 burners, only eight would operate during the initial commissioning phase. It should also be noted that the NOx and CO emissions during the initial commissioning period are only marginally higher than emissions during normal start up of the facility.

Staff is recommending to limit uncontrolled (without SCR) NOx emissions during the initial commissioning phase of each boiler to no greater than the equivalent of eight of the 24 burners. Staff proposes to accomplish this by limiting the fuel consumption rate (120 MMBtu/hr), which is equivalent to eight burners firing. In addition, staff is proposing that only one boiler will operate at a time during this initial commissioning phase of operation and that each uncontrolled emissions phase will be limited to 48 hours. These limitations are proposed in Condition of Certification **AQ-6**.

FACILITY CLOSURE

The initial certification for this power plant, if granted, will be limited to a period of up to five years. Air quality requirements will be reviewed at that time to determine appropriate project limitations.

Eventually, HBGS Units 3 and 4 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.

IMPACTS

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 (AES 2001, AES 2001). Air dispersion modeling provides estimates of the ground level concentrations of the pollutants emitted by the proposed project. Staff reviewed the Applicant's modeling analysis and determined that the modeling performed was generally inadequate. Staff made this finding due to the existing emission sources at the site (i.e. Units 1, 2 and 5) are not likely represented in the background data due to the location of the impacts of these sources are not at the locales of the monitoring stations. Also, revisions to the construction and operating emission estimates nullified the initial modeling analysis provide by the Applicant. Therefore, staff performed their own construction and operations modeling analyses, which are presented in this Staff Assessment. The Applicant's revised visibility modeling (AES 2001) was considered to be adequate.

Staff used the EPA-approved ISCST3 model to estimate the impacts of the project's estimated NO_x, PM₁₀, 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. Staff added the modeled impacts to the available highest ambient background concentrations measured during 1997 through 1999 at the Costa Mesa – Mesa Verde Drive monitoring station, the Anaheim – Harbor Boulevard monitoring station, or the El Toro monitoring station. A summary of the Costa Mesa – Mesa Verde Drive monitoring data is 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.

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 Costa Mesa station in 1981. The applicant was required to use this meteorological data set in their SCAQMD permit application and 1981 meteorological data which is generally considered a worst-case year for modeling purposes.

CONSTRUCTION IMPACTS

The applicant modeled the emissions of the onsite construction activities. This analysis was completed using the ISCST3 model (Version 00101). A simplified approach of four point source stacks for modeling construction equipment was employed. Conservatively, the hourly emissions were modeled for each hour of the day, while the project's defined heavy equipment work schedule will be limited to 7 a.m. to 8 p.m. Additionally, Staff requested that the Applicant review their construction emissions estimates, which resulted in a revision to the construction schedule and construction emissions. Therefore, in order to more accurately predict construction impacts the staff revised the Applicants modeling analysis to incorporate these revisions.

Additionally, the following modifications were made to refine the construction emissions modeling analysis:

- The receptor height was modified from 0 meters to 1.5 meters.
- The emissions were modeled from 7 am to 8 pm, which is the maximum daily construction schedule.
- A conservative short-term ARM ratio of 0.75 was used for determination of maximum annual NO₂ concentrations.
- The OLM was used to screen the 1-hour NO_x modeling results to indicate those hours where the maximum OLM calculated NO₂ concentration had the potential to exceed the 1-hour standard. The OLM method was applied using the maximum daily combined ozone and NO₂ background concentrations that have been monitored at the Costa Mesa - Mesa Verde Drive monitoring station from 1997 through 1999 (CARB 2000).

AIR QUALITY Table 13 provides the results of the staff modeling analysis. As can be seen from the modeling results provided in Table 13, the estimated construction impacts do not show any new violations of any ambient air quality standard. Additionally, the use of the proposed construction vehicle tailpipe mitigation measures/emission controls was not reflected in the model inputs or impact results.

AIR QUALITY Table 13
HBGS Retool Project Ambient Air Quality Impact
Staff Construction Modeling Results

| Pollutant | Averaging Period | Project Impact (µg/m ³) | Background Concentration (µg/m ³) | Total Impact (µg/m ³) | Limiting Standard (µg/m ³) | Type of Standard | Percent of Standard (%) |
|-----------------|------------------|-------------------------------------|-----------------------------------------------|-----------------------------------|----------------------------------------|------------------|-------------------------|
| NO ₂ | 1-Hour | (a) | (a) | 397.1 (a) | 470 | CAA QS | 84 |
| | Annual | 16.4 (b) | 62.4 | 78.8 | 100 | NAA QS | 79 |

| | | | | | | | |
|----------|-------------|-----------|---------------|-------------|------------|-----------|------------|
| PM 10 | 24- Hour | 14.0 | 65 (c) | 79 | 50 | CAA QS | 158 |
| | Annua l | 1.29 | 36.3 | 37.6 | 30 | CAA QS | 125 |
| CO | 1-Hour | 9,91 0 | 4,830 (c) | 14,7 40 | 23,00 0 | CAA QS | 64 |
| | 8-Hour | 3,13 6 | 3,117 (c) | 6,25 3 | 10,00 0 | CAA QS | 63 |
| SO 2 | 1-Hour | 20.4 | 89.1 | 109. 5 | 655 | CAA QS | 17 |
| | 3-Hour | 9.39 | 80.2 (d) | 89.5 9 | 1300 | NAA QS | 7 |
| | 24- Hour | 3.44 | 38.8 | 42.2 | 105 | CAA QS | 40 |
| | Annua l | 0.32 | 5.8 | 6.1 | 80 | NAA QS | 8 |

- a – Results based on the Ozone Limiting Method (OLM) using the maximum combined NO₂ and ozone ambient concentrations found for days in 1997 through 1999 that occurred during the anticipated construction period of April through July at the Costa Mesa Mesa Verde Dr. monitoring station.
- b – Results based on ambient ratio method (ARM) using default ratio of 0.75.
- c – These background condition corresponds to the highest concentrations found during the period of maximum construction impact (i.e. highest concentration occurring during April through July from the period of 1997 through 1999).
- d – Maximum three hour SO₂ concentrations were not available from the ambient monitoring data and were therefore assumed to be 0.9 fraction of the maximum hourly SO₂ concentrations.

With the exception of PM₁₀, the emission concentrations modeled for the project construction in addition to background concentrations were found to be below applicable AAQS. The PM₁₀ ambient concentrations and total project impacts in addition to background concentrations were found to be above the 24-hour and annual CAAQS. However, the modeling results did not find that violations of the PM₁₀ NAAQS would occur. In order to minimize the PM₁₀ impacts from project construction staff is recommending Conditions of Certification AQ-C1 and AQ-C2.

OPERATION IMPACTS

The Applicant provided staff with a modeling analysis of the project's operating emissions impacts from directly emitted pollutants, which they believe demonstrates that no violations of ambient air quality standards will be caused by the operation of the project. Staff reviewed the applicant's modeling analysis and determined that due to the other existing sources at the site and due to the Applicant changing their emission estimates, the modeling performed was inadequate. The following modifications were made to the Applicant's original analysis to refine the operations emissions modeling analysis:

- The receptor height was modified from 0 meters to 1.5 meters.
- A conservative ARM ratio of 0.75 was used for determination of maximum one-hour and annual NO₂ concentrations.
- The annual concentrations for Unit 5 were calculated using a ratio of the maximum annual hours of operation and the number of hours in a year (i.e. 1300/8760).

It should be noted that all operations impact analyses were based on the emissions shown in **AIR QUALITY Tables 10** through **12**. When the District issues their Determination of Compliance, the permit emission levels must be no greater than the emissions presented in this analysis in order for the impact assessment presented to remain valid.

DIRECT IMPACTS

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 during base load, as provided in **AIR QUALITY Table 10**, 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 NO2 1-hour impacts the start-up/shutdown emissions were modeled. The average annual emissions, as provided in **AIR QUALITY Table 11**, were modeled to determine the annual impacts. Additionally, Units 1 and 2 and Unit 5 were modeled using the hourly emission data provided in **AIR QUALITY Table 12 as a cumulative modeling analysis**

AIR QUALITY Table 14 presents the results of the modeling analysis. As shown in Table 14, the model results were compared to the most restrictive state and national ambient air quality standards. Table 14 shows that the project (HBGS Unit 3 and 4) operation would not cause any new violations, or significantly exacerbate existing violations, of any applicable ambient air quality standard.

**AIR QUALITY Table 14
HBGS Retool Project Ambient Air Quality Impacts
Staff Operation ISC Modeling Results**

| Pollutant | Averaging Period | Units 3, 4 Impact (µg/m ³) | Units 1, 2 Impact (µg/m ³) | Unit 5 Impact (µg/m ³) | Combi- ned Impact (a) (µg/m ³) | Back- ground Conce- ntratio- n (µg/m ³) | Total Impact (µg/m ³) | Limiting Standard (µg/m ³) | Type of Stan- dard | Per- centage of Stan- dard |
|---------------|------------------|----------------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------|----------------------------------------------|-----------------------------|----------------------------------------|
| NO2 (b) | 1- Hour | 6.33 (c) | 4.46 (d) | 1.67 6 | 1,679 | 253.8 | 1,933 | 470 | C A A Q S | 4 1 1 |
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| | | | | | | | | | | |
|--------------|---------|------|-------------|-------|------|-------------|--------|--------|-----------------------|-------------|
| | Annual | 0.20 | 0.14 (d) | 0.99 | 1.00 | 61.3 | 62.3 | 100 | N A A Q S | 6 2 |
| P M1 0 | 24-Hour | 0.14 | 0.12 | 12.87 | 13.0 | 122 | 135 | 50 | C A A Q S | 2 7 0 |
| | Annual | 0.02 | 0.02 | 0.027 | 0.05 | 36.3 | 36.4 | 30 | C A A Q S | 1 2 1 |
| C O | 1-Hour | 5.24 | 30.0 | 57.3 | 613 | 10,350 | 10,963 | 23,000 | C A A Q S | 4 8 |
| | 8-Hour | 2.09 | 11.9 | 33.3 | 372 | 8,149 | 8,521 | 10,000 | C A A Q S | 8 5 |
| S O2 | 1-Hour | 0.69 | 0.65 | 23.8 | 24.1 | 89.1 | 113.2 | 655 | C A A Q S | 1 7 |
| | 3-Hour | 0.40 | 0.37 | 18.4 | 18.7 | 80.2 (e) | 98.9 | 130.0 | N A A Q S | 8 |
| | 24-Hour | 0.11 | 0.09 | 6.63 | 6.8 | 38.8 | 45.6 | 105 | C A A Q S | 4 3 |
| | Annual | 0.02 | 0.02 | 0.01 | 0.04 | 5.8 | 5.8 | 80 | N A A Q S | 7 |

a – The Combined impacts are lower than the addition of the maximum impacts because the equipment specific maximum impacts occur at different locations than where the combined maximum impact occurs so that the contribution of each source is often not the same as its own maximum impact concentration.

b – Results based on ambient ratio method (ARM) using default ratio of 0.75 NO_x as NO₂.

c – This reflects base load conditions, the maximum NO_x 1-hour impact during startup could be as high as 18 ug/m³.

d – This reflects NO_x emission conditions after the proposed SCR system is in operation, the maximum hourly and annual NO₂ concentrations estimated for Unit 1 and 2 prior to installation of the SCR system are 92.6 µg/m³ and 2.13 µg/m³, respectively.

e – The 3-Hour background concentration is based on a 0.9 ratio of the 1-Hour background concentration.

The maximum PM10 24-hr concentration modeled for Units 3 and 4 is less than 0.3% of the CAAQS, and less than 0.12% of the existing maximum ambient concentration. The project's PM10 24-hour concentration provided in Table 14 is the maximum concentration found any time during the year and most likely does not correspond to the same day as the maximum PM10 background concentration shown in the table. Additionally, the ambient conditions that normally cause high PM10 concentrations (high winds during dry periods or low inversion conditions during cold periods) are not the same as the conditions under which maximum PM10 impacts from the project would occur. Although the Units 3 and 4 PM10 impacts are quite small, because the South Coast AQMD is classified as non-attainment for PM10, and violations of the state and federal ambient air quality standards continue to occur, the Units 3 and 4 PM10 emissions impacts are, without appropriate mitigation, significant.

The combined modeling impact of all five units would not cause a new violation of any CO or SO₂ ambient air quality standard. The PM10 impacts from the operation of all five units would cause a further exacerbation of violations of the state and federal PM10 standards. The overwhelming majority of PM10 impacts (approximately 99 percent) is from the operation of Unit 5. In addition, the modeling results show that Unit 5 is the cause of the highest offsite concentrations that may result in violations of the NO₂ 1-hour CAAQS. The reasons for the large impact from Unit 5 is due to the old turbine technology of the gas turbine engines which results in exceedingly high NO_x emissions and the relatively short stack heights of the two exhaust stacks. The high emissions along with the short stack heights coupled with steady-state winds that can result in a downwash effect of bringing the emissions plumes to the ground, results in high short term impacts. Based on this modeling analysis, the operation of Unit 5 can cause a violation of the state 1-hour NO₂ ambient air quality standard. This is a significant and presently unmitigated air quality impact.

Additionally, the NO₂ impacts from Units 1 and 2 will be reduced significantly after the proposed addition of SCR controls. That permit process is currently undergoing review by the City of Huntington Beach.

SECONDARY POLLUTANT IMPACTS

The project's emissions of gaseous emissions, primarily NO_x, SO₂, VOC, and NH₃ can contribute to the formation of secondary pollutants, namely ozone and PM10, particularly ammonium nitrate and sulfate/bisulfate PM10.

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. There are no regulatory agency models 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 HBGS Retool Project do

have the potential to contribute in some minor unquantified 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 PM₁₀ (primarily ammonium nitrate) formation, the process of gas-to-particulate conversion is complex and depends on many factors, including local humidity and the presence of other compounds that participate in or aid the reactions that form secondary particulate. 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_x, VOC, and NH₃ from HBGS have the potential to contribute (although not quantifiable) to higher secondary PM₁₀ (particularly of ammonium nitrate) levels in the region. However, the controlled emission levels of the HBGS Retool Project are so low, that any possible contribution to secondary PM₁₀ formation would be imperceptible and thus not expected to noticeably contribute to secondary PM₁₀ formation or affect the PM₁₀ attainment status for the South Coast Air Basin.

FUMIGATION IMPACTS

There is the potential that higher short-term 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 under two possible types of fumigation conditions from the project site. Type 1 fumigation, inversion breakup, 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 pollutant at ground level. This phenomenon usually ceases 30 to 90 minutes after sunrise. Type 2 fumigation, shoreline fumigation, can result from advection of pollutants from a stable marine environment to an unstable inland environment. Shoreline fumigation must be considered for sources within 3 kilometers of a large body of water.

The EPA model SCREEN3 was used by the Applicant to estimate potential impacts due the above-mentioned types of fumigation conditions. The results of the analysis, estimated for the worst-case operating conditions, are summarized in **AIR QUALITY Table 15** (inversion breakup fumigation) and **AIR QUALITY Table 16** (shoreline fumigation).

AIR QUALITY Table 15
Maximum Inversion Breakup Fumigation Impacts
Applicant SCREEN3 Modeling, 1- Hour Results

| Pollutant | Operating Condition | Maximum Impact ($\mu\text{g}/\text{m}^3$) | Background Concentration ($\mu\text{g}/\text{m}^3$) | Total Impact ($\mu\text{g}/\text{m}^3$) | Limiting Standard ($\mu\text{g}/\text{m}^3$) | Type of Standard | Percent of Standard |
|-----------------|---------------------|---------------------------------------------|-------------------------------------------------------|-------------------------------------------|------------------------------------------------|------------------|---------------------|
| NO ₂ | Start-up | 9.69 | 254 | 264 | 470 | CA AQS | 56 |
| | 100% Load | 3.22 | | 257 | | | 55 |
| CO | 100% Load | 59 | 10,350 | 10,409 | 23,000 | CA AQS | 45 |
| SO ₂ | 100% Load | 0.26 | 89.1 | 89.4 | 655 | CA AQS | 14 |

Shoreline fumigation impacts were estimated using Thermal Internal Boundary Layer (TIBL) factor 6.

AIR QUALITY Table 16
Maximum Shoreline Fumigation Impacts (a)
Applicant SCREEN3 Modeling, 1- Hour Results

| Pollutant | Operating Condition | Maximum Impact ($\mu\text{g}/\text{m}^3$) | Background Concentration ($\mu\text{g}/\text{m}^3$) | Total Impact ($\mu\text{g}/\text{m}^3$) | Limiting Standard ($\mu\text{g}/\text{m}^3$) | Type of Standard | Percent of Standard |
|-----------------|---------------------|---------------------------------------------|-------------------------------------------------------|-------------------------------------------|------------------------------------------------|------------------|---------------------|
| NO ₂ | Start-up | 70.1 | 254 | 324 | 470 | CA AQS | 69 |
| | 100% Load | 21.29 | | 275 | | | 59 |
| CO | 100% Load | 395.7 | 10,350 | 10,746 | 23,000 | CA AQS | 47 |
| SO ₂ | 100% Load | 1.73 | 89.1 | 90.8 | 655 | CA AQS | 14 |

(a) Maximum impacts resulted with TIBL factor of 6.

As the above tables indicate, the fumigation impacts would not exceed applicable 1-hour Ambient Air Quality Standards.

VISIBILITY IMPACTS

The Applicant provided a Level I screening visibility impact analysis, which showed that the project is not expected to exceed any significant visibility impairment increment inside any nearby PSD Class I areas (AES 2000). However, the Federal Land Manager(s) reviewing the PSD application did not consider this modeling to be adequate and have requested additional visibility modeling using the Calpuff model (Yee, 2001). Subsequently, the Applicant provided additional visibility modeling analysis. Based upon an initial finding (USDA 2001) by the Federal Land Manager for the Angeles National Forest, they have determined that there should be no significant visibility impacts on the three areas of concern, the San Gabriel, Cucamonga and Agua Tibia Wilderness areas.

FUTURE CUMULATIVE IMPACTS

To evaluate the cumulative emission impacts of the HBGS Retool Project along with other probable future emission sources, the CEC staff gathered and evaluated District records to determine other sources, which along with the HBGS retool project, may cumulatively impact the site area. Stationary sources located within six miles of the HBGS site that meet the following criteria were used to identify other emission sources that may cause cumulative impacts:

- (a) Have received an Authority to Construct (ATC) permit but are not yet operational; or
- (b) Have submitted complete ATC applications to the District.

Staff reviewed a list of potential cumulative emission sources provided by the District. Staff identified approximately 15 possible candidate sources for further investigation. Upon reviewing the types of sources, the size (by quantity of fuel consumed), the emissions, and their location relative to the HBGS, staff determined that a cumulative modeling assessment that includes sources other than the Units 1-5 of the HBGS was not necessary. It is staff's judgement that there would be no emission plume overlap between the HBGS sources and the possible candidate sources, thus rendering an air dispersion modeling exercise as not necessary.

Staff is aware of the proposed Poseidon Resources Corporation desalination plant that is planned to be located on the HBGS property. At this time this plant is in the preliminary planning stages and there are no air quality permit applications submitted to the District; therefore, at this time no cumulative impacts can be assessed for this project in conjunction with the HBGS Retool Project. However, the EIR that will be prepared for the proposed desalination project will have to assess its impact in conjunction with the rest of the HBGS.

MITIGATION

CONSTRUCTION MITIGATION

The Applicant has not proposed to implement any construction mitigation measures. Staff has recommended the implementation of the following construction mitigation measures:

- A construction dust suppression program.
- The British Petroleum – ARCO refinery in Los Angeles is currently making diesel fuel with a sulfur content of 15ppm or less (referred to as ECD-1) at a rate of 1 million gallons per day. This is compared to the EPA sulfur limit for on-road diesel fuel of no more than 500ppm. ECD-1 has been tested in a variety of on-road and off-road diesel engines, is shown to significantly reduce the sulfur component of particulate emissions and has an added cost of only 5 cents per gallon. Compared to the use of EPA standard low sulfur fuel (500 ppm or less), the use of ECD-1 would result in an approximately a 30 percent reduction of PM10.
- For NO₂ construction emissions mitigation, the staff recommends the Applicant use available EPA certified 1996 low NO_x emission heavy-duty construction equipment or demonstrate that their equipment complies with the EPA 1996 diesel engine emission standards. Based on EPA Tier 1 emission factors for new equipment (circa 1996-2002), the use of low NO_x equipment has the potential to reduce NO_x emissions by at least 15 to 20%. The Applicant will be required to determine the availability of low NO_x heavy-duty construction equipment during their construction services procurement process and detail a methodology for including this factor in the construction bid analysis.
- The Applicant has indicated that there will be an emergency power generator at the site to provide power in the event of a power outage. Staff recommends that the use of this engine be conditioned to only occur during power outages and that records of its operations be kept and submitted for compliance verification.

The construction emission mitigation measures proposed by staff are included as Conditions of Certification **AQ-C1** through **AQ-C4**.

OPERATION MITIGATION

As discussed in the project description section, the Applicant will apply air pollution control equipment to limit the project's emission levels. To reduce NO_x emissions from the Unit 3 and 4 boilers, the Applicant proposes to use low-NO_x burners, FGR and a SCR system. To reduce CO emissions, the Applicant proposes to use an oxidizing catalyst. The proposed control devices are designed to maintain the boiler exhaust emissions to 5 ppmvd NO_x and 5 ppmvd CO corrected at 3% O₂. The ammonia slip emissions (from unreacted ammonia in the SCR) will be maintained at 5 ppm or less. Natural gas will be the only fuel used, which will minimize the project's SO₂ and PM₁₀ emissions. To ensure that the fuel meets PM₁₀ and SO₂

BACT requirements, staff proposed Condition of Certification AQ-2, which requires the facility to use only CPUC pipeline quality natural gas that will have a maximum sulfur content of 0.25 grains/100 SCF expressed as H₂S. These emission controls meet BACT requirements.

The Applicant is also required by the District's New Source Review Rule, Regulation XIII, to provide emission offsets for NO_x, CO, SO₂, PM₁₀ and ROG emissions. To date, the applicant has provided documentation that of the RECLAIM Trading Credits (RTC) (80,000 lbs/year) that they purport to have secured for the Units 3 & 4 Retool Project. This amount of RTC would account for approximately 2500 hours per year of operation of Units 3 and 4. If the Applicant wishes to operate these units greater than 2500 hours, then they will have to demonstrate that they have sufficient RTCs available for additional hours of operation. Staff has proposed a Condition of Certification (AQ-11) that will require that they Applicant provide that documentation for RTCs or be limited to 2500 hours of operation for Units 3 and 4.

The Applicant has provided documentation that they secured sufficient Emission Reduction Credits for their ROG liability (148 lbs/day). In addition, they have secured 159 lbs/day of the CO ERC necessary. However, the Applicant has not provided evidence of securing the necessary remaining CO ERC or any of the required SO₂ and PM₁₀ ERC. As discussed in the Impacts Section, the project would contribute to a significant PM₁₀ impact without mitigation. Since the Applicant has not provided the necessary offset mitigation the PM₁₀ impact remains not mitigated.

Since SO₂ is a precursor pollutant to secondary PM₁₀, SO₂ emissions must be mitigated through securing offsets. Since the Applicant has not provided the necessary SO₂ offsets, the project's SO₂ emissions impacts are not mitigated. In reviewing the SCAQMD's ERC Bank, staff notes that although the PM₁₀ and SO₂ ERC bank is not large, there are sufficient credits in the Bank to fully offset the project's PM₁₀ and SO₂ liability. The Applicant has not yet completed their emissions offset package, and the District will not issue the FDOC or PTC/PTO without a complete offset package. Staff will be reviewing and commenting on the PDOC/FDOC and additional information provided by the applicant regarding their offset package and will work with SCAQMD staff to ensure that the offset package will adequately mitigate the project emissions and meet the requirements of applicable rules and regulations.

Staff is aware of possible solutions for the SO₂ and PM₁₀ offset situation that has been proposed informally by the District. For SO₂ offsets, the Applicant could enter the RECLAIM market and purchase SO_x RTC on an annual basis, similar to what they currently do for their NO_x RTCs. For PM₁₀, the District is proposing to modify their current Rule 1309.1 (Priority Reserve), to allow a project such as HBGS to use PM₁₀ credits that are currently deposited in the Priority Reserve.

The secondary pollutant formation potential for the HBGS Retool Project will be minimized by the incorporation of BACT, and is not considered to significantly affect ambient concentrations of ozone or PM₁₀. However, since NH₃ can contribute to secondary PM₁₀ formation, in order to determine the lowest achievable NH₃ slip

emissions limit staff is recommending the inclusion of Certification Condition **AQ-C4** to require the applicant to provide additional information about the SCR and oxidation catalyst control systems.

Staff is concerned about the potential for significant adverse cumulative impacts occurring from the combined operation of Units 3 and 4 with Units 1, 2 and 5. Staff has proposed Conditions of Certification that restricts the operation of Unit 5 during 2001 and early 2002, to only those times when the megawatts generated from that unit are absolutely necessary as required by the ISO. Subsequently, staff is recommending in the long term that Unit 5 have emission controls applied to significantly reduce the NOx emissions from this Unit and thus the significant impacts that this Unit has on the ambient air quality in the area. Alternatively, the Applicant can decide to permanently shutdown Unit 5, thus avoiding the significant air quality impact altogether.

COMPLIANCE WITH LORS

FEDERAL

The District is responsible for issuing the Federal Prevention of Significant Determination permit. Since the District has not yet issued a Preliminary let alone a Final PSD permit as part of their Determination of Compliance at this time, staff cannot make a recommendation as to whether the project is in compliance with all PSD requirements. Absent the District's complete DOC, staff recommends the Commission, as a Condition of Certification, require the Applicant receive their Final PSD permit prior to construction.

STATE

Staff believes that if and when the appropriate mitigation (offsets) are provided for the Units 3 and 4 project to demonstrate compliance with the District rules, the project will at that time demonstrate compliance with California State Health and Safety Code, Section 41700. However, given the likelihood of HBGS Units 1-5 operations resulting in significant cumulative impacts, staff cannot reach the same conclusion concerning the ongoing operation of Unit 5. It is staff's position that because the modeling analysis shows that the operation of Unit 5 can, by itself, cause a violation of the State 1-hour NO₂ ambient air quality standard, Unit 5 does not presently demonstrate compliance with Section 41700. Furthermore, based upon eyewitness accounts by a number of local citizens to the HBGS, a "brownish" cloud of emissions appears to emanate from the stacks of Unit 5. Staff believes that the emissions from Unit 5 cause "detriment, nuisance, or annoyance to any considerate number of persons or to the public" and further, that if violations of the 1-hour NO₂ were occurring because of the operation of Unit 5, this emission source "endangers the comfort, repose, health, or safety of any such persons or the public."

LOCAL

The South Coast Air Quality Management District has not submitted a Preliminary Determination of Compliance of the District's Rules and Regulations. Considering that a complete offsets package has not been identified at this time, staff believes that at present, the proposed project cannot be found in compliance with the District's Rules and Regulations.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Applicant does not currently have a complete offset package that satisfies SCAQMD and USEPA permitting requirements. The District cannot complete their Final Determination of Compliance (FDOC) until the Applicant provides a complete offset package. Further, until a complete offset package is available, there are unmitigated significant impacts from the Units 3 and 4 PM10 and SO2 emissions. If Units 3 and 4 are allowed to operate, the operation of Unit 5 would lead to significant cumulative impacts from NOx emissions. The effective way to render the cumulative effect from Units 3 and 4 insignificant, staff believes, is to control Unit 5. Staff believes that it is technologically feasible to control these NOx emissions, and since Unit 5 is under the same ownership and control as Units 3 and 4, the Applicant for Units 3 and 4 can control Unit 5 as a practical matter.

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

RECOMMENDATION

Staff recommends certification of the HBGS Retool Project only if the Applicant meets its offset obligations and the District completes their FDOC, and the Applicant provides mitigation for the significant project cumulative impacts. If those obligations are met, then the staff recommends the following Conditions of Certification to address the impacts associated with the construction of the Units 3 and 4 Retool Project as well as the operation of the Huntington Beach Generating Station in its entirety.

CONDITIONS OF CERTIFICATION

STAFF CONSTRUCTION CONDITIONS

AQ-C1 Prior to the commencement of project construction, the project owner shall prepare a construction Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for the construction of the HBSG Retool Project and related facilities.

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

- the identification of the employee parking area(s) and surface of the parking area(s);
- the frequency of watering of unpaved roads and disturbed areas;
- the application of chemical dust suppressants;
- the stabilization of storage piles and disturbed areas;
- the use of gravel in high traffic areas;
- the use of paved access aprons;
- the use of posted speed limit signs;
- the use of wheel washing areas prior to large trucks leaving the project site; and
- the methods that will be used to clean mud and dirt tracked-out from the project site onto public roads.

b) The following measures should be addressed for the transportation of the any borrow fill materials to the HBGS Retool Project site and the transmission and natural gas line sites, if any, and the transportation of export soils and construction debris:

- the use of covers on the vehicles;
- the wetting of the material; and
- insuring appropriate freeboard of material in the vehicles.

Verification: At least 5 days prior to the start of construction, the project owner shall provide the CPM with a copy of the Construction Fugitive Dust Mitigation Plan for approval.

AQ-C2 The project owner shall use exclusively 15 ppm sulfur content fuel (such as ECD-1 or equivalent) in all diesel off-road construction equipment.

Verification: The project owner shall submit to the CPM records of purchase of the diesel fuel that includes the sulfur content of that fuel as part of monthly construction reports.

AQ-C3 The project owner shall use EPA certified 1996 low NOx emission construction equipment or demonstrate that their equipment complies with the EPA 1996 diesel engine emission standards. The project owner shall ensure that all heavy earthmoving equipment including, but not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, have been properly maintained and the engines tuned to the engine manufacturer's specifications.

Verification: The project owner shall submit to the CPM, no later than 15 days after initiating construction, a written evaluation that demonstrates that all construction diesel engines comply with this requirement and if available copies of the EPA or CARB engine certifications.

AQ-C4 The project owner shall only use internal combustion powered generating equipment to provide electrical power for the Unit 3 and 4 construction activities during power outages.

Verification: The project owner shall maintain an operating log on all fuel-fired internal combustion engines that are used to supply electricity for the construction of Units 3 and 4. The operating log will identify at a minimum the dates and times of use and a daily record of equipment hour gauge data. A copy of this operating log will be provided to the CPM each month during construction, and will be made available to CEC or District staff at all times.

AQ-C5 The project owner shall provide to the CPM and the District, vendor and design data for the SCR and Oxidation catalyst systems, which will include performance guarantees that demonstrate that the systems have been designed to meet the NO_x and CO emission concentration limits (5 ppm corrected to 3% O₂ for each pollutant) Additionally, the SCR vendor data shall include ammonia slip performance guarantees of 5 ppm corrected to 3% O₂.

Verification: At least 30 days prior to the installation of the catalyst systems, the project owner shall provide the CPM and the District with a copy of the SCR and Oxidation catalyst systems vendor and design data for approval.

STAFF OPERATING CONDITIONS

AQ-1 The project owner shall operate the post-combustion emission control devices (SCR and Oxidation catalyst systems) at all times, as practical per manufacturer recommendations, during boiler operation.

Verification: The project owner shall provide operating interlocks, or other control systems, that require the emission control equipment to be in operation during normal operation. At least 15 days prior to the installation of the catalyst systems, the project owner shall provide the CPM documentation on the control systems, procedures, etc. that will be used to ensure proper control of equipment operation.

AQ-2 The project owner shall use only pipeline quality natural gas to fuel Units 3 and 4 and the total sulfur content of the fuel shall be limited to 0.25 grain/100 scf, expressed as H₂S.

Verification: The project owner shall test the total sulfur content of the fuel quarterly and shall provide the results of the tests, expressed as equivalent grains of H₂S per 100 scf. to the CPM within 30 days of performing each test.

AQ-3 The project owner shall source test Unit 5 for the following pollutants and exhaust parameters prior to September 1, 2001:

Nitrogen Oxides (and NO to NO₂ ratio)

Carbon Monoxide
Reactive Organic Gases
PM10
Exhaust Velocity
Temperature

During this source test the project owner shall keep operating records, such as fuel flow, in order to determine appropriate emission factors for Unit 5.

Verification: The project owner shall provide the CPM with the source test protocol and schedule for review 30 days prior to conducting the source test on Unit 5, and shall provide the source test report to the CPM within 30 days of performing the source test. Additionally, the project owner shall allow CEC staff, CEC contractors, or other regulatory agency staff access to the site to observe the Unit 5 source tests.

AQ-4 a. The project owner shall install Best Available Retrofit Control Technology (BARCT) on Unit 5, or demonstrate compliance with District Rule 1134, or permanently shutdown Unit 5, prior to June 1, 2002. If emission controls are installed prior to June 1, 2002, then the limitation for contemporaneous operation specified in Condition AQ-4(b) would not apply.

b. Prior to June 1, 2002, Units 3 and 4 and Unit 5 will only be operated contemporaneously when the ISO declares a Stage 3 Electrical Emergency and/or when operating power reserves are at or below 1.5%.

Verification: The project owner shall provide in writing to the CPM, prior to July 1, 2001, whether it intends to install BARCT or otherwise demonstrate compliance with District Rule 1134, or shutdown Unit 5 prior to June 1, 2002. If the project owner intends to install BARCT on Unit 5, the project owner will provide the CPM a BARCT assessment document prior to initiating air quality permitting and shall provide the CPM a copy of all permitting documents for review during the BARCT permitting process.

Additionally, prior to installation of BARCT or the permanent shutdown of Unit 5, the project owner will maintain operating records that identify contemporaneous periods of operation for Units 3 and 4 and Unit 5 along with the ISO emergency declaration or other documentation that verifies compliance with this condition. This compliance documentation shall be submitted to the CPM on a quarterly basis.

AQ-5 The project owner shall investigate the feasibility of installing continuous emission monitors (CEMs) for ammonia on the stacks of Units 1 and 2 and Units 3 and 4 as a means of demonstrating compliance with required ammonia limits. If the use of an ammonia CEM system is found to be feasible and cost effective, it shall be installed and operating by the time Units 3 and 4 begin normal operation.

Verification: The project owner shall provide to the CPM the ammonia CEM feasibility report 30 days prior to beginning the normal operation of Units 3 and 4. The feasibility report, at a minimum will identify the available ammonia monitoring systems, their technical specifications and detection ranges, costs; if necessary, any reasons why these systems are not technically feasible for the HBGS; and if applicable the installation schedule and record keeping procedures for the ammonia CEMs that may be installed.

AQ-6 The initial commissioning of the Unit 3 and Unit 4 boilers shall not be performed concurrently, initial commissioning shall be limited to 48 hours for each boiler, and the input heat rate during initial commissioning of each boiler shall be limited to a total of 120 MMBtu/hr.

Verification: The project owner shall provide to the CPM, within 15 days of initial commissioning, the fuel flow data for the initial commissioning period of each boiler.

AQ-7 The Unit 3 and Unit 4 boilers shall not be operated in start-up mode concurrently, each start-up (not including initial commissioning) shall be limited to 12 hours for each boiler, and the heat rate during initial commissioning of each boiler shall be limited to a total of 120 MMBtu/hr until the SCR is operational.

Verification: The project owner shall provide to the CPM quarterly records of the fuel flow data and SCR operating data for the start-ups for each boiler.

DISTRICT PRELIMINARY DETERMINATION OF COMPLIANCE CONDITIONS

The District has not yet completed its PDOC. The conditions from the PDOC/FDOC will be appended to the Conditions of Certification when they become available.

AQ-8 The project owner shall maintain compliance with the District's FDOC and PTC/PTO conditions, including all monitoring and record keeping provisions.

Verification: The project owner shall provide to the CPM, on a quarterly basis, a summary of the permit compliance status that, at a minimum, includes a summary of compliance with all District permit conditions and all CEC Conditions of Certification, a listing and copies of notices of violation received from SCAQMD, ongoing status of any SCAQMD enforcement actions, and a listing of air quality related (i.e. odor, opacity, etc.) community complaints received by the project owner.

AQ-9 The project owner shall maintain compliance with the District's source testing requirements.

Verification: The project owner shall provide to the CPM copies of all District required source tests within 45 days of conducting those tests.

AQ-10 The project owner shall maintain compliance with the District's continuous emissions monitoring system (CEMS) requirements, including all recordkeeping requirements.

Verification: The project owner shall provide to the CPM, on a quarterly basis, summaries of the CEMS data as required to be kept by District permit conditions, and as necessary to summarize data from CEMS that may be required by other CEC Conditions of Certification.

AQ-11 The project owner shall limit the first year (July 1, 2001 through June 30, 2002) operation of Units 3 and 4 to a maximum of 2,500 hours each. The project owner can exceed 2,500 hours/year/Unit only if they can demonstrate that their total NOx RECLAIM allocation is sufficient to allow operation of Units 3 and 4 greater than 2,500 hours.

Verification: The project owner shall provide operating records, including fuel use data and total operating hours for Units 3 and 4, to the CPM on a quarterly basis. The project owner shall also provide to the District and the CPM a quarterly NOx emissions profile of the entire Huntington Beach Generating Station verifying that there are sufficient NOx RECLAIM trading credits allocated for continued project operation.

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PUBLIC HEALTH

Obed Odoemelam, Ph.D.

INTRODUCTION

Operating the proposed Huntington Beach Generating Station (HBGS) Retool Project would produce combustion products and possibly expose the general public and workers to these pollutants as well as the toxic chemicals associated with other aspects of facility operations. The purpose of this public health analysis is to determine whether a significant health risk would result from public exposure to these chemicals and combustion by-products as routinely emitted during the operation of the two HBGS units proposed for retooling. The issue of possible worker exposure is addressed in the **Worker Safety and Fire Protection** section of this Staff Assessment (SA). The health significance of exposure to electric and magnetic fields (EMF) is usually addressed separately in a **Transmission Line Safety and Nuisance** (TLSN) section along with issues related to the physical presence of the line involved. However, since the existing transmission lines, switchyards, and interconnection to the Southern California Edison (SCE) system are proposed to be utilized without modification or additional transmission lines, the sources of electric and magnetic fields would remain the same when the two retooled units are operated. Therefore, no TLSN section was prepared.

The pollutants of primary concern in this section along with EMF exposure, are those for which no air quality standards have been established. These are known as noncriteria pollutants, toxic air pollutants, or air toxics. Those for which ambient air quality standards have been established are known as criteria pollutants. Compliance with their emission limits is assessed in the **Air Quality** section by comparing the operational-phase exposures with the applicable air quality standards.

The criteria pollutants are also identified in this section (along with regulations for their control) because of their usually significant contribution to the total pollutant exposure in any given area. Furthermore, the same control technologies may be effective for controlling both types of pollutants when emitted from the same source. Compliance with the required control technologies is discussed in the **Air Quality** section.

LAWS ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

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

STATE

California Health and Safety Code section 39606 requires the California Air Resources Board (ARB) to establish California's ambient air quality standards to reflect the California-specific conditions that influence its air quality. Such standards have been established by the ARB for ozone, carbon monoxide, sulfur dioxide, PM10, lead, hydrogen sulfide, vinyl chloride and nitrogen dioxide. The same biological mechanisms underlie some of the health effects of most of these criteria pollutants as well as the noncriteria pollutants. The California standards are listed together with the corresponding federal standards in the **Air Quality** section.

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

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

California Health and Safety Code section 44300 et seq. requires facilities, which emit large quantities of criteria pollutants and any amount of noncriteria pollutants to provide the local air district an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative health risk assessment to address the potential health risks involved. The ARB ensures statewide implementation of these requirements through the state's Area Air Quality Management Districts or Air Districts.

LOCAL

Local implementation of provisions of the Health and Safety Code section 44300 in the proposed project area is ensured by the area's air district, the South Coast Air Quality Management District (SCAQMD) which established Rule 1401 in this regard. The applicant has complied with Rule 1401's requirements by submitting a Health Risk Assessment to the Air District as part of their permit application for this project.

SETTING

According to information from the applicant, the AES Huntington Beach Limited Liability Company, or AES (2000a, pages 3.1-1, 5.16-1, and 5.9-1 through 5.9-4), the proposed retooling would be with respect to two retired Units (3 and 4) of the presently operating Huntington Beach Generating Station (HBGS) occupying a 53-acre site in the City of Huntington Beach. These two units are located on approximately 12 acres in the north-central portion of this HBGS site, which is surrounded by industrial and commercial establishments to the northeast and east, residential areas to the northwest, wetlands to the southeast, and the Pacific Coast Highway and beaches to the west and southwest.

The applicant (AES 2000a, pages 5.16-11 through 5.16-13) has provided a listing of the sensitive receptors (which in this case are schools, hospitals, day care facilities, and other long-term care facilities) within a 3-mile radius of the project site. The sensitive individuals in these locations include children, the elderly and those with certain pre-existing diseases. Regulatory agencies incorporate specific margins of safety in the environmental limits for environmental pollutants as a way of protecting against health effects in these sensitive individuals. These margins of safety are established from the health effects information available during the standard setting period. As more is known from additional health effects studies, each standard could be revised to ensure the health protection at issue. For the proposed and similar projects, the potential for emissions-related health impacts is assessed using specific assessment methods.

METHOD OF ANALYSIS

Any significant pollution-related impacts from projects such as proposed for HBGS, would be mainly associated with emissions from the project's natural gas-fired combustion turbines. For the toxic air pollutants of concern in this analysis, potential public exposure in the surrounding area is estimated through air dispersion modeling. The exposure estimates from such modeling are then used by staff together with information on applicable exposure parameters to establish whether total exposures would be above or below the reference exposure levels established against noncancer effects. For cancer-causing (or carcinogenic) effects, such assessments are made in terms of the potential for exposure at levels whose related cancer risks are considered significant by regulatory agencies. The procedure for evaluating the potential for these cancer and noncancer health effects is known as a health risk assessment process and consists of the following steps:

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

A risk characterization step in which the nature and the magnitude of the possible human health risk is assessed.

HEALTH EFFECTS ASSESSED

Health risks from any source of toxic air pollutants can result from high-level exposure, which creates immediate-onset (acute) effects, or prolonged low-level exposure, which creates chronic effects. Noncancer effects are assumed to result after exposure above specific thresholds. Therefore, an analysis of the potential for these effects will include consideration of background or ambient levels of the toxic pollutants being assessed. Unfortunately, data on such background levels is not usually available for the toxic non-criteria pollutants associated with natural gas combustion because these pollutants (a) are emitted in small amounts relative to the criteria pollutants and (b) do not normally exist for long in the atmosphere because of their reactive nature.

For natural gas-burning sources such as the retooled Units 3 and 4, high-level toxic exposures (which could cause acute effects) could occur only during major accidents and are not expected from routine operations when emissions are much lower. Because of this, effects from chronic exposures are considered to be of greater concern than acute effects in assessing the potential impacts of such toxic pollutants as released from common sources. Such chronic effects may manifest themselves as cancer or health effects other than cancer. Only noncancer effects are expected from chronic exposures to the criteria pollutants.

ASSESSING THE LIKELIHOOD OF NON-CANCER EFFECTS OF TOXIC AIR POLLUTANTS

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

ASSESSING THE POTENTIAL RISK OF CANCER

According to present understanding, cancer from carcinogenic exposure results from biological effects at the molecular level. Such effects are currently assumed possible from every exposure to a carcinogen. Therefore, staff and other regulatory agencies generally consider the likelihood of cancer manifestation as more sensitive than the likelihood of noncancer effects for assessing the environmental acceptability of a source of pollutants. This sensitivity accounts for the prominence of theoretical cancer risk estimates in the environmental risk assessment process.

For any source of specific concern, the potential risk of cancer is obtained by multiplying the exposure estimate by the potency factors for the individual carcinogens involved. These potency factors are numerical values established to represent the cancer-causing potential of one carcinogen as compared to the others. After calculating these individual risk values, they are added together for the project's carcinogens to obtain the total incremental cancer risk associated with operations. Given the conservatism in the various phases of this risk calculation process, these numerical estimates are regarded as only representing the upper bounds on the cancer risk at issue. The actual risk will likely be lower and could indeed be zero. The significance of these estimates as indicators of a real cancer hazard is assessed according to specific evaluative criteria.

STAFF'S SIGNIFICANCE CRITERIA

Various state and federal agencies specify different cancer risk levels as levels of significance with regard to specific sources. For example, many California agencies regard a risk of 10 in a million under the Air Toxics "Hot Spots" (AB 2588) and the Proposition 65 programs as significant, and therefore, use it as a threshold for public notification in cases of air toxics emissions from existing sources.

The Energy Commission staff considers a potential cancer risk of one in a million as the de minimis level, which is the level below which the related exposure is considered negligible (meaning that project operation is not expected to result in any increase in cancer). A higher risk level would not automatically call for further mitigation, which staff would recommend only after consideration of issues related to the limitations of the risk assessment process.

For non-carcinogenic pollutants, staff considers significant health impacts to be unlikely when the hazard index estimate is 1.0 or less. If more than 1.0, staff would regard the related emissions as potentially significant from an environmental health perspective but would not automatically recommend specific mitigation which, as with cancer risk estimates, would be made only after consideration of issues related to the uncertainties in the assessment process.

IMPACTS

PROJECT SPECIFIC IMPACTS

The air toxics-related impacts from operating the retooled Units 3 and 4 of HBGS can be considered separately as construction-phase impacts and operational-phase impacts.

CONSTRUCTION PHASE IMPACTS

For most projects, the construction-phase impacts of concern in this analysis would be those from exposure to toxic chemicals, either adsorbed on to the wind-blown dust from site grading and other construction-related activities, or emitted from the heavy equipment and vehicles to be used for such construction. The potential for significant impacts is discussed in the **Air Quality** section for the wind-blown dust

itself and the other criteria pollutants in terms of (a) exposures above the applicable air quality standards and (a) compliance with SCAQMD-specified mitigation measures. Since no site grading would be associated with this proposed, there would be no on-site exposure to fugitive dust-bound toxic pollutants capable of the effects of concern.

As reflected in the information from the applicant (AES 2000a, pages 5.2-5, 5.2-43 and Appendix C), the toxic emissions from construction-related tailpipes would be confined within the project site at levels staff considers insignificant for the three-month construction period involved.

DIRECT OPERATIONAL IMPACTS

The applicant conducted the health risk assessment for the project-related air toxics of potential significance. This assessment was conducted according to procedures specified in the 1993 California Air Pollution Control Officer's Association (CAPCOA) guidelines for sources of this type. The results were provided to staff along with documentation of the assumptions used (AES 2000a, pages 5.16-2 through 5.16-7). Such documentation was provided with regard to the following:

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

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

The following pollutants were considered with respect to noncancer effects: ammonia, as related to the use of the selective catalytic reduction (SCR) system for NO_x control, acetaldehyde, acrolein, benzene, 1,3 butadiene; ethylbenzene, formaldehyde, hexane, naphthalene, polycyclic aromatic hydrocarbons (PAHs), propylene oxide, toluene, and xylenes. The following were considered with regard to a possible cancer risk: acetaldehyde, benzene, 1,3 butadiene, formaldehyde, PAHs and propylene oxide.

A maximum chronic hazard index of 0.00148 was calculated for the maximally exposed individual at a location near the northeastern property boundary within the

HBGS site. This location is a commercial/industrial setting with several residences. A maximum acute hazard index of 0.0022 was calculated for a location approximately ¼ mile from the site boundary (AES 2000a, page 5.16-6). These indices are significantly below the levels of potential health significance, suggesting that no significant health impacts would likely be associated with the project's toxic pollutants of concern in this analysis.

The maximum incremental cancer risk was estimated to be 0.312 in a million for the individual at the same point for which the maximum chronic hazard was calculated. This risk was calculated using existing procedures in which it is assumed that the individual would be exposed at the highest possible levels to all the carcinogenic pollutants from the project for 70 years. This risk value is significantly below staff's de minimis level, meaning that the project's carcinogenic emissions would be unlikely to pose a significant cancer risk anywhere in the project area.

CUMULATIVE IMPACTS

When toxic pollutants are emitted from multiple sources within a given area, the cumulative, or additive, impacts of such emissions could, in concept, lead to significant health impacts within the population, even when such pollutants are emitted at insignificant levels from the individual sources involved. Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. Toxic pollutant levels beyond the point of maximum impact normally fall within ambient background levels. Given the potentially low cancer and non-cancer risks from the project's emissions, staff does not regard operation as potentially contributing significantly to any area toxic exposure of a cumulative nature.

EXPOSURE TO THE PROJECT'S ELECTRIC AND MAGNETIC FIELDS

Since no new transmission lines or switchyards will be construction in connection with this retooling project, no new EMF sources will be associated with operations. As noted by the applicant (AES 2000a, page 1-3), the existing transmission line and related switchyard (which will continue to be used during project operations) belong to SCE and were, therefore, designed to incorporate SCE's field impact-reducing guidelines. Designing according to such utility guidelines is one of the requirements currently specified by the CPUC for all CPUC-regulated utilities in light of the present concern of EMF health effects. This line and switchyard have been used safely in the past with respect to all the units within the Huntington Beach Generating Station. Therefore, staff recommends no specific design or operational changes because of safety or EMF-related concerns.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff has determined that operating the retooled nos. 3 and 4 Units of the Huntington Beach Generating Station will not pose a significant public health risk to

the surrounding population with respect to toxic pollutants and power-system electric and magnetic fields. Compliance with regulatory limits on their criteria pollutants is addressed in the **Air Quality** section together with the need for specific mitigation.

RECOMMENDATIONS

Since the proposed retooling would be unlikely to affect the health status of the area residents with respect to the cancer or non-cancer effects of the toxic pollutants and EMF exposure, staff recommends certification without proposing any conditions of certification.

REFERENCES

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

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

AES (AES Huntington Beach Limited Liability Company). Application for Certification, AFC for the Huntington Station Retool Project, Volumes II and III. Submitted to the California Energy Commission on December 1, 2000.

WORKER SAFETY AND FIRE PROTECTION

Testimony of Rick Tyler

INTRODUCTION

The statutory authority and requirements for worker and fire protection are set forth in laws, ordinances, regulations, and standards (LORS), and enforced through Federal, State, and local regulations. The effective implementation of worker safety programs at a facility is critical to the protection of workers. Project specific programs are documented in worker safety plans. Workers at the proposed facility will operate process equipment and handle hazardous materials, and may face other workplace hazards that can result in accidents, serious injury or even death. The worker safety and fire protection measures proposed for this project are designed to either eliminate or minimize such hazards through special training, protective equipment, and procedural controls.

The purpose of this analysis is to assess the adequacy of worker safety and fire protection measures proposed for the Huntington Beach Generating Station Retooling Project (HBGSRP). Staff has reviewed the Application for Certification (AFC) submitted in December 2000, to determine whether adequate measures have been proposed to:

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

Staff has determined that the features of the proposed project, in association with the proposed worker safety plans and procedures, will comply with applicable LORS and minimize the exposure of workers to industrial accidents or hazards. The project's reliance on local fire protection service capabilities and appropriate mitigation are addressed through proposed condition of certification.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970 (the Act). The Act mandates safety requirements in the workplace (29 U.S.C. §§ 651 through 678). This public law is codified under General Industry Standards, (29 CFR Part 1910.1 - 1910.1450) and clearly defines the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the safety and health standards now in force under the Act for general industry represent a compilation of materials authorized by the

Act from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI), and the National Fire Protection Association (NFPA) which publishes the National Fire Codes.

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

Applicable Federal requirements include:

29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970);

29 CFR Part 1910.1-1910.1450 (Occupational Safety and Health Administration Safety and Health Regulations); and

29 CFR Part 1952.170-1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR Part 1910.1-1910.1500).

STATE

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

The State of California Department of Industrial Relations is charged with the 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 ensuring that their employees are informed 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 about hazardous materials is the Material Safety Data Sheet (MSDS) (8 CCR § 5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1990 (§ 874 and Labor

Code §§ 6360-6399.7). It mirrored the Federal Hazard Communication Standard (29 CFR Part 1910.1200) which established an employee's "right to know" about chemical hazards in the workplace.

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

Applicable State requirements include:

8 CCR § 339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;

8 CCR § 450, et seq. - Cal/OSHA regulations;

24 CCR § 3, et seq. - incorporates the current edition of the Uniform Building Code;

Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility; and

Health and Safety Code § 255000 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations, (24 CCR § 3, et seq.) 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 is published at Part 9 of Title 24 of the California Code of Regulations.

Similarly the Uniform Fire Code Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local requirements include:

1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);

Uniform Fire Code Standards; and

California Building Code Title 24, California Code of Regulations Part 3, et seq.

City of Huntington Beach Municipal Code, Title 17

SETTING

The HBGSRP involves the retooling and operation of boiler/steam turbines for Units 3 and 4 of the HBGS. The closest fire station to the HBGSRP for fire suppression support is the Station # 4. Additional fire support will be provided by Station # 3. Response times are anticipated to be between 3 –5 minutes. Station # 4 also has first responder hazardous materials (HAZMAT) capabilities. In that respect, they are individuals who initially respond to releases or potential releases of hazardous substances for the purpose of protecting nearby persons, property and the environment from the effects of the release (reference Title 29, Code of Federal Regulations 1910.120). The Applicant has indicated that an in-house hazardous materials response team would be assembled and trained.

In the event of a sustained hazardous materials release, the HAZMAT Response Team from Station # 6 would provide support. The response time to the HBGS for this team is anticipated to be about 5 minutes.

IMPACTS

PROJECT SPECIFIC IMPACTS

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment and contacted the City of Huntington Beach Fire Department to determine if project specific fire protection measures and equipment are adequate. Staff also evaluated the potential for impact on local fire protection and emergency response services. The project will rely on both on-site fire protection systems and the City of Huntington Beach Fire Department for fire protection and emergency response services.

The information provided in the AFC indicates that the proposed fire protection system at the site will be adequate for fighting incipient fires. The proposed fire protection system at the site includes fire alarms, detection systems, fire hydrants, and hose stations throughout the facility. Fixed fire suppression systems will be installed at pre-determined fire risk areas. The system will be designed and operated in accordance with National Fire Protection Association (NFPA) standards and recommendations. Hand-held fire extinguishers will be located in accordance with applicable NFPA codes throughout the facility.

The applicant will be required to provide final diagrams and plans to staff and to the Huntington Beach Fire Department prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures. All Fire Department access roads, water mains, and fire hydrants shall be installed and operational during construction in accordance with the Fire Code. A final inspection by the City of Huntington Beach Fire Department will be required to confirm that the facility meets all the Fire and Building Code requirements as a condition of the Building Permit.

WORKER SAFETY

Industrial environments are potentially dangerous. Workers could be exposed to chemical spills, hazardous waste, fires, moving equipment, and confined space entry and egress problems. It is important that the HBGSRP develop well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers as described below in the mitigation section of this analysis.

During construction and operation of the HBGSRP, there is the potential for both incipient (small) fires, accidental releases of flammable gasses or liquids, or emergency response incidents. Electrical sparks combustion of fuel oil, natural gas or flammable liquids, and over-heated equipment, may cause incipient fires. Although unlikely, larger fires could develop from uncontrolled incipient fires, or from accidental releases of natural gas or other flammable gasses or liquids.

CUMULATIVE IMPACTS

The worker safety and fire hazards associated with the proposed construction and operation of the HBGSRP would not result in a significant cumulative impact on the fire protection and emergency service capabilities of the City of Huntington Beach Fire Department.

MITIGATION

MITIGATION OF DIRECT IMPACTS

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

CONSTRUCTION SAFETY AND HEALTH PROGRAM

The HBGSRP includes retooling and operation of boiler/steam turbines. During the construction phase of the project, workers will be exposed to hazards typical of constructing large industrial facilities.

Construction Safety Orders are published in Title 8 of the California Code of Regulations beginning with section 1502. These requirements are promulgated by

Cal/OSHA and are applicable to the construction phase of the project. The Construction Safety and Health Program will include the following:

Construction Injury and Illness Prevention Program (8 CCR § 1509)

Construction Fire Protection and Prevention Plan (8 CCR § 1920)

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

Additional programs required 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) 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. Prior to construction of the HBGSRP, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

OPERATION SAFETY AND HEALTH PROGRAM

Upon completion of construction and prior to operations of the HBGSRP, the Operations Safety and Health Program will be prepared and implemented pursuant to regulatory requirements of Title 8 of the California Code of Regulations. The HBGSRP's Operation Safety and Health Program will include the following programs and plans:

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

- Fire Protection and Prevention Program (8 CCR § 3221); and
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

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) include:

- Motor Vehicle and Heavy Equipment Safety Program;
- Forklift Operation Program;
- Excavation/Trenching Program;
- Fall Protection Program;
- Scaffolding/Ladder Safety Program;
- Crane and Material Handling Program;
- Hazard Communication Program;
- Hot Work Safety Program;
- Respiratory Protection Program;
- Electrical Safety Program;
- Confined Space Entry Program;
- Hand and Portable Power Tool Safety Program;
- Housekeeping and Material Handling and Storage Program;
- Hearing Conservation Program;
- Back Injury Prevention Program;
- Safe Driving Program;
- Employee Exposure 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. Prior to operation of the proposed HBGSRP, detailed programs and plans will be provided pursuant to the condition of certification WORKER SAFETY-2.

SAFETY AND HEALTH PROGRAM ELEMENTS

The Applicant provided the proposed outlines for both a Construction Safety and Health Program and an Operation Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major item required in both Safety and Health Programs the Injury and Illness Prevention Program (IIPP).

The Applicant will submit a detailed Construction and Operations Illness and Injury Prevention Programs to Cal/OSHA for review and comment 30 days prior to both retooling and operation of the project. The IIPP will include the following components:

- Responsible personnel
- Safety and health policy
- Work rules and safe work practices

- System for ensuring that employee compliance with safe work practices
- Employee communications
- Identification and evaluation of workplace hazards
- Methods and/or procedures for correcting unsafe or unhealthy conditions, practices, or procedures in a timely manner based upon severity of the hazards
- Specific safety procedures (included in Operations Safety and Health Program)
- Training and instruction

Cal/OSHA will review and provide comments on the IIPP as the result of an onsite consultation with the Applicant. A Cal/OSHA representative will complete a physical survey of the site, analyze work practices, and assess those practices that could result in illness or injury. This on-site consultation will give Cal/OSHA an opportunity to evaluate the Applicant's IIPP in conjunction with the activities occurring on site.

EMERGENCY ACTION PLAN

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

- Emergency escape procedures and emergency escape route assignments
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
- Procedures to account for all employees after emergency evacuation has been completed
- Rescue and medical duties for employees
- Fire and emergency reporting procedures
- Alarm and communication system
- Contact personnel
- Response procedures for ammonia release
- Training requirements

Staff proposes a condition of certification WORKER SAFETY-2 that requires the Applicant to submit a final Operation Emergency Action Plan to Cal/OSHA for review and comment after an on-site consultation. It also requires that the Applicant to submit the final Operation Emergency Action Plan to the City of Huntington Beach Fire Department for review and approval.

FIRE PREVENTION PLAN

California Code of Regulations requires Construction and Operation Fire Prevention Plans (8 CCR § 1920 and 3221). The AFC contains a draft proposed fire prevention plan which is acceptable to staff. The Construction and Operation Fire Prevention Plans, which are required to be developed by staff's recommended conditions of certification WORKER SAFETY-1 AND -2, will need to include the following topics:

- General requirements
- Fire hazard inventory, including ignition sources and mitigation

- Housekeeping and proper materials storage
- Employee alarm/communication system
- Portable fire extinguishers
- Fixed freighting equipment
- Fire control and adequacy of onsite fire flow capabilities and requirements
- Flammable and combustible liquid storage
- Use of flammable and combustible liquids
- Dispensing and disposal of liquids
- Training
- Contact personnel
- Local fire protection services

The conditions of certification also require the Applicant to submit a copy of the Construction and Operations Fire Prevention Plans to the California Energy Commission compliance Project Manager (CPM) and the City of Huntington Beach Fire Department for review and approval.

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

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

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. The Applicant provided a satisfactory description that identifies minimum requirements of a proposed PPE program. The components of the HBGSRP program include:

- Hazard analysis and prescription of PPE
- Personal protective devices
- Head protection
- Eye and face protection
- Body protection
- Hand protection
- Foot protection
- Skin protection
- Sanitation
- Safety belts and lifelines for fall protection
- Protection for electric shock
- Medical services and first air/ bloodborne pathogens
- Respiratory protective equipment
- Hearing protection
- Training

Staff evaluated the Applicant's description and assessed that the proposed PPE Program contains the elements that will meet applicable regulations and will significantly reduce the potential impact upon workers.

GENERAL SAFETY

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

MOTOR VEHICLE AND HEAVY EQUIPMENT SAFETY PROGRAM

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

FORKLIFT OPERATION PROGRAM

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

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

SCAFFOLDING / LADDER SAFETY PROGRAM

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

ARTICULATING BOOM PLATFORMS PROGRAM

This program consists of:

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

CRANE AND MATERIAL HANDLING PROGRAM

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

- Inspection of equipment
- Load ratings
- Safe operating parameters

HOT WORK SAFETY PROGRAM

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

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

EMPLOYEE EXPOSURE MONITORING PROGRAM

Routine medical surveillance will be conducted on workers to evaluate and monitor individual exposure to hazardous conditions or substances. This program includes:

- Exposure evaluation
- Monitoring and reporting requirements
- Medical surveillance
- Training

ELECTRICAL SAFETY PROGRAM

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

CONFINED SPACE ENTRY

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

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

HAND AND PORTABLE POWER TOOL SAFETY PROGRAM

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

HOUSEKEEPING AND MATERIAL HANDLING AND STORAGE PROGRAM

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

HEARING CONSERVATION PROGRAM

This program identifies high-noise environments and assigns hearing protective devices appropriate to the noise level. Although hearing protection is included in personal protective equipment, this program includes exposure monitoring and medical surveillance, along with worker training.

BACK INJURY PREVENTION PROGRAM

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

HAZARD COMMUNICATION PROGRAM

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

RESPIRATORY PROTECTION PROGRAM

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

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

HEAT AND COLD STRESS MONITORING AND CONTROL PROGRAM

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

MITIGATION OF CUMULATIVE IMPACTS

The worker safety protection programs proposed by the Applicant will be applicable to the retooling and operation of the HBGSRP and will provide adequate protection for workers at that facility. Staff's recommended conditions of certification will ensure that the potential cumulative impacts of the HBGSRP cumulative to the Fire Department's fire protection and emergency service capabilities will be adequately mitigated.

FACILITY CLOSURE

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

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

If the Applicant provides (1) a Construction Safety and Health Plan, and an Operation Safety and Health Plan, as required by conditions of certification. Staff also believes that with such measures the HBGSRP will comply with applicable LORS.

RECOMMENDATIONS

If the Commission certifies the project, staff recommends that the Commission adopt the following proposed conditions of certification. The proposed conditions of certification provide assurance that the project Construction and Operation Safety and Health Programs proposed by the project owners will be reviewed by the appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable LORS.

PROPOSED CONDITIONS OF CERTIFICATION

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

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

The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California

Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the City of Huntington Beach Fire Department for review and acceptance.

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

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

- an Operation Injury and Illness Prevention Plan
- an Emergency Action Plan
- on Operation Fire Protection Plan
- a Personal Protective Equipment Program

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service for review and comment concerning compliance of the program with all applicable Safety Orders. The operation's Emergency Action Plan and Fire Protection Plan shall be submitted to the City of Huntington Beach Fire Department for review and acceptance. The final versions of the operation Injury and Illness Prevention Plan, Emergency Action Plan, Fire Protection Plan and Personal Protective Equipment Program shall incorporate Cal/OSHA and City of Huntington Beach Fire Department comments that were received and accepted.

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

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

REFERENCES

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HAZARDOUS MATERIALS MANAGEMENT

Testimony of Ramesh Sundareswaran

INTRODUCTION

The purpose of this analysis is to determine if the proposed Huntington Beach Generating Station Retool Project (HBGSRP) will result in the potential for a significant impact on the public resulting from 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. (see staff's **WORKER SAFETY AND FIRE PROTECTION** section).

According to available information furnished by the Applicant, a variety of hazardous materials are proposed for storage and use during the construction phase of the project and for routine plant operation and maintenance (O & M) following construction (HBGSRP 2000). Gasoline, diesel, fuel oil, lubricants, solvents, adhesives, paint materials and welding gases are listed for use during construction. The O&M materials include urea, lubricating oils, sodium hypochlorite, hydrazine, hydrochloric acid, propylene glycol, sodium hydrochloride, sodium hydroxide, sodium metabisulfite, sodium bisulfate, aminomethylpropanol, molybdcic acid, sulfuric acid, citric acid, ammonium molybdate and ammonium metavanadate and piped-in natural gas. The transportation and delivery of hazardous materials is routinely regulated and controlled by various federal and state laws, ordinances, regulations and standards. Analysis for the potential for impact associated with hazardous materials deliveries is addressed in staff's **TRAFFIC AND TRANSPORTATION** section.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

A framework, based on environmental laws, ordinances, regulations and standards (LORS), exists to reduce risks of accidents and routine hazards due to hazardous materials. The following generally apply to the protection of public health and hazardous materials management. Staff's analysis examines the project's compliance with these requirements.

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, section 301 and Clean Air Act, section 112 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 requirements of the Federal law are reflected in the California Health and Safety Code, section 25531 et seq. The rules include requirements for

businesses to develop and implement risk management programs that incorporate three elements: a hazard assessment, a prevention program and an emergency response program and are commonly referred to as the US Environmental Protection Agency Risk Management Program (USEPA RMP).

STATE

Title 19, Chapter 4.5 of the California Code of Regulations, as codified in California Health and Safety Code, commencing with section 25500 directs facility owners, storing or handling acutely hazardous materials in threshold quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the US EPA, and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP) and is called the California Accidental Release Prevention Program (CalARP). The City of Huntington Beach Fire Department is designated as a local implementing agency under this program.

Title 8, California Code of Regulations, Section 5189, requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process. The program is called the California Occupational Safety & Health (Cal/OSHA) Process Safety Management (PSM).

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

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was in 1997 (UFC 1997).

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** section of this document.

The Huntington Beach Municipal Code contains provisions for the designation and disclosure of hazardous materials. The provisions are contained in Title 17, Chapter 17.58 of the Code.

SETTING

SITE AND VICINITY DESCRIPTION

The generating station is situated at the intersection of Pacific Coast Highway and Newland Street in the City of Huntington Beach. The retooling is proposed for boiler/steam turbine Units 3 and 4 of the existing generating station and the HBGS RTP site will therefore be situated within HBGS's premises. The generating station was built sometime in the late 1950s. Land use in the surrounding area is industrial and commercial to the northeast and east, residential to the northwest, wetlands to the southeast and recreation to the west and southwest. The nearest sensitive receptor is a school, Edison School, located more than 0.5 miles northeast of the site.

IMPACTS

1. Though the HBGS RTP site would be using a number of hazardous materials, none of materials exceed specified threshold amounts, above which some action is required by statute based on available information provided by the Applicant. The USEPA RMP, CalARP and Cal/OSHA PSM programs each individually list threshold-planning quantities for specific hazardous materials. If the quantity of a material on-site exceeds the threshold amount, the facility needs to implement chemical accident prevention and preparedness measures that may include a Risk Management Plan (RMP), pursuant to each regulation. The RMP is a detailed engineering analysis of the potential accident factors at a business and the mitigation measures that can be implemented to reduce accident potentials.

According to the above programs, only materials that met certain toxicological, physical and accident criteria were identified and listed. Materials above the thresholds were thought to pose a significant hazard to the community as they could cause death, injury or serious adverse effects to human health and are commonly referred to as acutely hazardous materials. Of the listed materials, only hydrazine, sulfuric acid and hydrochloric acid are identified as being on-site as part of the HBGS RTP. The Applicant has indicated that the on-site maximum inventories of these materials are well below the threshold amounts specified by the USEPA RMP, CalARP and Cal/OSHA PSM programs. The project therefore does not require the implementation of chemical accident prevention and preparedness safeguards as required by those programs.

Both sulfuric and hydrochloric acids are very corrosive materials. Both have relatively low vapor pressures and will not readily volatilize in the event of a release. The Applicant has indicated that a gallon of hydrochloric acid and less

than five gallons of sulfuric acid would be onsite. Given these conditions, the potential for any offsite significant threat to the public is low.

Hydrazine, in the liquid form, on the other hand, is not only corrosive but also flammable and toxic. It also has a relatively high vapor pressure. The Applicant has indicated that a 35% hydrazine solution would be used and the maximum onsite volume would be 180 gallons. A 3:1 (approximately 35 percent) solution of hydrazine in water renders it low to moderately inflammable. Staff is of the opinion that practices proposed by the Applicant, though prudent, need to be supplemented by additional precautions for hydrazine storage and use. These are outlined in the Conditions of Certification and should not only limit but mitigate any potential offsite consequences.

The remaining hazardous materials are those that are common and also pose less offsite risks to the public as they typically exhibit characteristics which are less hazardous than hydrazine, sulfuric or hydrochloric acids. Further, hazardous materials storage and use for the HBGSRP is not proposed to be in bulk quantities or on a scale that would typically be encountered in a chemical production plant or petroleum refinery. Either very small quantities or limited quantities of hazardous materials would be stored or used for the HBGSRP. By lowering the quantity of a hazardous material stored onsite, the severity of the hazard associated with it is reduced.

Natural gas, which will be used as a fuel by the HBGSRP, poses a fire and/or explosion risk as a result of its flammability. While natural gas will be used in significant quantities, it will not be stored on-site. No changes are expected to be needed to the existing piping network for the HBGSRP. The risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices.

2. Safeguards that are already in place at the generating station would be incorporated into the HBGSRP. Additional proposed safeguards and measures to greatly reduce the opportunity for, or extent of, exposure to hazardous materials would supplement these in turn. The Applicant has indicated that that they have safety systems that add several layers of protection and defense between hazardous materials and the public as part of accident prevention. These include:
 - a. Mechanical integrity programs for inspection of critical equipment
 - b. Preventive maintenance programs to maintain equipment in acceptable working order
 - c. Interlocks to monitor and stop operations if they exceed preset limits
 - d. Concrete dikes and secondary containment to contain spills
 - e. Detectors to identify releases
 - f. Separate storage of incompatible hazardous materials

- g. Pollution prevention measures such as on going product substitution for more benign or less hazardous materials
- h. Storage of limited amounts of hazardous materials through administrative controls
- i. Training programs for plant personnel in hazardous materials handling
- j. Use of a Safety and Environmental Specialist for hazardous materials management
- k. Fire extinguishing and spill response equipment for emergencies
- l. Use of written plans and procedures for hazardous materials management

In the unlikely event of a serious release, an in-house plant hazardous materials response team would be activated. The hazardous materials capabilities of the Huntington Beach Fire Department would also be secured and used, as needed, in such an event. The closest fire station with first responder responsibility is Magnolia Station # 4. Edwards Station # 6 is also available to provide full-fledged hazardous materials response if warranted. Response times are anticipated to be between three to five minutes.

A significant number of modern power plants routinely store and use anhydrous ammonia or aqueous ammonia directly for NOx control purposes and the Energy commission has licensed many such plants. The HBGSRP is proposing to store urea onsite and convert it to vapor phase ammonia in a reactor for NOx control purposes. The maximum amount of ammonia that is anticipated to be present in the urea to ammonia process is approximately 165 pounds at any one time according to the Applicant. Of the 165 pounds, approximately 5 pounds of vapor phase ammonia would be generated from the urea solution, which would have approximately 160 pounds of free ammonia in it. Urea is not considered an acutely hazardous material like anhydrous or aqueous ammonia and is therefore, not a listed material according to any of the above regulatory programs. It is a benign and stable material and its use significantly reduces much of the hazards and risks associated with the use of either anhydrous or aqueous ammonia. The quantity of ammonia in the reactor is well below the thresholds specified according to USEPA RMP (anhydrous ammonia-10, 000 pounds, aqueous –20%-20,000 pounds), CalARP (anhydrous and aqueous ammonia-500 pounds) and Cal/OSHA (anhydrous-10000 pounds, aqueous-44%-15,000 pounds) programs to pose any significant risks to the public.

CUMULATIVE IMPACTS

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

FACILITY CLOSURE

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

MITIGATION

Staff has determined that with its proposed mitigation the HBGSRP will not pose the potential for significant risk of public health impacts associated with accidental releases of hazardous materials. In addition to those measures proposed by the Applicant, staff also proposes certain conditions. The proposed conditions will ensure that the facility will use only those materials proposed in the AFC and that the project will comply with applicable LORS.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

Staff's evaluation of the proposed project (with staff's proposed mitigation measures) indicates that hazardous materials use will pose no potential for significant impacts on the public. With adoption of the proposed conditions of certification, the proposed project will comply with all applicable laws, ordinances, regulations and standards (LORS).

RECOMMENDATION

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

PROPOSED CONDITIONS OF CERTIFICATION

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

The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility in quantities that require disclosure under City of Huntington Beach Municipal Code, Chapter 17.58.

HAZ-2 The project owner shall provide an updated Business Plan.

Verification: At least 45 days prior to the startup of the HBGS boiler/steam turbine Units 3 and 4, the owner shall undertake a hazardous materials floor plan exercise with the Huntington Beach Fire Department, and provide a copy of the revised Business Plan approved by the City of Huntington Beach Fire Department to the CPM.

HAZ-3 The project owner shall update the existing HBGS Safety Manual, Oil and Hazardous Substances Spill and Prevention Plan, HBGS Emergency Response Plan and facility standard operating procedures to accommodate the changes triggered by the HBGSRP. The project owner shall, ensure that hydrazine is not unloaded using a forklift, that it is stored separately from oxidizers and acids, that a portable hydrazine vapor detector area will be used to sweep the storage area at the start and end of each shift, that the storage area is free of ignition sources and that the storage area is adequately ventilated, that hydrazine delivery is supervised and monitored by at least one facility staff person who shall stand by with a pressurized water hose and that spill neutralization chemicals are stored in close proximity to the unloading area, as a minimum.

Verification: At least 60 days prior to startup of Units 3 and 4, the project owner shall furnish an updated copy of the Safety Manual and the Emergency Response Plan, to the CPM for approval. Copies of the Plan and Manual shall also be furnished to the City of Huntington Beach Fire Department.

REFERENCES

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Appendix A

[Insert here Section 5.15.2.2 of the AFC dated December 2000 and the Applicant's data response of February 22, 2001 to Energy Commission's data request # 35.]

WASTE MANAGEMENT

Testimony of Michael Ringer

INTRODUCTION

This analysis presents an assessment of issues associated with managing wastes generated from constructing and operating the proposed AES Huntington Beach Generating Station Retool Project (Retool Project). It evaluates 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 generated during facility construction and operation.

Energy Commission staff's primary concerns in our waste management analysis are to ensure that:

1. Wastes generated during constructing and operating the proposed project will be managed in an environmentally safe manner;
2. Disposal of project wastes will not result in significant adverse impacts to existing waste disposal facilities; and
3. The management of the wastes will be in compliance with all applicable laws, ordinances, regulations, and standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTION 6901 ET SEQ.)

The Act, known as RCRA, sets forth standards for the management of hazardous solid wastes. The U.S. Environmental Protection Agency (EPA) may administer the provisions of RCRA in each state. However, the law allows EPA to delegate the administration of RCRA to the various states. When a state receives final EPA authorization, its regulations have the force and effect of federal law. EPA grants final authorization when a state program is shown to be equivalent to the federal requirements. The Department of Toxic Substances Control in California received final authorization on August 1, 1992.

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:

1. Record keeping practices which identify quantities of hazardous wastes generated and their disposition,
2. Labeling practices and use of appropriate containers,

3. Use of a manifest system for transportation, and
4. Submission of periodic reports to the EPA or authorized state.

RCRA also establishes requirements applicable to hazardous waste transporters, including record keeping, compliance with the manifest system, and transportation only to permitted facilities.

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 SECTION 25100 ET SEQ. (HAZARDOUS WASTE CONTROL ACT OF 1972, AS AMENDED).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control 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 22, CALIFORNIA CODE OF REGULATIONS, SECTION 66262.10 ET SEQ. (GENERATOR STANDARDS)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

LOCAL

CITY OF HUNTINGTON BEACH MUNICIPAL CODE CHAPTER 17.58

This code includes hazardous waste in the definition of hazardous materials.

SETTING

PROJECT AND SITE DESCRIPTION

The AES Huntington Beach Generating Station Retool Project (Retool Project) consists of refurbishing existing Units 3 and 4, which were taken out of service in 1995. The project will be nominally rated at 450 megawatts and fired exclusively on natural gas. The proposed project would be implemented completely within the site of the existing Huntington Beach Generating Station (HBGS). No changes are proposed to natural gas supply, water supply or discharge, or transmission line facilities. Units 3 and 4 are located on approximately 12 acres in the north-central portion of the existing 53 acres HBGS site. The site is currently fully developed and most of the open areas are paved with asphalt or concrete.

In order to assess the potential for contamination at the proposed site, a Phase I Environmental Site Assessment (ESA) was conducted in May 1997 using methods prescribed by the American Society for Testing and Materials. The purpose of a Phase I 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.

A Phase I ESA consists of several components, including:

1. A current and historical records review of the site and surrounding properties, including permits, programs, plans, and files, and regulatory agency databases and files;
2. A site reconnaissance, including observation of exteriors and interiors, identification of current and past uses of the property as well as adjoining properties and surrounding areas; geologic, hydrogeologic, hydrologic, and topographic conditions; and
3. Interviews with current owners and occupants of the property and local government officials.

The Phase I ESA indicated that contaminated soil associated with past operations is present onsite. However, areas where known contamination occurs are not expected to be impacted by the Retool Project, as no earth moving activities are anticipated. Construction of the project will not involve any grading of the existing plant site. The only minor soil disturbances will result from installation of the selective catalytic reduction units. Please see the **Mitigation** section below regarding the management of contaminated soil in the event any is encountered.

IMPACTS

PROJECT SPECIFIC IMPACTS

CONSTRUCTION

Project site preparation and facility construction will generate both nonhazardous and hazardous wastes.

The types of nonhazardous solid wastes generated during construction include excess concrete, contaminated rags, used light bulbs, lumber, scrap metal, insulation, packaging and empty nonhazardous chemical containers. AFC Table 5.14-2 lists estimated volumes and management methods for the first three items listed. Excluding these items, typically for similar types of projects, about 100 – 150 tons of nonhazardous wastes are generated during construction. Scrap metal, such as that from the furnace replacement, is typically salvaged and sold to recyclers for its scrap value, so it would not contribute to the solid waste stream.

As mentioned above, construction activities are not expected to result in contact with contaminated soils, so site preparation should not be a source of hazardous waste generation. Hazardous wastes generated during project construction include small quantities of waste oil, spent solvents and welding materials, waste paint, adhesives, and materials from the cleanup of spills. AFC Table 5.14-2 presents a summary of hazardous waste streams from construction, their estimated volume, and management methods.

OPERATION

The proposed facility will generate nonhazardous and hazardous wastes during normal operation.

Nonhazardous wastes generated during plant operation include trash, office wastes, empty containers, broken or used parts, used packing material, and used filters. The quantity of nonhazardous wastes generated on a daily basis will be a few cubic yards or less, with some of the material being recyclable. Nonhazardous waste will be recycled where practical and the remainder transported to a Class III (nonhazardous) landfill (AES 2000a, AFC p. 5.14-5). Operational waste from similar types of projects is typically minor, on the order of several cubic yards on a weekly basis.

Used hazardous substance containers, such as chemical containers or oil filters may be classified as hazardous wastes. However, if managed according to certain regulatory guidelines, such containers may be managed as nonhazardous (Cal. Code Regs., tit. 22, §66261.7, 66266.130).

Hazardous wastes generated during routine project operation include batteries, used lubricants, cleaning solutions, waste paint, contaminated cleanup materials, spent air pollution control catalyst, and waste rinse water. AFC Table 5.14-3 summarizes the types and quantities of hazardous wastes that would be generated

on an annual basis during facility operations, based on historical data from units one and two. About ten tons of hazardous wastes would be generated annually.

IMPACT ON EXISTING WASTE DISPOSAL FACILITIES

AFC Table 5.14-1 lists nonhazardous disposal facilities that can be used for wastes generated by the AES project. The two facilities listed that are located in Orange County have total remaining capacities of about 42 and 32 million tons and expected remaining lifetimes of 12 and 23 years, respectively. A third landfill in Orange County, Prima Deshecha has about 45 million tons of remaining capacity and is anticipated to remain open until about 2040 (Hull 2001). Landfills operated by the Sanitation Districts of Los Angeles County, such as Puente Hills, will not accept wastes from out of the county. Nonetheless, the Orange County landfills have adequate remaining capacity such that wastes from the AES project will comprise less than one percent of their remaining capacity.

Three Class I landfills in California, at Kettleman Hills in King's County, Buttonwillow in Kern County, and Westmoreland in Imperial County, are permitted to accept hazardous waste (AES 2000a, AFC p. 5.14-2). There is a combined total in excess of twenty million cubic yards of remaining hazardous waste disposal capacity at these facilities with remaining lifetimes in excess of 50 years. The amount of hazardous waste being 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 air pollution control catalysts. Even without recycling, the generation of hazardous waste from this type of generating facility is minor and thus would not significantly impact the capacity of any of the above landfills by more than a small fraction of one percent.

CUMULATIVE IMPACTS

Due to the minor amounts of wastes generated during project construction and operation, the insignificant impacts on individual disposal facilities, and the availability of additional regional landfills, cumulative impacts will be insignificant for both hazardous and nonhazardous wastes.

FACILITY CLOSURE

During any type of facility closure (see staff's **General Conditions** section 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 likely be adequate to avoid significant problems. In addition, staff's General Conditions for Facility Closure require 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, AES will develop a facility decommissioning plan at least twelve months prior to commencement of closure (AES 2000a, AFC p. 3.10-1).

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

Energy Commission staff concludes that AES will comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during project construction and operation. The applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the Santa Ana Regional Water Quality Control Board or the CAL EPA - Department of Toxic Substances Control. Because hazardous wastes will be produced during project construction and operation, AES will maintain an EPA identification number as a hazardous waste generator. Accordingly, AES 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 management review may be required, depending on the amounts of hazardous waste ultimately generated.

MITIGATION

Recycling of solid wastes generated during construction will be maximized to include materials such as scrap metal, empty containers, and absorbent materials. Office paper, newsprint, aluminum cans, plastic containers, used air filters, and other nonhazardous wastes from facility operations will be recycled to the extent practical (AES 2000a, AFC p. 5.14-5).

AES has established procedures to minimize the quantities of hazardous wastes generated at the project site. The procurement of hazardous materials will be controlled to minimize accumulation of surplus materials onsite and to prevent unused hazardous materials from becoming "off-spec", thus requiring disposal. Nonhazardous materials will be used in lieu of hazardous materials whenever

possible. Hazardous materials will be reused and hazardous wastes will be recycled whenever possible (AES 2000a, AFC p. 5.14-11).

A waste management plan has been developed to assure proper handling, packaging, labeling, storage, recordkeeping, minimization, and disposal of wastes. It also includes provisions for personnel training and emergency procedures (AES 2000a, AFC p. 5.14-9).

Energy Commission staff has examined the mitigation measures proposed by AES and concluded that the measures together with applicable LORS will adequately assure that no significant environmental impacts will result from the management and disposal of project-related waste.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Management of the wastes generated during construction and operation of the Retool project will not result in any significant adverse impacts if AES implements the mitigation measures proposed in the Application for Certification (00-AFC-13), the additional measure proposed by staff below, and the proposed conditions of certification.

RECOMMENDATIONS

Staff recommends that if potentially contaminated soil is unearthed during excavation at the proposed site as evidenced by discoloration, odor, or other signs, AES have an environmental professional (as defined by American Society for Testing and Materials practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) determine the need for sampling to confirm the nature and extent of contamination. If significant remediation may be required, AES should also contact representatives of the Orange County Environmental Health Division and the Long Beach Regional Office of the California Department of Toxic Substances Control for possible oversight.

CONDITIONS OF CERTIFICATION

WASTE-1 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.

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-2 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CEC CPM, for review and comment, a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications;
- 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; and
- Provisions for personnel training and emergency procedures in response to the accidental release of hazardous wastes.

No less than 20 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 20 days prior to the start of project operation. The project owner shall submit any required revisions within 10 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-3 The project owner shall have an environmental professional available for consultation during soil excavation and grading activities. The environmental professional shall be given full authority to oversee any earth moving activities that have the potential to disturb contaminated soil. The environmental professional shall meet the qualifications of such as defined by the American Society for Testing and Materials designation E 1527-97 Standard Practice for Phase I Environmental Site Assessments as evidenced by one of the following or similar credentials: (1) Certified Industrial Hygienist with experience in worker exposure monitoring, (2) Qualified Environmental Professional certification, (3) Registered Environmental Assessor II, or (4) Registered Professional Engineer or Geologist with experience in remedial investigation and feasibility studies.

At least 20 days prior to the start of construction, the project owner shall submit the qualifications and experience of the environmental professional to the CPM for approval.

WASTE-4 If potentially contaminated soil 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 environmental professional shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action. Depending on the nature and extent of contamination, the environmental professional 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 environmental professional, significant remediation may be

required, the project owner shall contact representatives of the Orange County Environmental Health Division and the Long Beach Regional Office of the California Department of Toxic Substances Control for guidance and possible oversight.

The project owner shall submit any reports filed by the environmental professional to the CPM within 5 days of their receipt.

REFERENCES

AES Huntington Beach, LLC. (AES). 2000a. Application for Certification, AES Huntington Beach Generating Station Retool Project (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.

Hull 2001. Facsimile Transmittal from Ray Hull, Public Information Officer, Orange County Integrated Waste Management Department to Mike Ringer, CEC. February 27.

LAND USE

Testimony of Tom Buford

INTRODUCTION

The Huntington Beach Generating Station Retool Project (HBGS) is the proposed retooling and operation of Units 3 and 4 at an existing power plant facility previously owned and operated by Southern California Edison. Units 3 and 4 were taken out of service in 1995. Two electric generating units (1 and 2) are currently in operation, along with Unit 5, an auxiliary unit. The proposed project would retool and restore Units 3 and 4 to service, which would be nominally rated at 450 megawatts (MW) and fired exclusively on natural gas.

The Land Use analysis focuses on two primary issues: the proposed project's consistency with the local land use plans, ordinances, and policies; and the project's compatibility with existing and planned land uses. In general, an electric generation plant and its related facilities can be incompatible with existing and planned land uses when they create unmitigated noise, dust, public health hazards or nuisance, traffic, or visual impacts, or when they substantially restrict existing or planned future uses of affected property.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

A discussion of the project's consistency with the applicable goals, policies, standards, and regulations from each of the relevant jurisdictions may be found below, in the section entitled Compliance with Laws, Ordinances, Regulations, and Standards (LORS).

The project site is located entirely within the city limits of Huntington Beach. The project would not require extension or upgrade of electrical transmission lines or natural gas transmission lines, nor does the project propose modifications to any existing off-site facilities.

FEDERAL

No federal LORS associated with land use are applicable to the proposed project.

STATE

CALIFORNIA COASTAL ACT OF 1976 (PUBLIC RESOURCES CODE §§30000 ET SEQ.)

The California Coastal Act requires each local government with land area located within the coastal zone to prepare a local coastal program (LCP) for management of such land areas. Once the California Coastal Commission certifies a LCP, the authority to issue "coastal development permits" for development within the coastal zone is delegated to the local jurisdiction. (Public Resources Code §30519(a))

Notwithstanding the provisions of Section 30519, the Coastal Act, in Section 30600(a), provides that a coastal development permit is *not* required for a facility subject to the provisions of Public Resources Code Section 25500 (i.e., a thermal power plant or related facility subject to the Warren-Alquist Act).

LOCAL

CITY OF HUNTINGTON BEACH GENERAL PLAN

The General Plan for the City of Huntington Beach, adopted May 13, 1996, provides the framework for management and utilization of the City's physical, economic and human resources. The General Plan establishes the location, types, intensity and distribution of land uses throughout the city, including areas within the coastal zone. The General Plan is organized into the following Chapters: Community Development; Infrastructure and Community Services; Natural Resources; and Hazards. In addition, the City has adopted a Coastal Element that serves as the city's Local Coastal Program, and was certified by the Coastal Commission in March 1985.

The Community Development Chapter recognizes the following land use classifications: Residential; Commercial; Mixed Use; Industrial; Public; and Other (includes Institutional, Open Space, Agriculture, Harbor, Habitat Preservation, and Vacant). **See Figure LU-1, City of Huntington Beach, General Plan Land Use Designations.**

CITY OF HUNTINGTON BEACH ZONING ORDINANCE

The Zoning Ordinance establishes specific zone districts and land use regulations for properties within the city. The project site is located in the City of Huntington Beach, in the General Industrial zone district. **See Figure LU-2, City of Huntington Beach, Zoning Designations in the Vicinity of the HBGS Retool Project.**

CITY OF HUNTINGTON BEACH URBAN DESIGN GUIDELINES

The Urban Design Guidelines implement the Urban Design Element of the General Plan. The Guidelines provide guidance for various types of uses, as well as specific comments regarding lighting, landscaping, and other features of specific sites within the community.

CITY OF HUNTINGTON BEACH SPECIFIC PLANS

The proposed project is located in the vicinity of two specific plan areas. While not included within either specific plan area, the project site is identified in the Downtown Specific Plan and Magnolia Specific Plan as reserved for power production.

SETTING

The proposed project would retool two existing power-generating units of the power plant. The plant was constructed in the late 1950s and was previously owned and operated by Southern California Edison. The facility is located on an approximately 53-acre parcel in the City of Huntington Beach.

SITE VICINITY AND DESCRIPTION

POWER PLANT SITE

The project site consists of one Orange County Assessor parcel: 114-150-82.

The proposed project would retool two generating units at an existing power plant site located in the City of Huntington Beach, along the shore of the Pacific Ocean. The City of Huntington Beach is located in Orange County and comprises approximately 27.2 square miles.

LAND USES IN THE VICINITY OF THE PROJECT SITE

Much of the city has been developed, with many of the remaining undeveloped parcels committed to development by specific plans and development agreements or preserved for open space. The City's General Plan indicates that the "...fundamental patterns, distribution, and form of development of use have been established" (General Plan, page II-LU-1). No changes in the city's incorporated boundaries are contemplated.

The project site lies just south of Newland Street and southwest of the County flood control channel. A narrow strip of vacant land separates the facility from Pacific Coast Highway. Another vacant natural area lies southwest of the flood control channel between the power plant and the Santa Ana River. **See Figure LU-3, Coastal Land Use Plan.**

Adjacent to and southwest of the flood control channel is a mobile home park that encompasses 36 acres and contains 306 units. At the southeast corner of the mobile home park is a travel trailer park containing 140 spaces available for rent on a daily and weekly basis.

An 18-acre site just south of Newland Street on the other side of the flood control channel from the power plant is developed with industrial facilities. Adjacent to this industrial area is a 38-acre rotary mud dump related to local drilling and pumping activities. The remaining area between the flood control channel and Magnolia Street accommodates a tank farm to hold fuel oil for the Edison plant.

The area between Magnolia and Brookhurst Streets inland from the flood control channel is completely developed with low density, single-family residences. The Orange County Sanitation Treatment Plant covers most of the land between Brookhurst Street and the Santa Ana River, east of the flood control channel. A narrow row of apartments and a small commercial area extend northwest from the sanitation plant site to Hamilton Avenue.

The following are educational, park, recreation, church, and hospital land uses within one mile of the project site:

Huntington State Beach
Edison Community Park

Edison High School
Kettler Elementary School
Eader Park and Library
Gisler Park
The Church of Jesus Christ of Latter Day Saints.

The State of California maintains ownership and jurisdiction of the Huntington Beach State Park. The remainder of the study area is within the city limits of Huntington Beach.

The project is located on Newland Avenue, southeast of the intersection of Newland Avenue and Pacific Coast highway. Access to the project is via Newland Avenue.

No substantial agricultural uses are located in the vicinity of the project.

The project would utilize the existing electric and natural gas transmission facilities. No on-site or off-site construction or modification of such facilities is proposed.

IMPACTS

A project may have a significant effect on land use if the project would:

1. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, adopted for the purpose of avoiding or mitigating an environmental effect
2. Physically divide an established community.

A project would also be considered to have a significant impact if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, visual impacts, or when it would preclude or substantially restrict existing or planned land uses.

COMPLIANCE WITH LORS

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

CALIFORNIA COASTAL ACT OF 1976 (PUBLIC RESOURCES CODE §§30000 ET SEQ.)

The Coastal Commission, as provided in Public Resources Code Section 30413(b), may designate specific locations within the coastal zone where the establishment of a thermal power plant "...would prevent the achievement of the objectives..." of the Coastal Act. The project site has not been so designated. As noted above, the Coastal Act does not otherwise apply to thermal power plants that are within the coverage of the Warren-Alquist Act.

CITY OF HUNTINGTON BEACH GENERAL PLAN

The General Plan for the City of Huntington Beach was adopted by the City Council on May 13, 1996. The General Plan, as mandated by state law, sets forth the comprehensive, long-range plan to serve as a guide for the physical development of the City. Each of the elements of the General Plan is organized into statements of Goals, Objectives, Policies, and Implementation Programs. The General Plan Elements are organized into four chapters: Community Development (includes Land Use, Urban Design, Historic and Cultural Resources, Economic Development, Growth Management and Housing Elements); Infrastructure and Community Services (includes Circulation, Public Facilities and Public Services, Recreation and Community Services and Utilities Elements); Natural Resources (includes Environmental Resources/Conservation, Air Quality and Coastal Elements); and Hazards (includes Environmental hazards, Noise and Hazardous Materials Elements).

The project site is designated as Public, which includes governmental administrative and related facilities, such as public utilities, schools, public parking lots, infrastructure, religious and similar uses (General Plan, Table LU-2a). The power plant at the site has been in operation since the late 1950s, was previously owned by Southern California Edison, and is generally referenced in General Plan documents as the Edison facility. While planning staff for the City of Huntington Beach has suggested that the General Plan designation may not be correct, the term "public utilities" denotes the general type of activity on the site, and is broad enough to cover the existing and proposed use.

The following provisions of the General Plan are relevant to the project:

The Community Development Chapter, Goal LU-2, seeks to ensure that development is adequately served by transportation and utility infrastructure, and public services. While the proposed project would generate electric power for sale through the state power grid, and not directly to the local community, the project would be part of the effort to generate adequate electric power for use by local communities, including Huntington Beach. The General Plan recognizes the need for such service, and the project would, therefore, appear to be consistent with this policy.

Goal LU-5 provides for the maintenance of significant environmental habitats and resources. This effort includes compliance with the California Environmental Quality

Act, and review of development proposals to assure that appropriate setbacks and buffers are maintained. The project would not construct any new off-site facilities, and would involve the retooling and operation of power units that were previously in operation. While the project is adjacent to wetlands areas, the project would not create intrusion beyond areas already developed. The project appears to be consistent with these provisions of the General Plan.

The General Plan recognizes the value of diversity in land uses, while calling for the city to maintain environmental resources, scale, and character (Goal LU-7). As part of this effort, Policy 7.1.1 provides for the accommodation of existing uses and new development consistent with the Land Use and Density Schedules. The project is a use consistent with the General Plan designation of Public; the schedules provide for no density standard for this designation. The project appears to be consistent with these provisions.

Goal LU-13 seeks to achieve the development of a mix of governmental service, institutional, educational and religious uses that support the needs of Huntington Beach's residents.

Objective LU 13.1 calls for the continuation of existing and development of new uses that support the needs of existing and future residents. Policy 13.1.1 allows for the continuation of existing public and private institutional, cultural, educational, and health uses at their present locations and development of new uses in areas designated for such uses on the Land Use Map.

These provisions of the General Plan identify diversity in land uses as having value to the community. The project would retool and operate power generators at an existing facility, and provide service and employment that is identified in the General Plan as a priority. The project would appear to be consistent with these provisions.

Table LU-4 in the Community Development Chapter identifies the "Edison Plant" on the Community District and Subarea Schedule. The site characteristic is listed as "Permitted Use," and the "Standards and Principles" section provides as follows: Category: Public ("P") and Conservation ("OS-C"): Wetlands Conservation, Utility Uses. Under the characteristic "Design and Development," the General Plan provides that it shall be in accordance with Policy LU 13.1.8, which provides as follows:

"Ensure that the City's public buildings, sites, and infrastructure improvements are designed to be compatible in scale, mass, character and architecture with existing buildings and pertinent design characteristics prescribed by this General Plan for the district or neighborhood in which they are located, and work with non-City public agencies to encourage compliance."

The emphasis in these provisions is on compatibility with surrounding uses and neighborhood characteristics. The project involves the retooling of two power units, and would not involve construction of new physical facilities that would have an impact on the neighborhood character. The project's consistency with other provisions of the City's General Plan, Zoning Ordinance, and Design Guidelines is

discussed below. The proposed project would not construct new off-site facilities, and would not have any additional impact on the wetlands areas adjacent to the site. The project appears to be consistent with the provisions concerning wetlands.

The Urban Design Element discusses the physical and visual character of the city, as affected by existing and planned development and patterns of urban use. The southeast industrial area, identified as including the “Edison substation,” is characterized by large plant facilities and peripheral fencing. The Southern California Edison Plant, which is the project site, is identified as a landmark that contributes negatively to the City’s urban identity (Urban Design Element, page II-UD-9). Likewise, the Element identifies “Oil production and utility facilities” as being visual elements that confuse, diffuse, and weaken the community’s identity.

The Urban Design Element includes a discussion of issues are important to the community. This element includes the following:

1. Oil production facilities and other utilities represent much of the urban clutter in the City. These uses should be screened from public view as much as possible. The screening of these elements should be weighed against the potential for the screening elements themselves to block significant views.
2. Utilities, such as the Edison Generating Substation, need to be screened from view, to the extent feasible, through the use of improved landscaping.

The Urban Design Element seeks to enhance the visual image of the City (Goal UD 1). As part of its recommendations for improving entryways to the City, the Element calls for encouraging the use of landscaping buffers around the Edison Generating Station, adjoining tank farm, and the Orange County Sanitation District Facilities (Table UD-1; Policy 2.2.1). In addition, Policy UD 2.2.5 provides:

“Require the review of new and or expansions of existing industrial and utility facilities to ensure that such facilities will not visually impair the City’s coastal corridors and entry nodes.”

The Element further calls for design review of all projects for potential visual impacts to surrounding areas, and review of all proposed expansions, relocations, or new utility and industrial facilities for compliance with applicable development standards and for potential impacts. (Implementation Program I-UD 6)

The Economic Development Element discusses general economic background issues that have defined the City within its recent past. Public utilities are not identified as a major economic sector, nor do such uses constitute significant sources of employment within the community. Goal ED 1 calls for providing economic opportunities for present and future city residents through employment and fiscal stability, and Objective ED 1.1 seeks to enhance the City’s market potential in terms of retail, office, industrial and visitor serving activity. Goal ED 2 calls for the city to “aggressively retain and enhance the existing commercial, industrial, and visitor serving uses” in the city, while also attracting new uses.

Renovation and re-use of energy producing facilities as proposed in the project would maintain and enhance the industrial base that exists in the City. Industrial facilities such as the existing plant, however, do not appear to be viewed as substantial components of future economic development. To the extent the Goals of the Economic Development Element relate to the project, the project appears to be consistent with the General Plan provisions.

The Utilities Element indicates that construction of new, or the expansion of existing, utility and industrial facilities may impair the visual quality of an area. This staff analysis discusses, in **Visual Resources**, the impact of the project in that regard.

The project site is located adjacent to wetlands. The project would not involve expansion of the site, and no off-site construction is proposed. The project does not appear to contain components that would create additional impact on the wetlands and other habitat areas. The project appears to be consistent, therefore, with general goal in the Natural Resources Element that calls for protection and preservation of significant habitats of plant and wildlife species, including wetlands.

The Air Quality Element discusses the interests and concerns of the community relating to air quality. Policy AD 1.1.5 calls for encouraging all new commercial, industrial and residential structures to accommodate appropriate trip reducing activities such as alternative work schedules. The impact of the proposed project in terms of air quality, including any conditions of certification relating to that issue, is found in the staff analysis for **Air Quality**.

The proposed project is located in the Coastal Zone, and is subject to the Coastal Element of the General Plan. The Coastal Element also serves as the community's Local Coastal Program.

The Coastal Element notes that the area in which the project site is located has the potential to provide attractive views of open space, water and wildlife, but that the views are dominated by the nearby energy and industrial facilities, including the Edison plant site, power lines, and adjacent tank farms. The Coastal Element also recognizes that the energy facilities in the community, including the power plant, are essential to the functioning of the economy and to other aspects of health, safety and welfare.

The Edison Power Plant site is specifically referenced in the Coastal Element as having the potential for future expansion, in a report from the California Energy Commission. (Coastal Element, page 72) The proposed project would not expand the site, and no off-site improvements are proposed.

The Coastal Element establishes a general height limit at three stories for all categories of development within the Coastal Zone. The existing stacks at the power plant exceed this limit.

The Coastal Element notes the following regarding the categories of industrial land uses planned for the coastal zone:

Industrial Energy Production - The Industrial Energy production designation is intended to accommodate coastal dependent energy production facilities that are not oil extraction related. Principal permitted uses include power plants, storage tanks, transmission lines, storage and maintenance yards, and ancillary buildings.

The Coastal Element contains several goals and policies relating to visual resources. Two policies regarding energy are specifically related to the Edison plant:

14c. Before permitting any expansion of the Edison power plant, require development of a comprehensive screening plan with appropriate landscaping which meets the standard of State agencies having jurisdiction over such expansion.

14h. Encourage screening of existing Edison power plant facilities via planting of trees and shrubs; pursue strategies to this end with Southern California Edison.

The City's interest in the screening of the existing power plant is, as noted above, in evidence in various Elements of the General Plan. It appears the expansion discussed in Policy 14 c, above, relates to land adjacent to the existing site, which would not be involved in the proposed project. The discussion notes:

"The Edison Company power plant, including its storage tank area, has been redesignated as Industrial Energy production. The vacant parcel of land which is owned by the Edison Company and lies contiguous to the existing power plant has been redesignated as Industrial Energy production/Conservation; this indicates that a Conservation overlay has been applied to the underlying land use designation of Industrial Energy production. The designation is intended to allow the area to serve as a Conservation area for the short term, but be available for possible future expansion of the power plant, if necessary, in the long term. provided that there is no feasible, less environmentally damaging alternative, and appropriate mitigation is provided (Coastal Element, page 130a)."

The City of Huntington Beach General Plan expresses the City's concern with the visual impact of the existing facility. To the extent the proposed project would have additional impacts on visual resources, the mitigation measures applied as project conditions in the **Visual Resources** staff analysis would reduce any impacts to a less than significant level, and remove concerns regarding General Plan requirements.

As conditioned, the project would be consistent with the General Plan.

CITY OF HUNTINGTON BEACH ZONING ORDINANCE

The principal method for the implementation of the General Plan Land Use provisions is through the implementation of the Huntington Beach Zoning and

Subdivision Ordinance. The proposed project site is zoned IG-O-CZ-FP2, indicating the site is zoned General Industrial, with the following overlays: O (Combined with oil production); CZ (Coastal Zone); FP2 (Flood plain).

The General Industrial District provides for the full range of manufacturing, industrial processing, resource and energy production, general service, and distribution. (Zoning Ordinance, Section 212.02A) New construction and initial establishment of a major utility use is subject to the approval of a conditional use permit by the Zoning Administrator or Planning Commission.

Public uses are limited to facilities of 2 acres or less.

The Zoning Ordinance also establishes development standards for use in the IG zone district. These include: minimum lot area (20,000 square feet); minimum lot width (100 feet); minimum setbacks (front-minimum 10 feet, average 20 feet, side-none, street side-10 feet, rear-none); maximum height of structure (40 feet); maximum floor area ratio (0.75); and minimum site landscaping (8 percent). Requirements relating to fences and walls, off-street parking and loading, outdoor facilities, screening of mechanical equipment, refuse storage areas, underground utilities, performance standards, nonconforming uses and structures, and signs are also included in the Zoning Ordinance. It appears the proposed project would comply with the various performance standards, with the exception of the issue areas noted below.

Non-conforming Structure

Staff for the City of Huntington Beach has indicated that the existing facility is non-conforming under the Zoning Ordinance. Two aspects of the existing structure have been identified: the existing height of the stacks exceeds the 40-foot maximum for the General Industrial zone district, and the site is larger than two acres. The applicant is not proposing to change the stack height nor the parcel size to bring them into conformance with the current Zoning Ordinance standards for the General Industrial zone district.

The Zoning Ordinance provisions regarding Nonconforming Uses and Structures would, therefore, apply to the project in the absence of Energy Commission jurisdiction. Staff has reviewed the project in light of the provisions of California Public Resources Code Section 25523 and 25525, noted above, to determine what action, if any, should be required of the applicant with regard to Chapter 236 of the City's Zoning Ordinance.

Chapter 236 of the Zoning Ordinance is entitled "Nonconforming Uses and Structures." A "nonconforming structure" is defined in the Zoning Ordinance as a structure that was lawfully erected but which does not conform with the current development standards. A "nonconforming use" is defined as a use of a structure or land that was lawfully established and maintained, but which does not conform to the current zoning ordinance (Zoning Ordinance, Section 203.06).

The following portions of Sections 236.02 and 236.06 in Chapter 236 are relevant to the proposed project:

Section 236.02 General Provisions

A. A nonconforming structure or use shall not be enlarged, increased or intensified except as provided in this chapter. If any such use ceases, the subsequent use of such land, structure or building site shall be in conformance with the regulations specified by this code.

236.06 Alterations to a Nonconforming Structure or Use

A. Nonconforming structures may be altered or enlarged provided that the alteration or enlargement is in conformance with the applicable provisions of Titles 21 and 22 [of this Zoning Ordinance, setting forth the various zone districts and overlay districts].

B. Additions to nonconforming structures proposed to be constructed at the existing nonconforming yard setbacks shall be subject to the approval of a conditional use permit by the Zoning Administrator.

C. The area of enlargement to a nonconforming structure in any five year period shall not exceed 50% of the area of the structure as it exists on the effective date of this ordinance.

The existing and proposed *use* of the facility is a permitted use in the General Industrial zone district, and the use is, therefore, consistent with the Zoning Ordinance provisions. The concerns raised by City staff relate to the *structure*, and specifically to the stack height and size of the parcel, and it appears City staff is correct in identifying the structure as nonconforming.

As it relates to the proposed project, Section 236.02A would apply to a proposal to enlarge, increase, or intensify a nonconforming structure. The project would retool two existing generators at the existing facility, add air pollution control equipment, and return them to service. The footprint of the structure would be unchanged. No additional generators would be brought to the site. The project would not enlarge the existing structure, and this section of the Zoning Ordinance would not, therefore, restrict the activities proposed by the project.

Section 236.06C provides that nonconforming structures may be altered or enlarged, as long as the action is in conformance with Titles 21 and 22. These provide the zoning for parcels, as well as the development standards for the various zones. The structure is not being substantially altered or enlarged, as it will occupy the same footprint following the project as at present. Even if it was determined that the facility was being altered, the alteration would not affect the stack height and lot size standards, and would constitute an allowed use under the Zoning Ordinance.

Section 236.06D relates to structures with existing nonconforming yard setbacks, and Section 236.06E relates to enlargement limitations. Neither is applicable here.

General Plan Consistency

Staff for the City of Huntington Beach has expressed concern regarding the consistency of the zoning for the site and the General Plan designation. The City of Huntington Beach is a charter city and is not required to maintain consistency between the General Plan and zoning. Energy Commission staff believes, moreover, that the General Plan designation of Public, which allows public utility uses, is consistent with the zoning of General Industrial, which allows resource and energy production.

CITY OF HUNTINGTON BEACH URBAN DESIGN GUIDELINES

The Urban Design Guidelines are applicable to most development types within the City. The exemptions provided in the Guidelines, which include underground construction or maintenance on buildings, landscaping or grounds, do not apply to the proposed project.

Chapter 7 of the Guidelines concerns industrial development. The Guidelines seek to integrate industrial uses, functionally and aesthetically, within the City. Because the proposed project would not substantially alter the outward appearance of the facility from most points of public view, the impact of the Guidelines occurs in two aspects of the project: lighting and landscaping.

The Guidelines provide the following provisions regarding lighting:

The type and location of parking area and building lighting should preclude direct glare onto adjoining property, streets, or skyward. Lighting systems should be designed for two operating levels: a higher intensity lighting level for business operating hours and a reduced intensity level for non-operating hours.

The design of light fixtures and their structural support should be architecturally compatible with the theme of the development.

Pedestrian scale/decorative light fixtures are encouraged within plazas and courtyards.

The project includes provisions for new lighting at the facility. These are analyzed in the **Visual Resources** section of this staff analysis, which should be consulted for a review of compliance with the Guidelines in that regard.

The Guidelines call for the screening of utility and mechanical equipment (e.g., electric and gas meters, electrical panels, transformers and junction boxes) from view. Screening devices should be compatible with the architecture, materials and colors of adjacent structures. Walls and fences should complement the project's architecture, and landscaping should be used to soften the appearance of wall surfaces. (Guidelines, pages 7-4, 7-5)

The Guidelines contain comments specific to the existing Edison (now AES) facility with regard to landscaping:

The following guidelines are intended to supplement other applicable guidelines in this manual and reinforce positive attributes unique to the Edison and Sanitation District.

1. Intensified landscaping should be provided to screen industrial facilities.
2. Entry gates should be landscaped.
3. Use of natural stone such as river rock is encouraged in perimeter wall design.

The Application for Certification has proposed mitigation measures relating to Visual Resources concerning landscaping and lighting plans for the proposed project. The **Visual Resources** section of this staff analysis should be consulted for a review of this aspect of the project, and compliance with the City's Urban Design Guidelines.

COMPATIBILITY WITH EXISTING AND PLANNED LAND USES

AIRPORT REGULATION

There are no major airports in the vicinity of the project site. The project site is not subject to any airport land use plan, and no Notice of Construction or Alteration is required under the regulations of the Federal Aviation Administration.

POWER PLANT SITE

The proposed facility is located in the General Industrial Zone District, and the operation of a major utility is permitted with a use permit issued by the Planning Commission. The Energy Commission is the sole permitting agency, and no use permit would be required in connection with the project.

The proposed project would re-tool two power generating units (Units 3 and 4) that were retired from use in 1995. The units had been operated prior to that time. The power plant site is an established use in the vicinity. With the exception of concerns raised in the General Plan and Huntington Beach staff comments regarding stack height and landscaping/screening issues, the project site appears to have co-existed with the variety of other land uses in the project vicinity for a period of years. The proposed project would not result in a level of activity at the site that would be substantially greater than was previously experienced. Total employment, for example, is project to be 43 full-time personnel, while the plant's previous maximum employment was 41 full-time personnel.

The construction, operation and maintenance of Units 3 and 4 would be consistent with existing and planned land uses in the immediate vicinity. Construction and operation of the proposed project, therefore, would not conflict with either existing or planned land uses in the vicinity.

The project would not divide an established community. Land uses in the immediate vicinity of the project include mobile home and single-family residential, industrial, schools and parks, and a small area of commercial. The proposed project would not

substantially alter the type or intensity of activity on the project site. Neither construction nor operation of the proposed facility would adversely impact these activities, unless the project created unmitigated environmental impacts. No such impacts have been identified for Land Use; other sections should be consulted with regard to the determination of impacts for other issue areas. See the sections for **Noise, Air Quality, Hazardous Materials Management, Worker Safety and Fire Protection**, and **Visual Resources**.

CUMULATIVE IMPACTS

The proposed facility is located in a portion of the City of Huntington Beach zoned for such use, and would be consistent with the pattern of development proposed for the site and vicinity. The project is not related to any other project, and would not have the potential to encourage other similar uses. No cumulative impacts in terms of land use have been identified for the project.

DISPROPORTIONATE IMPACT

Staff follows the U.S. Environmental Protection Agency's guidance in conducting a two-step analysis to determine whether the proposed project would have a disproportionately high and adverse effect on the health or environment of minority and low-income populations. The analysis assesses whether the potentially affected community has a population that is more than 50 percent minority and/or low income, or has a minority or low-income population percentage that is meaningfully greater than the percent of minority or low-income persons in the general population, or other appropriate unit of geographic analysis. The analysis also assesses whether the environmental impacts are likely to fall disproportionately on the minority and/or low income population.

With regard to Land Use, the staff analysis has concluded that the project would not disrupt an existing community, and would not conflict with existing or proposed additions. The affected area for this analysis included land areas within a one-mile radius of the project, and within one-quarter mile of any electrical or gas transmission route.

The project impacts for Land Use, and discussed in this portion of the staff assessment, would tend to decrease as the area under review is further removed from the actual project site. The General Plan and Zoning Ordinances of the respective cities apply only within their jurisdictional boundaries, and the six-mile radius study area for disproportionate impact is further removed from the municipalities in which the project site or transmission lines are located. Staff has identified no evidence that locating the project at its proposed location would have an impact on the land use of areas within one mile of the site, and the conclusion would be the same for the six-mile radius area.

If the project were to have unmitigated environmental impacts, the project could have an impact on land uses. See the sections for **Noise, Air Quality, Hazardous Materials Management, Worker Safety and Fire Protection**, and **Visual Resources**. As set forth in these sections, staff has concluded that the proposed project would not create unmitigated environmental impacts, and the project would

not, therefore, be viewed as being in conflict with existing or planned land uses in the project vicinity.

No impacts for Land Use have been identified that would fall disproportionately on a minority and/or low-income population.

FACILITY CLOSURE

Closure of the proposed facility could be temporary or permanent. Temporary closure is defined as a shutdown for a period exceeding the time required for normal maintenance, including the overhaul and replacement of the combustion turbines. Causes for a temporary closure include disruption in the supply of natural gas, or damage to the plant due to earthquake, fire, storm, other natural phenomena. Permanent closure is defined as a cessation of operation with no intent to restart operations. This could be based on plant age, damage to the plan beyond repair, economic conditions, or other reasons.

The information provided in the AFC did not specifically address the effects of project closure on land use issues and concerns.

In the event of a temporary closure, with no release of hazardous materials, the facility would be maintained in an "as is" condition. Security would be provided to prevent trespassing or encroachment. Depending on the length of the anticipated shutdown, procedures would be implemented for the safe shutdown and start-up of equipment. Procedures for dealing with hazardous materials at the site would be submitted to the CEC.

The AFC indicates that the planned life of the facility is 5-8 years, and the applicant has indicated that the facility may be operated for a longer time period. It is possible that the facility could become economically non-competitive sooner, forcing early decommissioning. At the time of permanent closure, the closure procedure would follow a plan subject to Energy Commission review and approval.

At the time of permanent closure, all applicable laws, ordinances, regulations and standards would be identified. The closure plan would discuss conformance of decommissioning activities with these LORS.

Staff has not identified any LORS, from a land use perspective, that the applicant would be required to comply with in the event of an unexpected temporary closure or unexpected permanent closure of the facility.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

With implementation of the proposed conditions of certification, the proposed facility would comply with LORS applicable to land use, and would be compatible with existing and planned land uses in the vicinity of the project site.

RECOMMENDATION

If the Energy Commission certifies the Huntington Beach AES Retool Project, staff recommends that the Commission adopt the following proposed conditions of certification.

CONDITIONS OF CERTIFICATION

No Conditions

REFERENCES

AES Huntington Beach. LLC (AES). Application for Certification, AES Huntington Beach Generating Station Retool Project Application for Certification, Huntington Beach, California (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.

AES Huntington Beach. LLC 2001a. Application for Certification, Supplemental 1, AES Huntington Beach Retool Project, Huntington Beach, California (00-AFC-13). Filed with the California Energy Commission, January 19, 2001

City of Huntington Beach. City of Huntington Beach General Plan, dated May 13, 1996, Circulation Element.

City of Huntington Beach. City of Huntington Beach Zoning Ordinance.

City of Huntington Beach. City of Huntington Beach Coastal Element and Local Coastal Program, certified March 1985.

City of Huntington Beach. City of Huntington Beach Urban Design Guidelines.

TRAFFIC AND TRANSPORTATION

Testimony of Mark R. Hamblin

INTRODUCTION

The Traffic and Transportation Section of the Staff Assessment addresses the extent to which the project may impact the transportation system within the vicinity of the proposed Huntington Beach Generation Station Retool (HBGSR) project location. There are a number of roadways addressed in this analysis. The influx of large numbers of construction workers can, over the course of the construction phase, increase roadway congestion and also affect traffic flow. In addition, the transportation of large pieces of equipment can require the alteration of traffic flows and roadway use.

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 171-177, governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

Title 49, Code of Federal Regulations, sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. In addition the California Health and Safety Code addresses the transportation of hazardous materials. Specifically, these codes include:

- California Vehicle Code, section 353 defines hazardous materials. California Vehicle Code, sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon;
- California Vehicle Code, sections 31600-31620, regulates the transportation of explosive materials;
- California Vehicle Code, sections 32000-32053, regulates the licensing of carriers of hazardous materials and includes noticing requirements;

- California Vehicle Code, sections 32100-32109, establishes special requirements for the transportation of inhalation hazards and poisonous gases;
- of vehicles, including those which are used for the transportation of hazardous materials;
- California Health and Safety Code, sections 25160 et seq., addresses the safe transport of hazardous materials;
 - California Vehicle Code, sections 2500-2505 authorizes the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives;
 - California Vehicle Code, sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, it requires the possession of certificates permitting the operation of vehicles transporting hazardous materials;
 - California Streets and Highways Code, sections 117 and 660-72, and California Vehicle Code 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 regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.

LOCAL

CITY OF HUNTINGTON BEACH

City of Huntington Beach General Plan

The adopted Circulation Element (CE) establishes policies, and implementation programs through which the local community manages its transportation system. It includes the following policies:

General

CE 1.2.3 - Maintain primary truck routes that sustain an effective transportation of commodities while mitigating the negative impacts on local circulation and noise sensitive land uses;

Street and Highways

CE 2.1 – Maintain a city-wide level of service (LOS) not to exceed LOS “D” for intersections during the peak hours;

CE 2.1.2 – Maintain a city-wide level of service (LOS) for links not to exceed LOS “C” for daily traffic with the exception of Pacific Coast Highway south of Brookhurst Street;

CE 2.2 – Decrease non-residential traffic on local residential traffic on local residential serving streets;

CE 2.2.1 - Minimize, to the greatest extent feasible, “by-pass” or “through” traffic that intrudes into residential neighborhoods;

CE 2.3.2 – Limit driveway access points and require adequate driveway widths onto arterial roadways and require driveways be located to ensure the smooth and efficient flow of vehicles, bicycles and pedestrians;

Transportation Demand Management/Transportation Systems Management

CE 4.1.2 – Encourage employers to use flex-time, staggered working hours and other means to lessen commuter traffic during peak hours.

Southern California Associations of Governments

The Southern California Association of Governments (SCAG) has prepared a Regional Transportation Plan (RTP) establishing regional transportation goals, policies, objectives, and action for various modes of transportation. The RTP is Southern California's 20-year transportation vision that links and connects the communities that make up the Southern California region to other areas, the nation and world. The RTP is a comprehensive planning document that provides long-term solutions to the region's transportation needs under a framework that meets mobility, air quality regulations, and other regional goals.

The RTP is a critical document for projects to qualify for future federal, state and local funding sources. The plan includes the six-county Southern California region (Ventura, Los Angeles, Orange, San Bernardino, Riverside and Imperial counties) requiring the coordination of regional and local agencies, tribal governments, as well as public and private individuals and organizations working together to plan future transportation needs. In accordance to state and federal law, transportation agencies are required to prepare and adopt a coordinated and balanced regional transportation plan that includes:

- Mass transportation
- Railroad
- Pedestrian
- Aviation facilities and services
- Highway
- Bicycle
- Goods Movement
- Maritime

SETTING

REGIONAL DESCRIPTION

The Huntington Beach Generating Station site involves a 12 acre portion of a 53 acre site located within the City of Huntington Beach in Orange County, California. The proposed project is located along the shore of the Pacific Ocean. The waterfront area is dominated by commercial and recreational uses, with a pocket of industrial uses. Residential and commercial uses are located to the east of the industrial band along the waterfront.

The Applicant and Poseidon Company have filed for a Conditional Use Permit with the City of Huntington Beach to construct and operate a water desalination plant on

a portion of the 53-acre AES site. The City is conducting an environmental impact study that will probably require 9 to 12 months to complete. No definitive time frame for the development of the desalination plant has been indicated. The possible development of a desalination plant would not have an effect on the traffic and transportation considerations relevant to the proposed retool project. Any traffic and transportation impacts generated by the desalination facility would be identified and evaluated in the City's environmental document.

Descriptions of some the critical roads and highways in the study area are provided below. **TRANS Figure 1** shows the roads and highways in the project vicinity.

FREEWAYS, HIGHWAYS AND LOCAL ROADWAYS

U.S Interstate 405 (San Diego Freeway) is a major northwest-southeast interstate freeway that runs east of the City of Huntington Beach. It provides regional access to Orange County and the Southern California roadway network.

State Highway 39 (Beach Blvd.) is a north-south highway that bisects the City of Huntington Beach and joins Interstate 405 to the north and State Highway 1 at the south. State Highway 39 is a 6-lane facility.

State Highway 1 (Pacific Coast Highway) is a state highway that runs along the Pacific coast connecting coastal cities. It is a four-lane facility.

Newland Street is a 4-lane road that is designated as a "primary arterial" by the City of Huntington Beach General Plan, Circulation Element. Newland Street provides public road frontage to the HBGSR site. The portion of Newland Street from the Pacific Coast Highway to Atlanta Ave, which includes the public road frontage along the project site, is designated in the City's Municipal Code (Section 10.24.010) and by the City's General Plan (Figure CE-7) as a "Truck Route". Streets or portions of streets designated as truck routes permit any vehicle exceeding a maximum gross weight of five (5) tons. Newland Street is the only city maintained roadway affected by the proposed project.

PUBLIC TRANSPORTATION

The Orange County Transportation Authority (OCTA) provides local public bus transportation and connections to other transportation systems. OCTA Operates a network of local bus routes serving the county. These routes serve main arterial streets, neighborhoods/residential areas, shopping, schools employment areas and other businesses. OCTA Bus Route 1 operates along State Highway 1 (Pacific Coast Highway).

BICYCLE FACILITES

As shown in the AFC, the only designated bike route that is currently within the vicinity of the project site exists along State Highway 1.

PLANNED ROADWAY AND TRANSIT IMPROVEMENTS

In accordance to the City of Huntington Beach's Circulation Element (Table CE-1), the roadway segment classification currently for Newland Street is 4 Lane Secondary. The potential future classification for Newland Street by 2010 is 4 Lane Primary Divided as shown on Figure CE-3 of the Circulation Element.

LINEAR FACILITIES

No additional transmission lines or natural gas lines will be needed as a result of the project. The existing transmission lines and adjacent switchyard will be used. Existing gas lines have sufficient capacity for total plan operation. Connections to the existing natural gas lines already exist for Units 3 and 4 and no upgrades are needed. No further analysis is addressed in this section.

NATURAL GAS PIPELINE

Natural gas will be obtained from the Southern California Gas Company through an existing 30 - inch diameter pipeline that currently provides natural gas to the facility. No changes to the natural gas pipeline or onsite connection to the pipeline is being proposed for the retool project. No further analysis is addressed in this section.

WATER SUPPLY PIPELINE

Existing project water supplies will be used for potable and process requirements. This existing system was originally designed to serve Units 1 through 4 and has the available capacity required for the retool project. The Pacific Ocean will supply ocean water for cooling. The only modification will be the installation of a new polishing system for Units 3 and 4. No further analysis is addressed in this section.

EFFLUENT WATER DISCHARGE LINE

Wastewater will be discharged to the existing wastewater treatment system either the existing outfall or the existing connection to the city sewer system. No new effluent pipeline is being proposed. No further analysis is addressed in this section.

TRAFFIC ACCIDENT HISTORY

Traffic accident information was not available at the time of preparation of this report by staff.

TRUCK TRAFFIC

Newland Street is under the jurisdiction of the City of Huntington Beach. The Huntington Beach Municipal Code (Section 10.24.010) and General Plan dated May 13, 1996 (Figure CE-7, pg. III – CE-17) shows Newland Street between the Pacific Coast Highway and Atlanta Avenue which includes that portion of Newland

Street fronting the project site as a designated "Truck Route". The weight limit for Newland Street is unknown.

State Highway 39 (Beach Boulevard) and State Highway 1 (Pacific Coast Highway) are under the jurisdiction of the California Department of Transportation (Caltrans). The weight limit for U.S. Interstate 405, State Highway 1 and 39 is 88,000 pounds.

CURRENT ROADWAY AND INTERSECTION OPERATION CONDITONS

Traffic Profile

Caltrans Traffic and Vehicle Data Systems Units provides 1999 traffic volumes for all count locations on the California state highway system. Peak hours, peak month ADTs and annual ADTs are shown at each Huntington Beach count location in

TRANS

Table 1. Significant volume changes (breakpoints) in the traffic profile along each route are counted and identified by name and milepost value. In addition to the profile breakpoints, these files list county lines and well-known landmarks to aid in orientation. All traffic volume figures listed include traffic in both directions unless otherwise indicated.

Milepost

Each profile breakpoint is identified by the milepost value corresponding to that point on the highway. The milepost values increase from the beginning of a route within a count to the next county line. The milepost values start over again at each county line. Milepost values usually increase from south to north or west to east depending upon the general location the route follows within the state.

The milepost at a given location will remain the same year after year. When a section of road is relocated, new milepost (usually noted by an alphabetical prefix such as "R" or "M") is established for it. If relocation results in a change in length, "milepost equations" are introduced at the end of each relocated portion so that mileposts on the remainder of the route within the county will remain unchanged.

Annual Average Daily Traffic (AADT)

Annual average daily traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th. Very few locations in California are actually counted continuously. Traffic Counting is generally performed by electronic counting instruments moved from location throughout the State in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables that may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates. Planning and designing highways and other purposes.

Peak Hour

Included is an estimate of the "peak hour" traffic at all points on the state highway system. This value is useful to traffic engineers in estimating the amount of

congestion experienced, and shows how near to capacity the highway is operating. Unless otherwise indicated, peak hour values indicate the volume in both directions.

A few hours each year are higher than the "peak hour", but not many. In urban and suburban areas, the peak hour normally occurs every weekday and 200 or more hours will all be about the same. On roads with large seasonal fluctuations in traffic, the peak hour is the four near the maximum for the year but excluding a few (30 to 50 hours) that are exceedingly high and are not typical of the frequency of the high hours occurring during the season.

Peak Month ADT

The peak month ADT is the average daily traffic for the month of heaviest traffic flow. This data is obtained because on many routes, high traffic volumes, which occur during a certain season of the year, are more representatives of traffic conditions than the annual ADT.

**TRANS Table 1
1999 Caltrans Roadway Segment Annual Average Daily & Annual Trips**

| | | Post Mile | Post | | Back | | | Ahead | | |
|-------|--------|-----------|-------|----------------------------------------------------|---------|---------|-------|---------|---------|-------|
| Route | County | Prefix | Mile | Description | Peak Hr | Peak Mo | AADT | Peak Hr | Peak Mo | AADT |
| 1 | Orange | R | 23.74 | Huntington Beach, Jct. Rte. 39 North, Beach Blvd. | 2800 | 33000 | 31000 | 3050 | 36500 | 34000 |
| 1 | Orange | R | 22.09 | Huntington Beach, Brookhurst Street | 3850 | 46500 | 43500 | 2800 | 33000 | 31000 |
| | | | | | | | | | | |
| 39 | Orange | R | 0 | Huntington Beach, Jct. Rte. Pacific Coast Highway | N/A | N/A | N/A | 1800 | 19200 | 16000 |
| 39 | Orange | R | 1.63 | Huntington Beach, Adams Ave | 3200 | 34000 | 29000 | 4300 | 48000 | 41000 |
| 39 | Orange | R | 3.12 | Huntington Beach, Main St./Ellis Ave | 4900 | 57000 | 49000 | 5800 | 7000 | 61000 |
| 39 | Orange | R | 3.61 | Huntington Beach, Talbert Ave | 5400 | 68000 | 60000 | 5000 | 67000 | 59000 |
| 39 | Orange | R | 4.13 | Huntington Beach, Slater Ave | 5000 | 67000 | 59000 | 4750 | 67000 | 60000 |
| 39 | Orange | R | 4.63 | Huntington Beach, Warner Ave | 4750 | 67000 | 60000 | 4550 | 60000 | 57000 |
| 39 | Orange | R | 5.8 | Huntington Beach, Jct. Rte. 405, San Diego Freeway | 4550 | 60000 | 57000 | 5200 | 63000 | 59000 |

LEVELS OF SERVICE

The concept of level of service (LOS) is a tool used to describe the operating characteristics of the street system in terms of the level of congestion or delay experienced by traffic. When evaluating a projects' potential impact on the local transportation system, staff uses levels of service (LOS) measurements as the foundation on which to base its analysis. Essentially LOS measurements represent the flow of traffic. In general levels of service range from A, free flowing traffic, to F, which is heavily congested with stoppage of the flow. LOS can be determined through two related measures: intersection capacity utilization (ICU) and roadway segment vehicle to capacity (V/C) ratios. Staff prefers to use both types of data. However, in many cases, only one of the two types of data is available.

All roadways within City of Huntington Beach likely to be affected are operating at or above LOS "F". The City's current policy for acceptable level of service is D at traffic –signal controlled intersections and LOS "C" for roadway segments links. The City's level of service is mandated by the Growth Management element and is a necessary standard in order to maintain and obtain future funding from the County and State for future street improvements within the City. Currently, certain roadway segments along Beach Boulevard, Edinger Avenue, Garfield Avenue, Golden West Street, Hamilton Avenue, Main Street, Magnolia Street, Pacific Coast Highway, Warner Avenue, and Yorktown operate below level of service C as shown in the City's General Plan Circulation Element, Figure CE-2. Table 5.11-2 in the project's AFC presents that Newland Street has a LOS "A" and an AADT of 5,900.

The City's Circulation Element states that the intersections of Beach Boulevard/Edinger Avenue, Beach Boulevard/Warner Avenue, Beach Boulevard/Slater Avenue, Beach Boulevard/Ellis Avenue, Brookhurst Street/Adams Avenue, Golden West Street/Bolsa Avenue, Bolsa Chica Street/Edinger Avenue, Bolsa Chica Street/Warner Avenue, and Warner Avenue/Pacific Coast Highway currently operate at or below level of service D during peak morning and/or evening rush hours.

IMPACTS

The California Environmental Quality Act (CEQA) indicates that a project could have a significant effect on traffic and transportation if the project will:

- Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the highway and road 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).
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate parking capacity.

POWER PLANT

CONSTRUCTION PHASE

COMMUTE TRAFFIC

Engineering, procurement and construction of the retool project will occur over an estimated 9 month period and will require a total workforce of approximately 383 workers per month assuming two-shifts and a 60 hour work week for each shift. During the construction phase, which is scheduled to occur during the last 3 months, a maximum of 530 workers will be required.

An estimate of the number of trips by construction workers is based upon a conservative assumption that 100 percent of the workers are driving alone (i.e., no carpooling assumed) to/from the site during peak hour which in a worst-case scenario potentially could total 1060 vehicle trips during the construction period.

The preferred commuting route that workers will take to the project site will depend on the community from which they commute. It is expected that the majority of individual commuters will travel on U.S. Interstate 405 to State Highway 39 south onto the State Highway 1 and exit at Newland Street to get to the Huntington Beach Generation Station.

To determine the potential for impact, staff assessed whether, if all construction related vehicles travel the same route, levels of congestion could result in decreases of LOS standards below the established threshold of LOS "D" at traffic-signal controlled intersections and LOS "C" for roadway segment links as specified in the City's Circulation Element.

Using the travel pattern assumptions described above, only minor traffic increases are anticipated on local highways as a result of the project workforce commuting to and from the project site. During the peak construction period (estimated to be the 5th month), project-related vehicle traffic will affect Beach Boulevard and Pacific Coast Highway resulting in traffic increases of 1 to 3 percent.

The main local road impacted by the project will be Newland Street. This street provides access to the project site and will be most affected by the project workforce using the Pacific Coast Highway. As shown in the AFC, Newland Street has a capacity of 10,000 vehicles per day and a LOS of better than C (AFC, Table 5.11-2).

Traffic increases for the retool project would be short-term occurring only during the peak construction period. Construction workforce traffic would generally occur

between 6:00 a.m. and 7:00 a.m. in the morning and again between 5:00 p.m. and 6:00 p.m. in the evening.

TRUCK TRAFFIC

CONSTRUCTION TRAFFIC

Construction traffic will require approximately 16 to 20 heavy truck deliveries to the project site during the three month construction period (approximately 5-6 truck deliveries per month). Deliveries are to occur between 7:00 a.m. and 5:00 p.m. on weekdays.

In addition to deliveries of heavy equipment, construction materials such as concrete, wire, pipe, cable, fuels, and consumables other deliveries will include hazardous materials to be used during project construction. The transportation and handling of hazardous substances associated with the project can increase roadway hazard potential. The handling and disposal of hazardous substances are addressed in the Waste Management Section, and the Hazardous Materials Section of this report. Potential impacts of the transportation of hazardous substances can be mitigated to insignificance by compliance with Federal and State standards established to regulate the transportation of Hazardous Substances. Conditions of Certification that ensure this compliance are discussed under their respective subsection later in this analysis.

The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to carry a manifest, available for inspection by the California Highway Patrol at inspection stations along major highways and interstates. Drivers are also required to check for weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are also required to take instruction in first aid and procedures on handling hazardous waste spills.

The California Vehicle Code and the Streets and Highways Code (Sections 31600 through 34510) are equally important to ensure that the transportation and handling of hazardous materials are done in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the California Highway Patrol.

Transportation of equipment that will exceed the load size and limits of certain roadways will require special permits from the City of Huntington Beach and/or Caltrans. Mitigation measures and Conditions of Certification that ensure this compliance are discussed later in this analysis.

OPERATIONAL PHASE

COMMUTE TRAFFIC

The current operating Huntington Beach facility has 33 employees. It is anticipated that 10 new employees will be hired with the operation of the retooled Units 3 and 4.

The operational phase of this project will generate a minimum of 20 new vehicle trips daily during morning and evening peak hours. This will be a major decline in commute traffic in comparison to the construction phase and will not present any major traffic problems.

TRUCK TRAFFIC

During project operation it is estimated 14 truck deliveries per month of urea will be transported to the plant site. Other hazardous and non-hazardous materials, described in the AFC (Section 5.15, Hazardous Materials Handling) will be delivered by truck to the plant site.

Truck travel routes will be consistent with truck routes designated in the City of Huntington Beach Circulation Element (Figure CE-7). Delivery trucks will travel south along State Highway 39, east along State Highway 1 and north on Newland Street to the facility's main entrance.

Some of the hazardous material generated at the site during plant operations will be transported for disposal at a Class I landfill or transported offsite for recycling as described in the AFC (Section 5.14, Waste Management). It is estimated that hazardous wastes generated onsite will continue to be transported offsite for disposal about once every 90 days by licensed hazardous waste transporters.

The transportation and handling of hazardous substances associated with the project can increase roadway hazard potential. The handling and disposal of hazardous substances are also addressed in the Waste Management, the Workers Safety and Fire Protection, and the Hazardous Materials sections of this report. Potential impacts of the transportation of hazardous substances can be mitigated to insignificance by compliance with Federal and State standards established to regulate the transportation of Hazardous Substances. Mitigation measures and Conditions of Certification that ensure this compliance are discussed under their respective subsection later in this analysis.

CUMULATIVE IMPACTS

The HBGSR project site is located along the shore of the Pacific Ocean in a waterfront area that is dominated by commercial and recreational uses, with a pocket of industrial uses. Residential and commercial uses are located to the east of the industrial band along the waterfront.

Based on the current and future traffic characteristics (i.e. LOS, AADT, highway capacities) of the area, traffic associated with the operation of the project is minimal, and regional and local roadways are considered to have adequate capacity to accommodate related construction traffic.

In addition, the applicant has not identified any additional projects planned in the area that could potentially cause traffic impacts on the local roadways or state highways affected by this project under cumulative conditions.

The regional area will likely continue to experience development and traffic volume growth. Consequently, traffic volumes on the regional roadway system will likely increase. The project's level of traffic generation will diminish between the construction and operational phases such that an increase in background traffic should not be problematic.

Mitigation to minimize any potential traffic impacts under cumulative conditions on the affected state highways can be accomplished through the implementation of transportation demand strategies that limit all commute and truck traffic related to the construction of the project as part of a construction traffic control and implementation plan. Mitigation measures and conditions of certification that ensure this compliance are discussed later in this section.

FACILITY CLOSURE

The planned financial or economic life of the generation facility is five to eight years. At the time of facility closure, decommissioning will be completed in a manner that: (1) protects the health and safety of the public; and (2) is environmentally acceptable. One year prior to a planned closure, the applicant will submit a specific decommissioning plan to the Energy Commission for approval.

At the time of closure all then-applicable LORS will be identified and the closure plan will address how these LORS will be complied with. The effects of project closure on traffic and transportation will be similar to those discussed for the project itself. Closure will involve a peak work period with commute traffic. The removal of waste and other materials will produce impacts from truck traffic. At this time no conclusions can be drawn on the effects of project closure on traffic and transportation.

MITIGATION

The applicant has indicated their intention to comply with all LORS relating to: the transport of hazardous materials;

- the transport of oversized loads;
- to obtain and comply with all necessary encroachment and transportation permits for any construction activity within the public right-of-way;
- if warranted, utilize proper signs and traffic control measures in accordance with Caltrans and City requirements during peak traffic hours; and,
- to coordinate construction activities with appropriate City departments to maintain traffic flow and safety.

The applicant should also implement the following traffic and transportation mitigation measures:

- Parking within the public right-of-way along State Highway 1, State Highway 39 and Newland Street shall not be permitted;
- Enforce a policy that all project-related parking occurs in designated parking areas;
- Repair any damage to Newland Street north of State Highway 1 to the Main Gate entrance to the Huntington Beach Generating Station incurred during construction to the road's pre-project construction condition. Any repair work needed shall occur outside of the ambient street traffic peak periods and timing of heavy vehicle equipment and building materials deliveries;
- Prepare a Traffic Management Plan subject to review by the City of Huntington Beach and Caltrans. The Traffic Management Plan should include the preparation of a construction traffic control plan and transportation demand implementation program that limits construction-period truck and commute traffic to off-peak periods, to the satisfaction of the City of Huntington Beach and Caltrans. These plans and programs should establish schedules for major shifts outside of the ambient street traffic peak periods and timing of heavy vehicle equipment and building materials deliveries;
- The existing berm, fences and landscaping currently within the public right-of-way of Newland Avenue fronting the project site are to be removed from within the City's public right-of-way;
- A Fair Share Traffic Impact Mitigation Fee is to be paid to the City of Huntington Beach in accordance to Chapter 17.65 of the City's Municipal Code for the generation of the net additional vehicle trips on City streets cause by the ten (10) new permanent employees to be hired as a result of the retool project.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff's analysis of the available capacity of State Highways 1 and 39 and Newland Street indicates that these potentially affected highways and roadway have the capacity to accommodate traffic generated by the proposed retool project during both construction and operation. Staff has concluded that the proposed project has the potential to cause some impact in the traffic and transportation area. These impacts can be mitigated to a level of insignificance by implementing the following recommendations. These individual recommendations are incorporated in the staff's Conditions of Certification.

RECOMMENDATIONS

- During the construction phase, increased roadway demand resulting from the daily movement of workers and materials will slightly increase

congestion and delay, although the level of service on each of the state highway segments, intersections, and city road segments would be unchanged.

- During the operational phase, increased roadway demand resulting from the daily movement of workers and materials will be negligible.
- The project applicant should pay the required traffic mitigation fee to the City for generation of net additional vehicle trips on City streets caused by new permanent employees hired as a result of the operation of the project.
- All transportation and handling of hazardous substances can be mitigated to insignificance by compliance with federal, state, and local standards and permits established to regulate the transportation of hazardous substances.
- The project applicant should obtain and comply with all necessary encroachment permits from Caltrans and all other jurisdictions related to any construction within the public right-of-way.
- The project applicant should remove berms, fences, landscaping and debris from within the public right-of-way of Newland Avenue fronting the project property.
- Construction activities have the potential to damage local roadways. The applicant should be required to repair damaged roadways to their original condition.
- The AFC indicates that parking for the construction workforce will be provided in an area on the project site. The applicant is expected to enforce a policy that all project-related parking occurs in designated parking areas; therefore, construction-period parking is not considered a significant project impact.
- The addition of HBGSR project construction traffic to the local roadways and state highways under cumulative conditions is not expected to have any significant cumulative impacts. The project's level of traffic generation will diminish between the construction and operational phases such that an increase in background traffic should not be problematic.

The conditions of certification proposed below are those that staff has identified as necessary to mitigate project impacts based on the information available to date.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with California Department of Transportation (Caltrans) and the City of Huntington Beach on limitations on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner or their contractor shall comply with the California Department of Transportation (Caltrans) and the City of Huntington Beach limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

The project owner shall include in its Monthly Compliance Reports during construction and Annual Compliance Reports during operations copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous materials.

TRANS-4 Following completion of HBGSR project construction, the project owner shall repair any damage to Newland Street north of State Highway 1 (Pacific Coast Highway) to the Main Gate entrance to the Huntington Beach Generating Station incurred during construction to the road's pre-project construction condition.

Prior to start of construction, the project owner shall photograph, videotape or digitally record images of Newland Street from State Highway 1 to the HBGSR Main Gate entrance (project entrance). The project owner shall provide the Compliance Project Manager (CPM), the City of Huntington Beach and Caltrans (as necessary) with a copy of these images. Prior to start of construction, the project owner shall also notify the City of Huntington Beach and Caltrans about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction related activities associated with other projects.

Within 30 days after completion of the retool project construction, the project owner shall meet with the CPM, the City of Huntington Beach and Caltrans (as needed) 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 Huntington Beach and Caltrans if work occurred within their jurisdictional public right of way stating their satisfaction with the road improvements.

TRANS-5 The project owner shall develop a Transportation Management Plan. The Transportation Management Plan shall include a construction

traffic control and transportation demand implementation program that limits construction-period truck and commute traffic during peak periods in coordination with the City of Huntington Beach and Caltrans subject to the satisfaction of the CPM.

Prior to start of site preparation or earth moving activities, the project owner shall provide to the City of Huntington Beach and Caltrans for review and comment and then after receipt of their comments to the CPM for review and approval, a copy of the Transportation Management Plan.

TRANS-6 During construction and operation of the HBGSR project, the project owner shall enforce a policy that all project related parking occurs in designated parking areas. Parking within the public right-of-way along State Highway 1, State Highway 39 and Newland Street shall not be permitted.

Prior to start of construction, the project owner shall submit a parking and staging plan for all phases of project construction to the CPM for review and approval.

TRANS-7 The project owner shall remove the existing berm(s), fence(s), landscaping and debris currently within the City's public right-of-way of Newland Avenue fronting the project site.

Within 30 days after completion of the retool project construction, the project owner shall provide to the CPM a letter from the City of Huntington Beach stating that the public right of way along Newland Avenue has been clean-up/cleared of objects.

TRANS-8 The project owner shall pay a Fair Share Traffic Impact Mitigation Fee paid to the City of Huntington Beach in accordance to Chapter 17.65 of the City's Municipal Code for the generation of the net additional vehicle trips on City streets cause by the ten (10) new permanent employees to be hired as a result of the retool project.

Prior to start of construction, the project owner shall submit to the CPM a copy of the receipt issued by the City of Huntington Beach demonstrating payment of the Traffic Mitigation Fee.

REFERENCES

AES Huntington Beach. L.L.C. (AES) . Application for Certification, AES Huntington Beach Generating Station Retool Project Application for Certification, Huntington Beach, California (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.

City of Huntington Beach. City of Huntington Beach General Plan, dated May 13, 1996, Circulation Element.

State of California Department of Transportation. Traffic and Vehicles Data Systems Unit . 1999 All Traffic Volumes on the California State Highway System.

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NOISE

Testimony of Jim Buntin

INTRODUCTION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, the times of day or night that it is produced, and the proximity of the facility to sensitive receptors combine to determine whether the facility would meet applicable noise control laws and ordinances, and whether it would exhibit significant adverse environmental impacts. In some cases, vibration may be produced as a result of power plant operation or construction practices, such as pile driving. The ground-borne energy of vibration has the potential to cause structural damage and annoyance.

The purpose of this analysis is to identify and examine the likely noise and vibration impacts from the construction and operation of the Huntington Beach Generating Station Retool Project (Retool Project), and to recommend procedures to ensure that the resulting noise and vibration impacts would be adequately mitigated to comply with applicable laws, ordinances, regulations, and standards (LORS).

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. These regulations list permissible noise exposure levels as a function of the amount of time to which the worker is exposed (see **Noise: Appendix A, Table A4** immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

There are no federal laws governing off-site (community) noise.

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of project. 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 and annoyance 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 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 their General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in **NOISE: Table 1**.

NOISE: Table 1 - Land Use Compatibility for Community Noise Environment

| LAND USE CATEGORY | COMMUNITY NOISE EXPOSURE - Ldn or CNEL (db) | | | | | | | |
|--------------------------------------------------------------|---------------------------------------------|----|----|----|----|----|----|--|
| | 50 | 55 | 60 | 65 | 70 | 75 | 80 | |
| Residential – Low Density Single Family, Duplex, Mobile Home | | | | | | | | |
| Residential – Multi-Family | | | | | | | | |
| Transient Lodging – Motel, Hotel | | | | | | | | |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | | | | | | | | |
| Auditorium, Concert Hall, Amphitheaters | | | | | | | | |
| Sports Arena, Outdoor Spectator Sports | | | | | | | | |
| Playgrounds, Neighborhood Parks | | | | | | | | |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | | | | | | | | |
| Office Buildings, Business Commercial and Professional | | | | | | | | |
| Industrial, Manufacturing, Utilities, Agriculture | | | | | | | | |

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Normally Acceptable | Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. |
| Conditionally Acceptable | New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. |
| Normally Unacceptable | New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design. |
| Clearly Unacceptable | New construction or development generally should not be undertaken. |

Source: State of California General Plan Guidelines, Office of Planning and Research, June 1990.

Other State LORS include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

- a) exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;
- b) exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project....

The Energy Commission has interpreted the CEQA criteria so that noise produced by the permitted power-producing facility that causes an increase of more than 5 dBA in the background noise level (L_{90}) at a noise sensitive receiver during the quietest hours of the day is considered a significant effect.

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 (**see NOISE: Appendix A, Table A4**).

LOCAL

ORANGE COUNTY LORS

Since the Retool Project is located entirely within the City of Huntington Beach, and its noise effects are not likely to affect noise sensitive land uses in the unincorporated area of Orange County, no County LORS apply to this analysis.

CITY OF HUNTINGTON BEACH GENERAL PLAN NOISE ELEMENT

The City of Huntington Beach has adopted goals, objectives, and policies for noise compatibility in its General Plan (City of Huntington Beach 1992). The noise level considered acceptable for noise sensitive land uses adjacent to existing industrial land uses that are being expanded is 65 dB L_{dn} or DNL. Several policies in the City of Huntington Beach General Plan Noise Element are applicable to construction and operation of the project (City of Huntington Beach 1992). These policies are as follows:

Policy N 1.2.2 – Require new industrial and new commercial land uses or the major expansion of existing land uses to demonstrate that the new or expanded use would not be directly responsible for causing ambient noise levels to exceed an exterior L_{dn} of 65 dB(A) on areas containing “noise sensitive” land uses.

Policy N 1.4 – Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or “noise sensitive” uses.

Policy N 1.12.1 – Require detailed independent acoustical studies be conducted for any new or renovated land uses or structures determined to be potential major stationary noise sources. Recommended mitigation measures must be successfully implemented and tested, prior to the issuance of a Certificate of Occupancy for the land use or structure.

Policy N 1.12.2 – Encourage major stationary noise generating sources throughout the City of Huntington Beach to install additional noise buffering or reduction mechanisms within their facilities to reduce noise generation levels to the lowest practicable extent prior to the renewal of Conditional Use Permits or business licenses or prior to the approval and/or issuance of new Conditional Use Permits for said facilities.

CITY OF HUNTINGTON BEACH NOISE ORDINANCE

Chapter 8.40 of the City of Huntington Beach Municipal Code contains noise control standards that will apply to the operation of the Retool Project. Section 8.40.060 states that it is unlawful for any person at any location within the incorporated area of the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured on any residential, public institutional, professional, or commercial property, either within or without the City, to exceed the applicable noise standards for a cumulative period of more than thirty (30) minutes in any hour. This standard, which is the hourly L_{50} value, applies to steady-state noise sources such as power plants.

The noise standards are stated in Huntington Beach Municipal Code Section 8.40.050, as described in **NOISE: Table 2**. For intermittent noise sources lasting less than one minute in any hour, the noise standards are increased by 20 dBA. The noise standards are reduced by 5 dBA if the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music or any combination thereof.

The noise ordinance also provides that, if the ambient noise level exceeds the noise standard, the standard shall be increased to reflect the ambient noise level.

Section 8.40.090(d) of the Huntington Beach Municipal Code exempts noise sources associated with construction, repair, remodeling or grading of any real property, provided that a permit has been obtained from the City, and that said

activities do not take place between the hours of 8 p.m. and 7 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

NOISE: Table 2 - CITY OF HUNTINGTON BEACH EXTERIOR NOISE STANDARDS

| Noise Zone | Land Use | Noise Level | Time Period |
|-------------------|---------------------------------------------|--------------------|--------------------|
| 1 | Residential | 55 dBA | 7 a.m. – 10 p.m. |
| 1 | Residential | 50 dBA | 10 p.m. – 7 a.m. |
| 2 | Professional Office, Public Institutions | 55 dBA | Anytime |
| 3 | Commercial | 60 dBA | Anytime |
| 4 | Industrial | 70 dBA | Anytime |

Source: City of Huntington Beach Municipal Code section 8.40.050.

SETTING

PROJECT BACKGROUND

The Retool Project involves the retooling of Units 3 and 4 in the existing Huntington Beach Generating Station (HBGS) facility in the City of Huntington Beach. The re-tooled units 3 and 4 are boiler/steam turbine units, and will replace the existing unit capacity.

The equipment that has the greatest potential to generate significant noise levels includes the boiler/steam turbine units, inlet and exhaust openings, generators and cooling systems. The re-tooled equipment will produce noise similar to that produced by the existing Units 1 and 2.

EXISTING LAND USE

POWER PLANT SITE

The Retool Project would be located in the City of Huntington Beach, approximately 1.5 miles southeast of the city center at the intersection of Pacific Coast Highway and Newland Street. The project site is within the existing HBGS. The project site

is zoned General Industrial (IG-O-CZ-FP2). The Pacific Ocean borders the project site to the west, undeveloped land within the HBGS facility borders the project site to the southeast. Residential land uses are located adjacent to the HBGS to the north, south and east. A pumping station, a park and a high school are located east of the HBGS.

Sensitive receptors are located in several different areas within the one-mile study area of the HBGS site. The closest sensitive receptors include the Huntington By The Sea RV Resort and the Huntington By The Sea Mobil Resort, located approximately 250 feet and 455 feet, respectively, from Unit 4. (AES 2000a, AFC § 5.12). Additional residences are located farther north and east of the project site.

For this analysis, the Huntington By The Sea RV Resort and the Huntington By The Sea Mobil Resort, located approximately 250 feet and 455 feet, respectively, from Unit 4, were assumed to be the nearest sensitive receptors to the acoustical center of the project.

LINEAR FACILITIES

The HBGS will be directly interconnected to the existing HBGS switchyard that is located within the property boundary of the HBGS (AES 2000a, AFC § 5.9). No off-site linear facility construction is required for this project.

Since the Retool Project is to be implemented wholly within the site of the existing HBGS, it will rely on several of the existing plant's systems, such as the water treatment system, the fire water supply, and a shared switchyard (AES 2000a, AFC § 3.1). The construction of the on-site tie-in lines will affect the same receptors as identified above for the power plant site.

EXISTING NOISE LEVELS

In order to predict the likely noise effects of the project on adjacent sensitive receptors, the applicant commissioned an ambient noise survey of the area. The survey was conducted, at various hourly time intervals, at four offsite locations on November 14 and 15, 2000. The noise survey was conducted using two Larson Davis Model 712 American National Standards Institute (ANSI) Type 2 Integrating Sound Level Meters, with the microphones mounted approximately five feet above ground level to simulate the average height of the human ear (AES 2000a, AFC § 5.12.1.2).

The applicant's noise survey monitored existing noise levels at the following four off-site measurement locations (MLs):

- 1) 25 consecutive 1-hour measurements were taken near the west entry gate of the HBGS (Measurement Location 1 [ML1]).
- 2) Three 1-hour measurements, one each during the day, evening, and nighttime periods, were taken at the east boundary of the Huntington By The Sea Mobil Resort (ML2), which is approximately 250 feet west of the project site.

- 3) Three 1-hour measurements, one each during the day, evening, and nighttime periods, were taken at the north side of Hamilton Avenue (ML3), which is approximately 2,000 feet north of HBGS Units 3 and 4.
- 4) Three 1-hour measurements, one each during the day, evening, and nighttime periods, were taken adjacent to the intersection of Banning Avenue and Magnolia Street (ML4), which is approximately 2,300 feet east of the HBGS Units 3 and 4.

During the noise measurement periods, only Unit 1 at the HBGS was in operation. Noise from the HBGS, typical residential noise, and traffic contributed to the noise environment at ML1 and ML2. Noise from vehicular traffic on Hamilton Street contributed to the noise environment at ML3. Noise from vehicular traffic on Magnolia Street and Banning Avenue contributed to the noise environment at ML4 (AES 2000a, AFC § 5.12.1). **NOISE: Table 3** summarizes the noise measurement results (AES 2000a, AFC Table 5.12-7; AES 2000b, AFC Table 5.12-7).

NOISE: Table 3: SUMMARY OF MEASURED NOISE LEVELS

| Measurement Sites | Measured Noise Levels, dBA | | |
|-------------------|----------------------------|------|----------|
| | Nighttime | | CNEL, dB |
| | Leq | L90 | |
| ML1 | 59.1 | 53.8 | 68.1 |
| ML2 | 56.4 | 53.1 | 63.6* |
| ML3 | 51.1 | 44.4 | 58.3* |
| ML4 | 55.5 | 47.1 | 62.6* |

* - Applicant's estimate

Since the applicant measured noise levels when only Unit 1 was in operation, Energy Commission staff requested additional data describing the expected noise levels at the four measurement sites during operation of Unit 5, which consists of eight "peaking" combustion turbine generator units. The applicant responded with information based upon noise measurements conducted a distance of 200 feet from Unit 5, on January 20, 2000. **NOISE: Table 4** lists the projected noise levels due to the operation of Unit 5 and the project.

NOISE: Table 4 – Predicted Nighttime Noise Levels With Unit 5

| Measurement Sites | Measured Ambient L ₉₀ , dBA | Predicted Project L _{eq} , dBA | Unit 5 L _{eq} | Total Sound Level, dBA |
|-------------------|----------------------------------------|-----------------------------------------|------------------------|------------------------|
| ML1 | 53.8 | 66 | 56.3 | 66.0 |
| ML2 | 53.1 | 61 | 55.0 | 62.1 |
| ML3 | 44.4 | 49 | 51.0 | 53.1 |
| ML4 | 47.1 | 49 | 55.0 | 55.9 |

According to City of Huntington Beach staff, an amplified sound system is used at the existing HBGS to communicate with workers on the plant grounds and equipment. The amplified voices are reportedly audible and distracting to the nearest residents, and have been the source of some complaints to the City.

City staff also noted that, since the prevailing winds are from the ocean, there was some concern that the noise monitoring conducted by the applicant did not include a measurement site directly down wind of the HBGS, near the intersection of Hamilton Avenue and Magnolia Street. Energy Commission staff agrees that it would be valuable to have some information about ambient and project-related noise levels at that general location to complete the description of the noise environment. To address this concern, staff has included pre- and post-project noise monitoring in that vicinity as part of proposed Condition of Certification **NOISE-6**.

At the first public workshop for this project, members of the public expressed concern about the potential for adverse effects of project-induced vibration on the adjacent wetlands. The issue of vibration was not addressed by the applicant.

IMPACTS

Noise impacts associated with the project can be created by short-term construction activities, and by normal long-term operation of the power plant.

PROJECT SPECIFIC IMPACTS — CONSTRUCTION

COMMUNITY EFFECTS

GENERAL CONSTRUCTION NOISE

Construction noise is a temporary phenomenon; the construction period for the HBGS Retool Project is scheduled to last for 4 months (AES 2000a, AFC Figure 3.8-1). Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances. As identified in the LORS, the City of Huntington Beach regulates the permissible hours of construction, but does not have any specific noise limits within the hours during which construction is allowed.

The applicant has estimated noise level ranges for typical construction equipment (AES 2000a, AFC Table 5.12-8), but has not quantified the noise exposure due to construction at the sensitive receiver locations. However, the applicant states that, since the construction noise levels would occur during the daytime hours in compliance with the City of Huntington Beach Municipal Code requirements, no significant impacts would occur (AES 2000a, AFC § 5.12.2.4).

Assuming the estimated sound levels at 50 feet from the acoustic center of the construction to range from 85 to 90 dBA, as is typical of diesel-powered equipment (AES 2000a, AFC Table 5.12-8), the sound levels at the residences nearest the assumed acoustical center of construction (about 250 feet from the construction site) are projected to reach about 71 dBA to 76 dBA for most work.

The ambient background sound level at the closest residence (ML2) during daylight hours (when construction is allowable under City of Huntington Beach Municipal Codes) was 53 dBA. The construction sound level at this location would be higher than under the ambient conditions. Therefore, Energy Commission staff has recommended the inclusion of three Conditions of Certification (**NOISE-1**, **NOISE-2**, and **NOISE-8**) to monitor and mitigate potential construction noise impacts.

Because construction activity and related traffic are scheduled during the daytime hours in compliance with City of Huntington Beach Municipal Code requirements, potential construction impacts to receptors in the HBGS project area are considered to be less than significant (AES 2000a, AFC § 5.12.2.4).

STEAM BLOWS

Typically, the steam blows create the loudest noise encountered during construction. Steam blows are necessary after erection and assembly of the feedwater and steam systems because the piping and tubing that comprises the steam path accumulate dirt, rust, scale and construction debris such as weld spatter, dropped welding rods and the like. If the plant were to start up without thoroughly cleaning out the piping and tubing, all this debris would find its way into the steam turbine, quickly destroying the machine.

In order to prevent this, before the steam system is connected to the turbine, the steam line is temporarily routed to the atmosphere. High-pressure steam is then raised in the boiler, and is allowed to escape to the atmosphere through the steam piping. This flushing action, referred to as a steam blow, is effective at cleaning out the steam system. A series of short steam blows, lasting two or three minutes each, is performed several times daily over a period of two or three weeks. At the end of this procedure, the steam line is connected to the steam turbine, which is then ready for operation.

According to the applicant, steam blows can produce noise as loud as 130 dBA at a distance of 50 feet (AES 2000b, page 2). This would attenuate to approximately 111 dBA, which is an exceedingly disturbing level, at the nearest residence (455 feet in distance), and to approximately 98 dBA at the residences located about 2100 feet from the project site. In order to minimize disturbance from steam blows, the steam blow piping can be equipped with a silencer. According to the applicant, the temporary piping exhausting the steam during system cleaning will be routed, and silencers installed, so that the noise level will not exceed 85 dBA at the property line (AES 2000b, page 2). According to the applicant, these measures will reduce the noise emitted during steam blows to 78 dBA at the nearest residence (ML2), and to 65 dBA at the more distant residences (ML3 and ML4) (AES 2000b, page 3).

The proposed mitigation measures have been incorporated into proposed Condition of Certification **NOISE-4** below.

In addition, Energy Commission staff proposes a notification process to make neighbors aware of scheduled steam blows (see proposed Condition of Certification **NOISE-5** below), and proposes that the applicant distribute, or make available at no

charge, hearing protection devices to residents within one-quarter mile of the project site. This should help ensure that the steam blow process is at least tolerable to nearby residents.

LINEAR FACILITIES

No new off-site linear facilities are proposed as part of this project. The construction of the on-site tie-in lines, and onsite water pipelines, are included in the on-site construction noise impacts discussed in the “Community Effects” section.

WORKER EFFECTS

The applicant acknowledges the need to protect construction workers from noise hazards, and states that a noise evaluation will be conducted after retooling is complete to ensure that employees are adequately protected in accordance with OSHA/Cal-OSHA requirements (AES 2000a, AFC § 5.12.2.3). To ensure that construction workers are, in fact, adequately protected, Energy Commission staff has proposed a Condition of Certification (**NOISE-3**, below).

PROJECT SPECIFIC IMPACTS — OPERATION

COMMUNITY EFFECTS

POWER PLANT OPERATION

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

The primary noise sources anticipated in the facility include the turbines, inlet and exhaust openings, generators and cooling systems. The noise emitted by power plants during normal operations is generally broadband, steady state in nature.

It should be noted that the Unit 3 and Unit 4 facilities are located adjacent to the existing Units 1 and 2 of the HBGS. As described previously, the closest sensitive receptors are located at a distance approximately 455 feet north of Unit 4. The primary noise experienced by the nearest sensitive receptors is currently, and will continue to be, noise from the HBGS facility.

The applicant performed noise measurements and acoustical calculations to determine the facility noise emissions. The noise measurements described the noise emissions of the existing Unit 1, at different locations about 100 feet from the unit. The applicant estimated the sound levels at the nearest sensitive receptors by assuming that the noise levels emitted by Unit 1 would also be produced at the locations of Units 2, 3 and 4. The estimated noise levels are described in **NOISE: Table 5**.

NOISE: Table 5 – Summary of Predicted Noise Levels

| Measurement Sites | Nighttime L ₉₀ , dBA | | | CNEL, dB |
|-------------------|---------------------------------|---------|------------|----------|
| | Ambient | Project | Cumulative | |
| ML1 | 53.8 | 66 | 66.3 | 74* |
| ML2 | 53.1 | 61 | 61.7 | 69* |
| ML3 | 44.4 | 49 | 50.3 | 60* |
| ML4 | 47.1 | 49 | 51.2 | 63* |

* - Energy Commission staff estimate

COMPLIANCE WITH NOISE STANDARDS AT SENSITIVE RECEPTORS

The local planning policy guidelines for the City of Huntington Beach require new projects to meet the noise level standards as established in the Noise Element of the General Plan, where the standard for outdoor noise levels in residential areas due to industrial renovation projects such as the Retool Project is 65 dB DNL.

The City of Huntington Beach Municipal Code is potentially more restrictive than the Noise Element, in that the nighttime noise standard for steady-state noise sources is 50 dBA, unless the ambient noise level is higher. In this case, the nighttime ambient noise level (L₅₀) is about 55 dBA at ML2, so that value is assumed to be the noise standard at that location. At other residential areas near the project site, the ambient noise levels are at or below the Municipal Code noise standard.

The staff’s analysis indicates that the unmitigated project noise levels may not comply with the provisions of the City of Huntington Beach Municipal Code at the residential areas described by ML3 and ML4. The projected changes in noise levels due to the project itself will approach or exceed 5 dBA at those locations, as shown by **NOISE: Table 5**.

At ML2, adjacent to the Huntington By The Sea Mobil and RV Resorts, the unmitigated project noise levels are expected to cause an increase in ambient noise levels of about 9 dBA, and the resulting noise level will exceed the City of Huntington Beach Municipal Code standard by about 7 dBA (based on the L₅₀ values).

Generally, a change in level of at least 5 dBA is required before any noticeable change in community response would be expected, and a 3-dBA change is considered a barely noticeable difference (Kryter 1970). The change in sound levels resulting from unmitigated project operations at ML2 is predicted to be about 9 dBA. As a result, it is anticipated that the unmitigated project will result in a significant effect at the Huntington By The Sea Mobil and RV Resorts. It is also possible that the unmitigated project will result in a significant effect at the other residential areas.

The applicant has proposed a combination of measures to mitigate the potential noise impacts. These will consist of unspecified engineering noise controls developed to reduce noise at the source. In addition, noise barriers are proposed

along the perimeter of the Huntington By The Sea Mobil and RV Resorts to reduce noise at the receptor. The noise barrier would be of solid construction, such as masonry, without holes or gaps along its length, and of sufficient height to block line of sight between source and receptor (AES 2000a, AFC § 5.12.2.5).

Energy Commission staff has incorporated noise mitigation provisions into proposed Condition of Certification **NOISE-6**, which will ensure that no significant noise impacts will result from this project.

TONAL AND INTERMITTENT NOISES

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds that, while not louder than permissible levels, stand out in sound quality. Such sounds can be characterized as rumble, howl, squeal, and hiss. The applicant has stated that no strong tonal noises will be generated during the operation of the project. To ensure that no strong tonal noises are present, staff has proposed a Condition of Certification (**NOISE-6**, below), which requires the applicant to measure one-third octave band sound pressure levels during a typical power plant operational period, and which requires the applicant to mitigate the noise from steam relief valves.

VIBRATION

It is not known whether vibration will be a significant issue for this facility. Experience with similar facilities has indicated that vibration is not likely to be produced at levels that endanger structures or cause annoyance. However, Energy Commission staff has incorporated into proposed Condition of Certification **NOISE-2** a mechanism for reporting and responding to vibration complaints that will allow resolution of any vibration issues that may arise.

LINEAR FACILITIES

No new off-site linear facilities are proposed as part of this project. In addition, the operation of the power plant will not create any incremental increase in noise levels from the high voltage transmission system. As a result, no impacts are assumed to occur from linear facilities.

WORKER EFFECTS

The applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and has committed to comply with applicable LORS (AES 2000a, AFC § 5.12.2.3). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. The applicant would implement a comprehensive hearing conservation program. To ensure that construction workers are, in fact, adequately protected, Energy Commission staff has proposed a Condition of Certification (**NOISE-7**, below).

CUMULATIVE IMPACTS

Section 15130 of the *CEQA Guidelines* (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts. Cumulative impacts are two or

more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The *CEQA Guidelines* require that the discussion reflect the severity of the impacts and the likelihood of their occurrence, but need not provide as much detail as the discussion of the impacts attributable to the project alone.

Pursuant to CEQA, a cumulative impacts analysis can be performed by either 1) summarizing growth projections in an adopted general plan or in a prior certified environmental document, or 2) compiling a list of past, present, and probable future projects producing related or cumulative impacts. The second method has been utilized for the purposes of this Staff Assessment.

There are two commercial projects and one oilfield remediation project proposed that could contribute to cumulative noise impacts in the project study area identified in the AFC (AES 2000a, AFC § 5.9.1.1.2 and Appendix G). The anticipated noise sources associated with these projects are traffic-related, and would not be of consequence when combined with this project. The applicant and Poseidon Company have filed for a Conditional use Permit with the City of Huntington Beach. The effects of this project will be the subject of a separate environmental assessment.

FACILITY CLOSURE

In the future, upon closure of Units 3 and 4, all operational noise from this part of the entire HBGS site would cease and no further adverse impacts from operation of the HBGS would be possible. The remaining potential temporary noise source is the dismantling of the structures and equipment, and any site restoration work that may be performed. Since this noise would be similar to that caused by the original construction of the HBGS, it can be treated similarly. That is, noisy work can be performed during daytime hours, with machinery and equipment properly equipped with mufflers. Any noise LORS that are in existence would apply; applicable Conditions of Certification included in the Energy Commission Decision would also apply unless properly modified.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff concludes that the HBGS Retool Project will be built and operated to comply with all applicable noise laws, ordinances, regulations, and standards. Staff further concludes that if the HBGS facility were designed as described above, and further mitigated as described below in the proposed Conditions of Certification, it is not expected to produce significant adverse noise impacts.

RECOMMENDATION

Staff recommends that the following proposed Conditions of Certification be adopted to ensure compliance with all applicable noise LORS.

PROPOSED CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of project-related ground disturbing activities, the project owner shall notify all residents within one-half mile of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of project-related ground disturbing activities, a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

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

Protocol: The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (see Exhibit 1), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise and vibration complaint;
- attempt to contact the person(s) making the complaint within 24 hours;
- conduct an investigation to determine the source of noise or vibration related to the complaint;
- if the noise or vibration is project related, take all feasible measures to reduce the noise or vibration 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 or vibration reduction efforts; and, if obtainable, a signed statement by the complainant stating that the problem is resolved to the complainant's satisfaction.

Within 30 days of receiving a noise or vibration complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the City of Huntington Beach, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the

complaint is not resolved within a 30-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of project-related ground disturbing activities, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

At least 30 days prior to the start of project-related ground disturbing activities, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA and Cal-OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 85 dBA measured at a distance of 200 feet. The project owner shall conduct steam blows only during the hours of 9 a.m. to 5 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that off-site noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise levels and impacts are consistent with the above noise standards and hours of operation. If the low-pressure process is approved by the CPM, the project owner shall implement it in accordance with the requirements of the CPM.

At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule. At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within one 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.

Within 5 days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Prior to initiating construction, the project owner will conduct a 25-hour community noise survey, at the closest residential receptor (applicant's ML2 location). In addition, the applicant shall conduct three one-hour noise measurements during day, evening and nighttime hours in the vicinity of the intersection of Hamilton Avenue and Magnolia Street (ML5).

The project design and implementation shall include noise mitigation measures adequate to ensure that the project will not cause noise levels to exceed the noise standards of the City of Huntington Beach Municipal Code, or to exceed the ambient background noise level (L_{90}) at residential receivers by more than 5 dBA.

Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct three one-hour noise measurements during day, evening and nighttime hours at sites ML3, ML4 and ML5. In addition, the applicant shall conduct an additional 25-hour community noise survey at ML2. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints, and to ensure compliance with the Huntington Beach Municipal Code.

If the results from the two noise surveys (pre-construction vs. operations) indicate that the background noise levels (L_{90}) at any of the noise sensitive receptors (ML2, ML3, ML4 or ML5) have increased by more than 5 dBA for any given hour during the measurement period, or if the measured noise levels exceed the standards of the City of Huntington Beach Municipal Code, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the City of Huntington Beach and to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 Within 30 days after the facility is in full operation, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas

in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

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 Heavy equipment operation and noisy construction work shall be restricted to the times of day delineated below:

| | |
|------------------------|------------------|
| Weekdays and Saturdays | 7 a.m. to 8 p.m. |
| Steam Blows | 9 a.m. to 5 p.m. |

The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Huntington Beach Generating Station Retool Project
(00-AFC-13)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____

Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

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

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

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

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

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: \$ _____

Date installation completed: _____

Date first letter sent to complainant: _____ (copy attached)

Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

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NOISE: APPENDIX A

FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **NOISE: Table A1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (Leq), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (Ldn). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical Ldn values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects (USEPA 1971). At 70 dBA, sleep interference effects become considerable.

In order to help the reader understand the concept of noise in decibels (dBA), **NOISE: Table A2** has been provided to illustrate common noises and their associated dBA levels.

NOISE: Table A1
Definition of Some Technical Terms Related to Noise

| Terms | Definitions |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Decibel, dB | A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter). |
| Frequency, Hz | The number of complete pressure fluctuations per second above and below atmospheric pressure. |
| A-Weighted Sound Level, dBA | The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted. |
| L ₁₀ , L ₅₀ , & L ₉₀ | The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L ₉₀ is generally taken as the background noise level. |
| Equivalent Noise Level, L _{eq} | The energy average A-weighted noise level during the Noise Level measurement period. |
| Community Noise Equivalent Level, CNEL | The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m. |
| Day-Night Level, L _{dn} or DNL | The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m. |
| Ambient Noise Level | The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location. |
| Intrusive Noise | That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level. |

Source: California Department of Health Services 1976.

| NOISE: Table A2 | | | |
|--------------------------------------------------------|------------------------------------------|---------------------------------------------------------|-----------------------|
| Typical Environmental and Industry Sound Levels | | | |
| Noise Source (at distance) | A-Weighted Sound Level in Decibels (dBA) | Noise Environment | Subjective Impression |
| Civil Defense Siren (100') | 140-130 | | Pain Threshold |
| Jet Takeoff (200') | 120 | | Very Loud |
| Very Loud Music | 110 | Rock Music Concert | |
| Pile Driver (50') | 100 | | |
| Ambulance Siren (100') | 90 | Boiler Room | |
| Freight Cars (50') | 85 | | |
| Pneumatic Drill (50') | 80 | Printing Press Kitchen with Garbage Disposal Running | Loud |
| Freeway (100') | 70 | | Moderately Loud |
| Vacuum Cleaner (100') | 60 | Data Processing Center Department Store/Office | |
| Light Traffic (100') | 50 | Private Business Office | |
| Large Transformer (200') | 40 | | Quiet |
| Soft Whisper (5') | 30 | Quiet Bedroom | |
| | 20 | Recording Studio | |
| | 10 | | Threshold of Hearing |

Source: Peterson and Gross 1974

Subjective Response to Noise

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed,

with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships (Kryter 1970) can be helpful in understanding the significance of human exposure to noise.

1. Except under special conditions, a change in sound level of one dB cannot be perceived.
2. Outside of the laboratory, a three dB change is considered a barely noticeable difference.
3. A change in level of at least five dB is required before any noticeable change in community response would be expected.
4. A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

| NOISE: Table A3 Addition of Decibel Values | |
|-------------------------------------------------------|----------------------------------------------------|
| When two decibel Values differ by: | Add the following amount to the larger value |
| 0 to 1 dB | 3 dB |
| 2 to 3 dB | 2 dB |
| 4 to 9 dB | 1 dB |
| 10 dB or more | 0 |
| Figures in this table are accurate to ± 1 dB. | |

Source: Thumann, Table 2.3

Sound and Distance

- Doubling the distance from a noise source reduces the sound pressure level by six dB.
- Increasing the distance from a noise source ten times reduces the sound pressure level by 20 dB.

Worker Protection

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

NOISE: Table A4
OSHA Worker Noise Exposure Standards

| Duration of Noise (Hrs/day) | A-Weighted Noise Level (dBA) |
|--------------------------------|---------------------------------|
| 8.0 | 90 |
| 6.0 | 92 |
| 4.0 | 95 |
| 3.0 | 97 |
| 2.0 | 100 |
| 1.5 | 102 |
| 1.0 | 105 |
| 0.5 | 110 |
| 0.25 | 115 |

Source: OSHA Regulation

VISUAL RESOURCES

Testimony of William Kanemoto

SUMMARY

The proposed physical changes to the Huntington Beach Generating Station (HBGS) Retool Project would be visually negligible and are not anticipated to have significant adverse visual effects.

Visible vapor plumes have the potential to cause significant adverse impacts in the foreground coastal zone under certain meteorological and plant operating conditions during winter. With staff recommended mitigation measures described in condition of certification VIS-5, this impact would be reduced to less than significant levels.

In addition the project would not comply with all applicable goals and policies of the City of Huntington Beach General Plan and Local Coastal Program, nor with applicable requirements of the City zoning ordinance.

Staff has described mitigation measures under **Proposed Conditions of Certification** that would partially address LORS non-conformance of the project, but would not fully achieve LORS compliance.

INTRODUCTION

The following analysis evaluates potential visual impacts of the Huntington Beach Generating Station Retool Project, and the consistency of the project with applicable laws, ordinances, regulations, and standards (LORS), in conformance with applicable guidelines of the California Energy Commission and the California Environmental Quality Act.

VISUAL IMPACT ASSESSMENT METHODOLOGY

The evaluation methodology employed in conducting the visual resource analysis of the HBGS Project is described in greater detail in Appendix V-1. Briefly, the analytical methodologies employed reflect accepted professional practice derived primarily from the Bureau of Land Management (BLM) VRM Contrast Rating method (U.S. Dept. of Interior, 1986) and the U.S Forest Service VMS method (U.S. Dept. of Agriculture, 1974). The basic principles and structure of these methodologies have been utilized and adapted to the present project circumstances.

The project setting is characterized as contiguous landscape areas of broadly similar visual character (a descriptive term) and visual quality (an evaluative term). Sensitive receptors with high visual sensitivity were identified within the project viewshed or area of potential visibility (the project visual Sphere of Influence). Key Observation Points were selected to represent key sensitive receptors within various affected landscape units.

Impacts were assessed in a manner similar to that employed in the VRM and VMS methods, that is, in terms of levels of contrast and visual dominance created by new project features against the background of the existing setting. Acceptable levels of visual contrast/dominance are determined in part by levels of existing visual quality; compatibility of character of the introduced features with the existing setting; and the visual sensitivity of viewers, including factors such as viewer activity type, numbers of viewers affected, conditions of visual exposure of sensitive receptors, and local preferences. Finally, impacts may result from non-compliance with adopted expressions of public policy relating to the visual resource and, in general, the criteria described under the CEQA Guidelines as described below.

SIGNIFICANCE CRITERIA

Commission staff considered the following regulatory criteria in determining whether a visual impact would be significant. Specific technical criteria for evaluating impacts are discussed in **Appendix A-1**, and for vapor plume impacts, below.

STATE

The CEQA Guidelines defines 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?

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 conditions. Vapor plumes are generally associated with heavy industrial land uses and thus tend to be regarded negatively by observers. This study adopted the following criteria for evaluating plume impact significance. Plumes were considered to represent a potentially significant impact if they were anticipated to exceed preliminary acceptable levels of visual change (as determined by the visual quality and sensitivity of a KOP under Appendix V-1, Table 1) in excess of 50 percent of critical viewing periods, as defined below; or to be *dominant* in conditions of high or moderate visual quality and sensitivity for 10 percent or more of critical periods. These 'critical viewing periods' were defined as daylight hours without fog per season, or nighttime hours without fog per season (where those are relevant due to potential night illumination or direct impacts from ground level plumes). The seasonal criterion reflects the tendency of visible plumes to be concentrated in certain seasonal periods and not in others. The 'without fog' criterion simply 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. Nighttime plumes would generally only have the potential to cause impacts if they were to be illuminated by bright night lighting, or were to directly engulf sensitive activities at the ground level. For example, from a viewpoint of moderate visual quality, viewers with high sensitivity could experience significant impacts if subordinate levels of contrast from plumes were exceeded for 50 percent or more of critical periods, consistent with Appendix V-1, Table 1, but would not if such contrast occurred less than 50 percent of critical periods, *unless* dominant levels of contrast occurred 10 percent of the critical period.

Due to the recreational land uses adjacent to the HBGS and the very high scenic quality and sensitivity of the affected foreground portions of the coastal, acceptable levels of visual dominance and frequency of industrial plumes would, under today's typical standards of both professional visual assessment and general popular sentiment, be relatively low. These contemporary standards are reflected in the criteria for determining plume impact that have been described above. Historically, the prevalence of visible plumes in the coastal zone of the project area has been considerably greater than these standards. Nevertheless, scenic resource policies of both the California Coastal Act and the LCP suggest that visual impacts in the coastal zone be treated in the future in a comparable manner to other scenically sensitive, high quality landscapes. These policies reflect the changing character of coastal land use since the time that power plants such as HBGS were originally constructed, and the growing incompatibility of the adjacent land uses that has arisen in that period of time. The criteria applied here for evaluating plume impacts are thus comparable to those that would be typically applied in other visually sensitive, high quality urban landscapes in the state.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

No federal policies relating to visual resources apply to the proposed project.

STATE

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) SCENIC HIGHWAY PROGRAM

Pacific Coast Highway, on which the proposed project is located, is a state-eligible scenic highway. Designated scenic highway status implies a variety of controls over land use in the scenic corridor, including authority to review design and appearance of structures and equipment, pursuant to the Scenic Highway Protection Program administered by Caltrans (Cal. Streets & Highways Code, Div. 1, Ch.2, Art.2.5, Sec.260 et seq.). Implementation of the program is delegated to the local jurisdiction after official designation of the route by Caltrans. City of Huntington Beach Circulation Element Policy CE 7.13 states the intent of coordinating with Caltrans to 'pursue the classification of Pacific Coast Highway as a major urban scenic corridor.' However, this segment of PCH has not been designated a state scenic highway. Draft Coastal Element Policy C 4.3.1 calls for the City to "(A)adopt an ordinance to achieve State Scenic Highway status for Pacific Coast Highway."

CALIFORNIA COASTAL ACT

Provisions of the California Coastal Act would apply to the proposed project, which is located within the coastal zone (Public Resources Code, Division 20). Authority for implementation of the Coastal Act is delegated to the local jurisdiction under a Local Coastal Program (LCP) approved and certified by the State Coastal Commission. The City's Draft Coastal Element has been approved by the City of

Huntington Beach and is under review by the Coastal Commission. It will represent the LCP upon certification by the Coastal Commission. Under Section 30251 of the Coastal Act. " The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas."

LOCAL

CITY OF HUNTINGTON BEACH GENERAL PLAN

URBAN DESIGN ELEMENT, BUFFERS AND BARRIERS- INDUSTRIAL USES AND OIL PRODUCTION FACILITIES

Objective UD 2.2. Minimize the visual impacts of oil production facilities and other utilities where they encroach upon view corridors or are visually incompatible with their surrounding uses.

Policy UD 2.2.1. Require landscape and architectural buffers and screens around oil production facilities and other utilities visible from public rights-of-way.

CIRCULATION ELEMENT, SCENIC HIGHWAYS

Goal CE 7. Maintain and enhance the visual quality and scenic views along designated corridors.

LAND USE ELEMENT

Policy LU 12.1.4 Require that new and recycled industrial projects be designed and developed to achieve a high level of quality, distinctive character, and be compatible with existing uses.

Policy LU 12.1.5 Require new and recycled industrial structures and sites be designed to convey visual interest and character and to be compatible with adjacent uses, considering the:

- a) Use of multiple building masses and volumes to provide visual interest and minimize the visual sense of bulk and mass;
- b) Architectural design treatment of all building elevations;
- c) Use of landscaping in open spaces and parking lots, including broad landscaped setbacks from principal peripheral streets;
- d) Enclosure of storage areas with decorative screening or walls;
- e) Location of site entries to minimize conflicts with adjacent residential neighborhoods, and;
- f) Mitigation of noise, odor, lighting and other impacts.

Policy LU 12.1.8 Require that heavy industrial uses incorporate landscaped setbacks, screening walls, berms, and/or other appropriate elements that mitigate visual and operational impacts with adjacent land uses.

COASTAL ELEMENT

The City's Draft Coastal Element has been approved by the City of Huntington Beach and is currently under review for consistency with the Coastal Act by the State Coastal Commission. After Coastal Commission review is completed, the Coastal Element will become the land use plan implementing the Local Coastal Program (City of Huntington Beach, 1999).

The City's Draft Coastal Element analysis of visual resources identifies the HBGS as a "Visual Resource Weakness". This facility and the nearby County sewage treatment plant "dominate the landscape and negatively impact the visual and aesthetic character of the surrounding area" (City of Huntington Beach, 1999).

Energy Facilities

Policy C 8.4.2. Encourage the owners of the electric generating plant located on Pacific Coast Highway to provide landscaping and other measures to buffer and screen the power plant from Pacific Coast Highway and Beach Boulevard. Require any power plant expansion or alteration proposals to include adequate buffer and screening measures.

Visual Resources

Goal C 4. Preserve and, where feasible, enhance and restore the aesthetic resources of the City's coastal zone, including natural areas, beaches, harbors, bluffs, and significant public views.

Objective C 4.2. Promote the protection of the Coastal Zone's visual and aesthetic resources through design review and development requirements.

Policy C 4.2.1. Ensure that the following minimum standards are met by new development in the Coastal Zone as feasible and appropriate:

- a) Adequate landscaping and vegetation
- b) Evaluation of project design regarding visual impact and compatibility
- c) Incorporate landscaping to mask oil operations and major utilities, such as the electrical power plant on Pacific Coast Highway

Objective C 4.7. Improve the appearance of visually degraded areas within the Coastal Zone

Policy 4.7.1. Promote the use of landscaping material to screen uses that detract from the scenic quality of the coast along public rights-of-way and within public view.

C 4.7.8. Require landscape and architectural buffers and screens around oil production facilities and other utilities visible from public rights-of-way.

CITY ZONING ORDINANCE

The City of Huntington Beach Zoning and Subdivision Ordinance sets forth regulations limiting heights of structures within the CZ Coastal Zone Overlay District:

221.28 Maximum Height

A. The maximum height limits within the CZ Overlay District are 35 feet for a residential structure and 50 feet for a commercial structure, or the base district height limit, whichever is lower.

B. All rooftop mechanical devices, except for solar panels, which may be permitted to exceed the height limit under Section 230.72, shall be set back and screened so that they are not visible.

The City of Huntington Beach Zoning and Subdivision Ordinance sets forth regulations regarding the screening of equipment that is relevant to the project.

230.76 Screening of Mechanical Equipment

A. General Requirement

Except as provided in subsection (B), all exterior mechanical equipment, except solar collectors and operating mechanical equipment in an Industrial District located more than 100 feet from another zoning district boundary, shall be screened from view on all sides. Equipment to be screened includes, but is not limited to, heating, air conditioning, refrigeration equipment, plumbing lines, ductwork, and transformers.

Screening of the top of equipment may be required by the Director, if necessary to protect views from an R or OS district. Rooftop mechanical equipment shall be setback 15 feet from the exterior edges of the building.

B. Screening Specifications

A mechanical equipment plan shall be submitted to the Director to ensure that the mechanical equipment is not visible from a street or adjoining lot.

PROJECT DESCRIPTION

SCR UNITS AND OTHER VISIBLE STRUCTURAL FEATURES

The Facility Description discussion of the AFC describes extensive reconstruction of furnace and appurtenant features such as ducts, housing walls, piping, fans, heat exchanger, and alterations to steam turbines (AES, 2000, 3.8.1.1). A physical description of these changes indicating their potential visual effects has not been provided in the AFC. According to the AFC Visual Project Description, 'the most

visible features of the proposed project are the two steam boilers, which will replace the existing boilers (AES, 2000, 5.13.2.2)'. This reference is absent in the revised discussion of visual resources (AES, 2001). The latter discussion and accompanying visual simulations only address visual changes resulting from the introduction of new Selective Catalytic Reduction (SCR) units, ammonia injection units, and temporary visual effects of construction cranes. It was assumed for the purposes of the staff analysis that the only permanent visible structural features of the project would be, as stated in revised AFC section 5.13.2.2, the SCR units and ammonia injection units, as depicted in the applicant's visual simulations, and night lighting (see AES, 2001, Supplemental Information Figure 5.13-4a, Photosimulation of SCR units from KOP 2).

The proposed SCR units would be located in the 'courtyard' area of the existing Units 3 and 4 power block, on the western, PCH- and beach-facing façade of the main power plant structure, as depicted in a visual simulation from KOP 2 (AFC Figure 5.13-4a). These structures would be located 34 feet above the ground on steel columns and rise to a height of approximately 100 feet. The SCR units would be encased in painted sheet metal flashing. The ammonia injection units would be located adjacent to the existing exhaust stack, also facing PCH. They would be ten to twelve feet high (see AES, 2001, Supplemental Information Figure 5.13-2, Site Additions).

WATER VAPOR PLUMES

Operation of Units 3 and 4 would result in water vapor plumes during certain operational and climatic conditions, primarily during cold, high humidity conditions, as discussed in detail below (see discussion of Visible Vapor Plumes under Operation Impacts).

SETTING

REGIONAL SETTING

The HBGS Project is situated within roughly ¼ mile of the Pacific Ocean within the City of Huntington Beach, Orange County. Like the City itself, the project viewshed (area of project visibility or potential effect) comprises a portion of a very extensive, essentially level coastal plain. Development within the project viewshed is almost exclusively low-rise single or two-story, with a small area of taller development in portions of downtown Huntington Beach approximately 1-1/2 miles to the north. However, due to the very level terrain, long distance views tend to be blocked or strongly filtered inland of Pacific Coast Highway (PCH) by any intervening low-rise development, restricting most outstanding ocean views to the vicinity of PCH and beaches themselves.

The project landscape is thus characterized by largely uninterrupted views of the Pacific Ocean and coastline, extending to great distances from within a relatively narrow, linear coastal landscape corridor defined by the PCH and beaches. This scenic corridor extends along the entire coast within Orange County. Ocean views from PCH in the vicinity of the project site are typically level, low elevation views

across the intervening beaches at distances of 500 feet or less. These views are wide, unobstructed, and highly scenic, characterized by high visual quality despite the presence of very low scenic quality features such as the HBGS and municipal sewer treatment facility.

PROJECT AREA SETTING

The proposed project site is located within an approximately ½-square mile coastal industrial zone directly inland of PCH, initially planned to accommodate the existing power plant and associated oil tank farms. It is bordered by the Huntington Beach Flood Control Channel to the north and northeast, and undeveloped wetlands immediately to the east. It adjoins Huntington Beach State Park, which faces the site directly across Pacific Coast Highway at distances of as little as 200 – 300 feet, and is the city's primary recreational resource and destination. The site is located roughly 1-1/2 miles southeast of downtown Huntington Beach and the Huntington Beach Pier. The entire length of Pacific Coast Highway within Orange County is identified by the State of California as an eligible, but not officially designated, state scenic highway. Residential areas are located within ½ mile of the project site to the west, north, and east. These include an adjoining trailer park which directly faces the site across Newland Street to the northwest, residences slightly more than ¼ mile away, north of Hamilton Avenue, and residences approximately 1/3 mile away east of Magnolia Street. The Orange County municipal sewage treatment facility is located roughly 1 mile to the southeast of the site.

The HBGS complex includes two large power blocks (Units 1 and 2, and Units 3 and 4) which are the only structures south of downtown Huntington Beach in the project viewshed of comparable height and scale. These two structures dominate the coastal landscape for distances of up to 2 miles. Each power block includes a visually dominant light colored exhaust stack 214 feet tall, which are visible throughout the vicinity within an approximately 1-mile radius from public roads inland of the plant, and up to 2 miles from points in the coastal zone. The adjoining power block structures are each approximately 140 feet tall and 300 feet in their widest dimension, comprising a visually chaotic, completely unscreened view of support scaffolding, mechanical equipment, tanks, ducts and piping, and so on. A smaller natural-gas-fired peaking plant, Unit 5, is also visible and unscreened from PCH. A hedge of landscape screening surrounds the entire HBGS site on its PCH and Newland Street frontages. The hedge, roughly 10 – 12 feet in height, has a negligible screening effect on the major power plant structures. The highly industrial, visually chaotic appearance of the HBGS contrasts sharply with the landscape character of its highly scenic surroundings, which are dominated by undeveloped open space of PCH, beaches, and adjoining wetlands. As stated in the City of Huntington Beach Draft Coastal Element, the HBGS and adjacent sewage treatment plant “dominate the landscape and negatively impact the visual and aesthetic character of the surrounding area” (City of Huntington Beach, 1999, IV-C-61). Other related industrial features in the vicinity include storage tanks north and northeast of the power blocks, and an unused tank farm near Newland Street and Hamilton Avenue to the northwest of the plant. These features are visible and unsightly from isolated locations in the immediate foreground viewshed of the plant. They contribute to the low existing visual quality of the site and its immediate

surroundings, though they are not as prominent as the tall power blocks themselves. A very large but well-screened oil sump bounded by Magnolia Street and Hamilton Avenue is also located to the northeast but represents a beneficial visual feature for residents to the east and to motorists on Magnolia Street due to its high berms and heavy perimeter landscaping.

The project viewshed or area of potential visual effect varies according to whether the structures or vapor plumes are considered. Upper portions of the existing HBGS exhaust stacks are the tallest and therefore most widely visible structural feature. These are visible to a limited degree (due to filtering of intervening development and landscaping) within a radius of at least 1 mile inland of PCH, including viewpoints on major City arterial roads and from points near PCH identified in the General Plan as primary and secondary entry nodes (City of Huntington Beach, 1996, II-UD-6, Figure UD-2). Within the coastal zone itself, prominent views of the plant extend to 1-1/2 miles or more. Visible vapor plumes however would be occasionally visible from a larger area, and their visual dominance at these distances would be a function of the size and, particularly, height of those plumes.

LANDSCAPE UNITS: VISUAL QUALITY, SENSITIVITY, AND KEY OBSERVATION POINTS (KOPs)

As summarized briefly in the description of the visual assessment methodology applied in this study, above, the project setting was characterized as contiguous landscape areas of broadly similar visual character (a descriptive term) and visual quality (an evaluative term). Sensitive receptors with potentially high visual sensitivity were identified within these units. Key Observation Points were then selected to represent key sensitive receptor groups within various affected landscape units. KOPs selected by the applicant in the AFC discussion of visual resources were considered by staff to be representative of key receptor groups and retained in staff's analysis (KOPs 1 – 6). Additional KOPs were added by staff to represent additional sensitive viewer groups and conditions (KOPs 3a, 4a, 7, 8, 8b). These landscape units and associated KOPs are depicted in **VISUAL RESOURCES FIGURE 1**. AFC KOP numbers have been retained in staff's analysis. Applicant figure numbers referenced below refer to Supplemental Information Figure numbers submitted on January 24, 2001 (AES, 2001).

COASTAL ZONE OPEN SPACE: BEACHES, PCH, WETLANDS

KOPs 1 and 2. PCH. (See Supplemental Information FIGURE 5.13-3 AND 5.13-4). As described previously this predominant landscape unit of the coastal zone comprises a narrow strip including PCH, Huntington Beach State Park, and occasional adjoining wetlands, and extends for miles along the shoreline, offering long and expansive views of the ocean. It is characterized by very high visual quality and very high visual sensitivity. As discussed elsewhere visual quality is impaired in coastal views toward the facility, with this influence more predominant as distance from the plant decreases. Highly sensitive observers are exposed to views of the plant at distances ranging from 200 feet to 2 miles. KOP 1 is representative of foreground distance viewers at Huntington Beach State Park, across PCH from the project site looking east. Despite the strong dominance of the

plant in views in the direction of this photograph (east), views overall at this location, particularly looking seaward, are very high. Viewer sensitivity at the State Park are high. KOP 2 is representative of southbound motorists' views in the plant's visual foreground. Again, views directly to the site are strongly impaired and dominated by the plant. However, views overall at this location, particularly views down the highway scenic corridor including beach and sea, are high. Viewer sensitivity in this location and condition is high.

KOP 5. Beach Avenue at PCH (see Supplemental Information FIGURE 5.13-7). The view from this location, identified as a 'secondary entry node' of the City, is also representative of southbound motorists on PCH approaching the project site from downtown (City of Huntington Beach, 1999, p. IV-C-64). These views are also located within the coastal zone open space unit and have correspondingly high visual quality. Motorists at this location would have high visual sensitivity.

KOP 6. Magnolia Avenue and PCH (see Supplemental Information FIGURE 5.13-8). The view from this location, identified as a 'secondary entry node' of the City, is also representative of northbound motorists on PCH arriving into the City from its southern boundary (a 'primary entry node') (City of Huntington Beach, 1999, p. IV-C-64). These views are also located within the coastal zone open space unit and have correspondingly high visual quality. Motorists at this location would have high visual sensitivity.

INDUSTRIAL ZONES

This landscape type, also described above, includes the existing HBGS, and the County sewage disposal facility located 1 mile southeast of the HBGS. Both are characterized by low visual quality and sensitivity.

RESIDENTIAL AREAS

Several residential areas are located within ½-mile foreground distances of the plant. These are considered to high visual sensitivity due their residential use.

KOP 7. Trailer Park. **VISUAL RESOURCES Figure 2.** The trailer park adjoining the HBGS directly northwest across Newland Street is located roughly 100 feet from the western plant boundary. Views of the plant are highly dominant, though partially screened and filtered by the 10–15 foot tall hedge on the plant boundary, and palm trees along the north side of Newland Street. Visual quality in the trailer park is moderately low, dominated by the existing view of the HBGS, with limited views to the sea, and devoid of on-site landscaping or other visual amenities. Visual sensitivity is regarded as high due to its residential use.

KOP 3A. Residential neighborhood north of site. **VISUAL RESOURCES FIGURE 3.** A small residential area is located approximately 1/3 – ½ mile north of the HBGS, extending to the east and west of Newland Street. KOP 3, Edison Community Park, is located in this neighborhood (see Supplemental Information FIGURE 5.13-5; **VISUAL RESOURCES FIGURE 4**). Visual exposure to the existing HBGS is highly filtered by intervening structures and trees, but isolated prominent views of the plant are found throughout the area at foreground and near-midground distances.

Views of the SCR units themselves would be hidden by the existing facility from these locations. Visual quality is moderate, typical of residential areas. Visual sensitivity is regarded as high due to its residential use.

KOP 4. Residential neighborhood east of site. (Supplemental Information Figure 5.13-6). Another residential neighborhood east of Magnolia Avenue is located approximately 1/3 mile from the HBGS site. Visual quality is moderate, typical of residential areas. Visual sensitivity is regarded as high due to its residential use. Despite its proximity, visual exposure to the HBGS is generally limited in this area. KOP 4 illustrates a worst-case view from this area at its closest point, looking over the wetlands adjoining the HBGS. North of this point, views toward the plant are blocked by the tall landscaped berm bounding Magnolia Avenue on its west side. Views from within the community consist primarily of occasional, isolated views of the top of plant stacks, and of occasional vapor plumes (KOP 4B).

DOWNTOWN HUNTINGTON BEACH

KOP 8. Downtown Huntington Beach. **VISUAL RESOURCES Figure 5.** These KOPs, although also located in the coastal zone, are representative of key viewing locations in downtown. Downtown Huntington Beach is located approximately 1-1/2 miles northeast of the project site. Visual quality is moderate to high in this area, with coherent architectural and streetscape design and outstanding ocean views. Visual sensitivity is regarded as very high at this primary visitor destination. Views of the HBGS, though visually subordinate at this distance, are visible, prominent, and tend to attract the eye due to the conspicuous height and location of the plant. Visitor-oriented commercial uses are concentrated in this part of town, notably the Huntington Beach Pier, KOP 8A. **VISUAL RESOURCES Figure 6.**

IMPACTS

VISUAL IMPACT ASSESSMENT

The following discussion focuses on impacts associated with long-term operation of the project. Potential construction impacts and mitigation measures are addressed in the section following the discussion of operation impacts.

OPERATION IMPACTS

PHYSICAL PROJECT FEATURES

The physical features of the project (proposed selective catalytic reduction (SCR) and ammonia injection units) are not anticipated to result in adverse visual impacts to sensitive viewers in any location, including foreground viewpoints on PCH and the nearby beach, with mitigation measures described in condition of certification VIS-1. With these measures the proposed project features would be visually subordinate to negligible as seen by observers in both middleground and foreground locations, as depicted in visual simulations, Figures (5.13-3, 3a; 5.13-4, 4a), and would not substantially alter the existing visual character of the existing plant. Visual quality of the existing power plant site would remain low.

As described above, the proposed SCR units would rise to a height of approximately 100 feet on the façade of the existing power block facing west toward PCH and the ocean. They would thus be visible to foreground observers on both the highway and beaches. At a height of 100 feet, they would be shorter than the existing structure and would not alter the existing visual silhouette of the plant.

Potentially affected viewing groups would include beach visitors and motorists on PCH at near foreground distances from the plant, as represented in KOPs 1 and 2. Highly reflective paint or light, contrasting colors could potentially increase the level of visual dominance, exacerbating potential impacts. A mitigation measure proposed by the applicant includes painting of the entire plant in a mutually agreeable replacement color, including the proposed SCR units and ammonia injection units (AES 2001, 5.13-14; AES 2001b, Data Response 75). Assuming that the SCR enclosures are painted in a recessive, relatively non-contrastive color with non-reflective paint, they would represent a visually subordinate element within the dominant existing plant structure. The staff mitigation measure described in condition of certification VIS-1 calls for a harmonizing color with low gloss finish. Within the context of the very low quality appearance of the existing structure, the additional adverse effect of the SCR units would thus be minor. These impacts in themselves would be less than significant with mitigation.

VISIBLE VAPOR PLUMES

Staff performed a computerized psychrometric plume analysis of potential visible vapor plumes based on exhaust stack parameter data provided by the applicant, and applicable meteorological records (Walters, 2001). Staff modeling predicted visible plume occurrence during seasonal daytime high visibility (no fog) hours (refer to Vapor Plume Impact Criteria discussion, above) under three operating modes: 100% load; 75% load; and 50% load. Visible plume formation potentially exceeding impact significance criteria (visually dominant plumes 10% of daytime no fog hours per season or more) were predicted under 50% load operating conditions in winter.

Due to the fact that highly sensitive receptors of plume impacts are located at near foreground distances from the plant, on PCH and at nearby portions of the beach (represented by KOPs 1 and 2), even relatively small dimension plumes are potentially visually dominant. Thus, predicted plumes were considered to have a high likelihood of resulting in significant impacts in the sensitive visual foreground if their predicted frequency exceeded the 10% daytime no fog seasonal criterion.

Thus, visible plumes of potentially significant size and frequency could occur under certain operating regimes during winter resulting in significant adverse impacts, although the plant would have to be in operation at reduced operating load levels for extensive periods of time to exceed the significant impact criteria.

Recommended Mitigation Measure:

In order to minimize the likelihood that visible vapor plumes would exceed the criteria for significant impact, staff recommends the following, included in recommended condition of certification VIS-5:

The project owner shall operate HBGS Units 3 and 4 during daytime winter hours to maintain the exhaust temperature at no lower than 230 degrees Fahrenheit (F), and during daytime fall and spring hours to 215 degrees F, to minimize visible vapor plume formation from the boiler exhaust stacks.

At these operating temperatures, visible plumes would be expected to occur less than 10% of daytime no fog seasonal hours, and represent a less than significant impact.

LIGHTING

Night lighting of Units 3 and 4 could have significant adverse visual effects if they were to be unshielded, directing light upward and causing night time 'backscatter' lighting, or causing direct light trespass onto viewers on PCH or the adjacent trailer park. Both instances could result in dominant, obtrusive glare impacts to high sensitivity viewers.

Recommended Mitigation Measures:

As described in detail under recommended condition of certification VIS-5, all project lighting would be of minimum necessary brightness, shielded to prevent up-lighting and direct lighting outside the property boundaries. All lighting would be kept off when not in use wherever feasible and safe. With measures described in condition of certification VIS-6, anticipated lighting impacts would be less than significant.

CONSTRUCTION IMPACTS

Construction cranes currently located atop Units 3 and 4 would presumably remain until construction is completed - estimated by the applicant to be approximately 3 months from start of construction. Although the cranes alter and increase the visual silhouette of the plant, adding to its chaotic and industrial character, this effect would be temporary, short-term, and thus less than significant. Other physical alterations due to construction, including equipment, scaffolding, etc. are not anticipated to result in prominent adverse impacts due to the already highly industrial, chaotic character of the facility.

Material and equipment storage could have an adverse effect on foreground viewers, particularly if visible from adjoining beaches and PCH. However, effects lasting no longer than three months would be short-term and thus less than significant.

Nighttime construction lighting has the potential to disturb neighboring residents across Newland Street and viewers on PCH with disruptive glare, resulting in a

potential significant adverse impact. Direct, unshielded construction lighting would impose dominant and obtrusive glare on high sensitivity residential receptors.

RECOMMENDED MITIGATION MEASURE:

With mitigation measures specified under condition of certification VIS-5, nighttime construction lighting would be completely shielded from viewers on PCH and adjacent residents on Newland Street. With this measure, impacts would be reduced to less than significant levels.

CUMULATIVE IMPACTS

Potential past present and foreseeable future projects potentially affecting cumulative project visual impacts include the existing Units 1, 2 and 5 of the HBGS itself; the County sewage treatment facility 1 mile south of HBGS; and the proposed future Poseidon desalination project, which would introduce various industrial structures ranging from 15 to 60 feet in height in an approximately 4 acre area immediately east of the Units 1 through 4 power blocks on the HBGS site. Cumulative visual effects from project facilities were not identified due to the de minimis contribution the proposed SCR and ammonia injection units would represent.

FACILITY CLOSURE

INTRODUCTION

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

PLANNED CLOSURE

Planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to obsolescence. At the end of the HBGS Units 3 and 4 Retool Project's economic, mechanical, or operational life, the project owner shall prepare and submit a closure plan describing procedures and timetable for the complete removal of the power plant structures and the transmission poles to reduce visual impacts.

UNEXPECTED TEMPORARY CLOSURE

Unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster, or an emergency. No special conditions regarding visual resources are expected to be required to address temporary closure.

UNEXPECTED PERMANENT CLOSURE

Unexpected permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site

contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. The contingency plan that the project owner is required to prepare shall address removal of the power plant structures to reduce visual impacts in the event of unexpected permanent closure.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The City of Huntington Beach has stated in a letter to the Energy Commission dated December 21, 2000 that “without intensified landscaping and screening efforts, the existing [structure] and proposed retooling project does not comply with applicable land use policies established in the General Plan (City of Huntington Beach, 2001).”

Staff determined that the HBGS Retool project as proposed does not comply with all applicable policies of the Coastal and Urban Design Elements of the City of Huntington Beach General Plan, as described above.

Specifically, no concrete mitigation proposals to address the policies and goals cited above have been made by the applicant in connection with this (Units 3 and 4) project. Policy C 8.4.2 however, states that the City shall ‘(R)equire any power plant expansion or alteration proposals to include adequate buffer and screening measures.’ Pursuant to Section 30251 of the Coastal Act, the basic goal of the Coastal Element Visual Resource policies is to “(P)reserve and, where feasible, enhance and restore the aesthetic resources of the City’s coastal zone .”

The policies and related analysis of the City LCP presented above identify the HBGS as a ‘visual weakness’ of the City’s coastal zone, and indicate a clear intent to lessen the adverse impacts of the existing facility on the visual resources of the coastal zone. Accordingly, the project would be required to apply feasible measures to enhance and restore the visual quality of the coastal zone in order to meet the intent of Policy C 8.4.2 and other similar policies and goals cited above.

The HBGS as it currently exists does not comply with the applicable City zoning code ordinance requiring screening of mechanical equipment (Sec. 230.76), since virtually all of the mechanical equipment of Units 3 and 4 facing PCH, as well as similar equipment of Units 1 and 2, are unscreened and visually exposed, thereby substantially contributing to the existing plants’ visually unattractive character. Nevertheless the AFC does not propose measures to bring the existing plant into compliance with this ordinance. The proposed SCR units will be enclosed in a sheet metal casing and thus would conform with this ordinance.

The HBGS as it exists does not comply with City zoning code ordinance limiting heights and requiring screening of mechanical equipment in the CZ Coastal Zone Overlay District (Sec.221.28) since it exceeds 50 feet in height, and does not set back or screen rooftop mechanical equipment .

RECOMMENDED MITIGATION MEASURES:

Nonconformance with the Coastal Element and zoning code is addressed in mitigation measures described under **Proposed Conditions of Certification** VIS-1, VIS-2, VIS-3, and VIS-4. Under conditions of certification VIS-1, VIS-2, and VIS-3, applicant would be required to submit for approval a painting plan, a feasible, viable landscape plan, and an architectural screening plan capable of providing some visual improvement to the existing facility.

However, staff has determined that with such implementation of approved painting, landscaping and screening, the project would still not fully conform with the intent of Coastal Element policies. Staff believes that the plant's height, bulk, and massing would remain obtrusive and highly dominant throughout a large portion of the City's coastal zone; and its industrial character would substantially remain and continue to be incompatible in character with the scenically sensitive land uses, such as beach recreation and visitor-oriented commercial uses, which would continue to be exposed to it as a visually dominant feature of the landscape. These measures would not fully enhance, restore, or screen the existing power plant visually. Condition of certification VIS-3 would bring the existing plant into conformance with zoning code ordinance 230.76 which requires screening of mechanical equipment.

In the event that the applicant does not seek to continue operation of Units 3 and 4 at the end of the term of operation of this license, staff recommends that the plant be completely dismantled, as described under recommended condition of certification VIS-4 and **Planned Facility Closure**, above.

MITIGATION MEASURES

APPLICANT'S PROPOSED MITIGATION MEASURES

Applicant Measure VIS-1: Work with the City of Huntington Beach to select a mutually agreeable replacement color for the whole plant including the proposed SCR and ammonia injection units. Also, coordinate with the City to evaluate the present landscape planting and identify where improvements can be made.

Applicant's proposed mitigation measures VIS-1 would address potential impacts from the proposed new project features that could result from highly contrastive or reflective painting. Staff has specified additional detail to this measure as described under proposed condition of certification VIS-1. Applicant measure VIS-1 would not bring the HBGS into conformance with applicable Coastal Element policies relating to visual resources, nor with zoning code ordinance 230.76 which requires screening of mechanical equipment.

Applicant Measure VIS-2: exterior lighting will be limited to those areas required by regulations and operating safety. Where not required by regulations, the lighting shall be activated by motion sensors. Where possible, all light fixtures shall be shielded so that neither the lamp nor the related reflective interior surface is visible from the KOPs identified.

Applicant's proposed mitigation measure VIS-2 would largely address potential significant lighting impacts. Staff has specified additional detail to this measure, including conditions on night construction lighting, as described under proposed condition of certification VIS-5.

STAFF'S PROPOSED MITIGATION MEASURES

Staff recommended condition of certification VIS-1: Paint entire facility in a recessive color that blends with the surroundings and has a low gloss finish, subject to review by the City and approval by the Energy Commission.

- With this measure, potential adverse impacts from excessive visual contrast or glare impacts from the proposed SCR units would be reduced to less than significant levels.

Staff recommended condition of certification VIS-2: In order to partially conform with policies of the City LCP, implement an approved landscape screening plan, subject to review by the City and California Department of Fish and Game, and approval by the Energy Commission. The plan shall screen the west and north boundaries of the project site, and the south boundary if acceptable to the California Department of Fish and Game.

- With implementation of this measure, the visual incompatibility of the project would be reduced to a limited degree, but the project would still not fully conform with the intent of Coastal Element policies.

Staff recommended condition of certification VIS-3: In order to partially conform with policies of the City LCP and General Plan, the project owner should improve the appearance of the Units 3 and 4 with an approved architectural screening treatment. The applicant should consult with a qualified artist, designer, and/or architect to evaluate, recommend, and implement architectural screening measures that would substantially screen mechanical equipment to substantially improve the visual compatibility of the power plant site with sensitive nearby coastal land uses; and bring the plant into conformance with City zoning ordinance 230.76.

- With implementation of this measure, the visual incompatibility of the project would be reduced, but the project would still not fully conform with the intent of Coastal Element policies.

Staff recommended condition of certification VIS-4: If Units 3 and 4 will cease to operate beyond the Energy Commission's certification review point, the plant should be completely dismantled.

- If the plant were to cease operation and not be dismantled, it would remain as a visually incompatible eyesore and continue to be in nonconformance with applicable policies of the Coastal Element and General Plan. With this measure the site could be brought into conformance with these policies.

Staff recommended condition of certification VIS-5: In order to mitigate potentially significant visible vapor plume impacts, the applicant shall operate the plant to maintain exhaust temperatures in the winter, spring and fall seasons sufficient to minimize the frequency and size of visible exhaust stack vapor plumes, as described under VIS-5 and in the discussion of staff plume modeling, above.

- With this measure, visual impacts from project vapor plumes are expected to be reduced to less than significant levels.

Staff recommended condition of certification VIS-6: In order to mitigate potentially significant night lighting impacts, all Unit 3 and 4 lighting shall be shielded, of minimum brightness consistent with safety, and shall remain off when not in use. All construction lighting shall be shielded from adjacent highway and residential viewers. A lighting complaint resolution form shall be kept and submitted annually.

- With this measure, potential lighting impacts would be reduced to less than significant levels.

CONCLUSIONS

The proposed SCR units and ammonia injection units are not anticipated to result in significant visual impacts.

With recommended condition of certification VIS-5, visible vapor plume impacts of the project are expected to be less than significant.

The project would not fully comply with applicable LORS. Specifically, the project would not conform with various applicable visual resource and energy facility policies of the City of Huntington Beach Coastal and Urban Design Elements of the General Plan, and with ordinances of the City zoning code applying to industrial and coastal development. Recommended conditions of certification VIS-1, VIS-2, and VIS-3 would provide modest reductions in the visual incompatibility of the power plant and partial conformance with LCP and General Plan policies. Condition of certification VIS-3 would bring the plant into conformance with City zoning ordinance 230.76.

PROPOSED CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall paint or treat Units 3 and 4 structures visible to the public in a harmonizing color or colors with a low gloss finish to blend with the surroundings.

The project owner shall submit a treatment plan for the project to the City of Huntington Beach for review and comment, and to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

- 1) specification, and 11" x 17" color simulations at life-size scale, of the treatment proposed for use on project structures, including structures treated during manufacture;
- 2) a detailed schedule for completion of the treatment; and,
- 3) a procedure to ensure proper treatment maintenance for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors, and shall not perform the final treatment on any structures on site until the project owner receives notification of approval of the treatment plan by the CPM.

Verification: Not later than 30 days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit the treatment plan to the CPM for review and approval.

If the CPM notifies the project owner of any revisions that are needed before the CPM will approve the plan, within 15 days of receiving that notification the project owner shall submit to the CPM a revised plan.

Not less than 7 days prior to the start of commercial operation, the project owner shall notify the CPM that all treated structures are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 Prior to start of commercial operation the project owner shall prepare a landscape screening plan. The project owner shall implement the landscape plan at the earliest feasible time but no later than one year after operation.

The screening shall, at a minimum, surround the site on the west and south boundaries of the project site, and on the east boundary if acceptable to the California Department of Fish and Game. Final plant selection shall be made in consultation with the CPM and the City of Huntington Beach and be designed to provide the maximum amount of feasible screening in the shortest feasible period of time. Planting shall be installed at a minimum height of 15 feet at the time of planting, and designed to achieve at least 40 feet in height at maturity. Suitable irrigation shall be installed to ensure survival and desired rate of growth. The landscape screening and irrigation system shall be monitored for a period of five years to ensure survival. During this period all dead plant material shall be replaced.

Prior to start of commercial operation, the project owner shall submit a landscape screening plan to the City of Huntington Beach and State Department of Fish and Game for review and comment, and to the CPM for review and approval. The plan shall include, but not be limited to:

A detailed landscape, grading, and irrigation plan, at a reasonable scale, which includes a list of proposed tree and shrub species and installation

sizes, and a discussion of the suitability of the plants for the site conditions and mitigation objectives. A list of potential tree species which would be viable in this location shall be prepared by a qualified professional arborist familiar with local growing conditions, with the objective of providing the widest possible range of species from which to choose. The plan shall demonstrate how the screening conditions called for above shall be met, including evidence provided by a qualified professional arborist that the species selected is both viable and available.

- Elevation views or visual simulations of the landscape screening at installation; at 5 years' growth after installation of landscaping from the time of startup of operation of the facility; and at maturity, in order to show the extent of screening that the landscaping is expected to achieve in these time frames.
- 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.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM.

Verification: At least 60 days prior to start of commercial operation, the project owner shall submit the landscape screening plan to the City of Huntington Beach and the State Department of Fish and Game for comment, and the CPM for review and approval. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 15 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the landscape screening that the planting and irrigation system 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.

VIS-3 Prior to the start of the second year of operation, the project owner shall improve the appearance of the plant with implementation of an approved architectural screening plan that would enhance its visual compatibility with sensitive land uses in the coastal zone.

- The applicant shall consult with a qualified artist, designer, and/or architect to evaluate, recommend, and implement screening measures that would substantially screen mechanical equipment.
- The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM.

Verification: At least 180 days prior to start of the second year of commercial operation, the project owner shall submit the architectural screening plan to the City of Huntington Beach for comment, and the CPM for review and approval. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM 30 days prior to beginning installation of the approved architectural screening, and seven days after completing installation that the screening is ready for inspection.

VIS-4 If Units 3 and 4 will cease to operate beyond the termination date of this Certification, those units shall be completely dismantled, as described under the discussion of Planned Plant Closure, and the project owner shall submit the facility closure plan as required by the **Compliance General Conditions**.

Verification: Prior to the expiration of this Certification, the project owner shall notify the CPM whether it intends to apply for a new or extended Energy Commission certification to continue to operate Units 3 and 4. If it intends to do so, it must file that application within 3 months of the expiration date. If it does not intend to do so, fails to apply within the 3 month period, or if the application is denied, the project owner shall submit to the City of Huntington Beach for review and comment, and to the CPM for review and approval, the Facility Closure Plan, stipulating a timetable and procedure for dismantling of the existing plant.

VIS-5 The project owner shall operate HBGS Units 3 and 4 in the winter to maintain the exhaust temperature at no lower than 230 degrees Fahrenheit (F), and in fall and spring to 215 degrees F, to minimize visible vapor plume formation from the boiler exhaust stacks.

Prior to start of operation, the project owner shall submit an operating plan for Units 3 and 4 demonstrating that the above exhaust temperature minimums will be maintained.

Prior to start of operation, the project owner shall provide the CPM with a exhaust gas table showing lowest stack temperature with the highest moisture content (worst case) for a range of loads at 5 percent increments for Units 1 and 2, and Units 3 and 4. Based on this data, staff may recommend different exhaust temperature minimums should the project continue to be operated beyond the Energy Commission's certificate review point.

Verification: At least 60 days prior to start of commercial operation, the project owner shall provide the CPM for review and approval the operating plan to meet the exhaust stack temperature minimums in this condition. The project owner shall report on annual visible plume production in the Annual Compliance Report.

If the CPM notifies the project owner of any revisions that are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

VIS-6 The project owner shall design and install all new, and modify existing, project lighting to minimize potential night lighting impacts, as follows:

- a) All lighting shall be of minimum necessary brightness consistent with operational safety.
- b) All lighting shall be shielded and directed downward to prevent all uplighting and all direct light trespass (direct lighting extending outside the boundaries of the facility).
- c) Wherever feasible and safe, lighting shall be kept off when not in use.
- d) A lighting complaint resolution form (following the general format of that in Attachment 1) shall be maintained by plant operations, to record all lighting complaints received and to document the resolution of that complaint.
- e) All construction lighting will be completely shielded or screened so as not to be visible to residents of the adjacent trailer park across Newland Street, Pacific Coast Highway and Huntington State Beach.

The project owner shall develop a lighting plan for the project incorporating the above measures and submit it to the CPM for review and approval.

Verification: At least 60 days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation and modification that the lighting is ready for inspection.

The project owner shall report any lighting complaints and documentation of resolution in the Annual Compliance Report, accompanied by any lighting complaint resolution forms for that year.

REFERENCES

- AES, 2000. Huntington Beach Generation Station Retool Project Application for Certification.
- AES, 2001. Supplemental Information to the AFC, dated January 24, 2001.
- AES, 2001b. Applicant Data Responses 68 –75, dated February 23, 2001.
- City of Huntington Beach, 1996. General Plan.
- City of Huntington Beach, 1999. Natural Resources Chapter, Draft Coastal Element, p. IV-C-61.
- City of Huntington Beach, 2001. Letter to CEC, dated December 21, 2000.
- Smardon, R. and J. Palmer, J. Felleman, 1986. Foundations of Visual Project Analysis.
- U.S. Dept. of Agriculture, 1974. National Forest Landscape Management, Vol. 2, The Visual Management System (Agriculture Handbook Number 462).
- U.S. Dept. of Interior, 1986. Visual Resource Management (Bureau of Land Management Manual 8400).
- Walters, William, 2001. Huntington Beach Generating Station Boiler Exhaust Visible Plume Analysis, Technical Memorandum dated March 5, 2001.

APPENDIX A-1: VISUAL ASSESSMENT METHODOLOGY.

The following discussion describes the evaluation methodology employed in conducting the visual resource inventory of the project setting. Visual impact assessment methods are described in detail in Impacts, below.

The analytical methodologies employed are described in greater detail in subsequent sections, below, and reflect accepted professional practice derived primarily from the Bureau of Land Management (BLM) VRM Contrast Rating method (U.S. Dept. of Interior, 1986) and the U.S Forest Service VMS method (U.S. Dept. of Interior, 1974). The basic principles and structure of these methodologies have been utilized and adapted to the present project circumstances.

Typical visual character and quality have been ascribed to each of the broad landscape types of the project viewshed, and are the basis for evaluations of potential project impacts. Viewer sensitivity is ascribed to sensitive receptor groups identified in each landscape unit.

Visual character, a descriptive term, refers to the formal visual attributes typical of a setting and is often closely tied to an area's land use as well as its physiography. A landscape's visual character underlies its perceived quality and value, and also forms the basis for a project's level of contrast or conspicuousness in the impact assessment phase. Visual quality, an evaluative term, reflects a judgment of a landscape's attractiveness as determined by such characteristics as visual distinctiveness, coherence, intactness, variety and interest, and the presence of features, such as vegetation and water, known to be preferred by the majority of viewers. *Visual quality* of a landscape setting, in combination with the visual sensitivity of viewers within it, determines the level of acceptable project contrast in the determination of impact significance. *Visual sensitivity* is a judgment of anticipated viewer concern and response to proposed visual changes, based on factors such as typical viewer activity and corresponding level of scenic expectations, number of viewers exposed to the project, extent, duration and character of such views, known local and historic values, and explicit expressions of public policy relating to the visual resource or urban design. In this study residential land uses were assumed to have high visual sensitivity; motorists on major roadways were assumed to have moderate sensitivity.

Key Observer Points (KOPs) were identified to represent sensitive viewer groups and viewing locations. The most sensitive of these have been used as viewpoints for computer-generated simulations of the proposed project and for evaluation of project contrast in impact evaluation, described further under **Impacts**, below.

IMPACT ASSESSMENT METHODOLOGY

In a manner similar to the BLM VRM method and Forest Service VMS method, impacts in this study were characterized in terms of their contrast with the existing setting. This contrast is expressed as the level of perceived visual modification,

dominance and tendency to attract attention attributable to project-caused changes. In both the cited methods, this characterization of objective visual change is stated in terms of how likely the visual contrast of the project is to be noticed by casual observers. This tendency to capture viewers' attention is referred in this study as visual dominance and classified as follows:

LEVELS OF VISUAL CONTRAST OR DOMINANCE

| | |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Inevident | Change not noticed by casual observers |
| Subordinate/Weak | Change noticed but attracts less attention than other existing features in the landscape |
| Co-Dominant/Moderate | Change noticed and attracts attention to a similar degree as dominant features of the existing landscape setting |
| Dominant/Strong | Change noticed and visually dominates the setting, i.e., attracts attention of viewers more strongly than other features in the existing setting. |

In all cases these levels of *visual dominance* or modification are understood to be a corollary of the level of contrast created by the introduced project features. Contrast is generally evaluated in terms of apparent visual scale, as well as contrast in formal visual attributes such as form and color, and ultimately expresses contrast with existing visual character, which is the product of those attributes.

Visual contrast/dominance are affected by viewing distance, specific conditions of project viewing and project exposure, and other factors. These are reflected in the ratings developed for each particular representative KOP.

Contrast/dominance ratings were conducted with the assistance of visual simulations submitted by the applicant and validated in the field.

IMPACT SIGNIFICANCE CRITERIA

Contrast per se is not equivalent to impact. The degrees of contrast or dominance described above represent acceptable levels of visual change, as determined by the *visual quality* of a viewer's setting, and that viewer's *visual sensitivity*, as follows:

**Visual Resources Appendix Table 1:
Preliminary Guideline Levels of Visual Dominance**

| | High Sensitivity | Moderate Sensitivity | Low Sensitivity |
|-------------------------|----------------------------|-----------------------------|------------------------|
| High Quality | Subordinate/ Negligible | Subordinate | Co-Dominant |
| Moderate Quality | Subordinate | Co-dominant | Dominant |
| Low Quality | Co-dominant | Dominant | Dominant |

In keeping with usage of the U.S. Bureau of Land Management and U.S. Forest Service, this table does not apply the threshold of 'inevident,' which is reserved for special designation areas of unique scenic value, such as national parks, legislated scenic areas, etc.

Visual changes that exceed these guidelines *may* represent potentially significant impacts. For example, a visually subordinate change to a high quality, high sensitivity view may be an acceptable level of change. A visually co-dominant change may represent a significant impact to the same viewpoint (depending upon other viewing factors described directly below).

In addition to these criteria of visual dominance, a variety of other factors may influence evaluations of visual impact. These include such factors as viewing conditions, numbers of affected receptors, special local or cultural values, and factors affecting visual exposure. In the present case the latter is of special relevance.

Power plants typically have the potential to generate visible vapor plumes of varying magnitude; impacts may fluctuate between highly dominant to nonexistent for varying periods of time and under various viewing conditions. This transient and changeable character necessitates the consideration of time in the evaluation of their potential impact.

This study adopted the following criteria for evaluating plume impact significance for the purposes of evaluating this project. Plumes were considered to represent a potentially significant impact if they were anticipated to exceed 'normal' acceptable levels of visual change (as determined by the visual quality and sensitivity of a KOP under **Visual Resources Appendix Table 1**, above) in excess of 50 percent of critical viewing periods, as defined below (the '*typical*' plume condition); **or** to be *dominant* in conditions of *high or moderate quality and sensitivity for 10 percent or more of critical periods* (the '*reasonable worst-case*' plume condition). For example, a viewpoint of moderate visual quality and high sensitivity could experience significant impacts if subordinate levels of contrast from plumes were exceeded for 50 percent or more of critical periods, consistent with **Visual Resources Appendix Table 1**, but would not if such contrast occurred less than 50 percent of critical periods, *unless* dominant levels of contrast occurred more than 10 percent of the critical period. The 'critical viewing period' was defined as daylight hours, without fog or rain, per season. The *seasonal* criterion reflects the tendency of visible plumes to be concentrated in certain seasonal periods and not in others. The '*no fog*' criterion simply 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. The threshold of 10% of these critical periods has been applied in the evaluation of plume impacts of other, similar power projects, and is similar, e.g., to the 'L₁₀' criterion frequently applied in statistical noise analyses to capture the potential impact of severe but transient, short-duration impacts. Evaluating potential impact based on *maximum* plume sizes would also be misleading, since extremely large plumes may occur for very short

periods of time but would be so unusual and transitory that they are not considered a reasonable basis for judging impacts. 10% of the critical period was considered to be sufficiently frequent to be representative of a 'reasonable worst case.' Nighttime plumes would only have the potential to cause impacts if they were to be illuminated by bright night lighting.

OTHER IMPACT SIGNIFICANCE CRITERIA

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.) Specifically, Appendix G of the CEQA Guidelines identifies as significant, project effects which will "(H)ave a substantial, demonstrable negative aesthetic effect ..."

Under the CEQA Guidelines, significant visual impacts may result from:

- a) A substantial adverse effect on a scenic vista
- b) Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- c) Substantially degrade the existing visual character or quality of the site and its surroundings
- d) A new source of substantial light or glare which would adversely affect day or nighttime views in the area

Finally, visual impacts are considered potentially significant if they conflict with published public policies or goals.

ATTACHMENT 1
LIGHTING COMPLAINT RESOLUTION FORM

Huntington Beach Generation Station Units 3 and 4 Retool Project

Orange County, 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.)

CULTURAL RESOURCES

Testimony of Roger Mason and Dorothy Torres

INTRODUCTION

This analysis discusses cultural resources that are defined as the evidence of the history of human development and life on earth. Evidence of California's early occupation is becoming increasingly vulnerable to the ongoing development and urbanization of the state.

Cultural resource materials may be found throughout California: along the ocean coastline and on coastal islands; along rivers and streams; in coastal and inland valleys and lowlands; throughout the coastal and inland mountain ranges; and throughout the interior deserts. Cultural resources may be found on the ground or may be found at varying depths beneath the surface. In some areas of the state, a sequence of settlements on the same site may cover multiple layers of cultural resources. In other areas, the distribution of cultural materials may be much more dispersed.

Cultural resources are significant to our understanding of our culture, our history and heritage. Critical to the analysis of cultural resources are the spatial relationships between an undisturbed cultural resource site and the surface environmental resources and features, and the analysis of the locational context of the resource materials within the site and beneath the surface. These relationships provide information that can be used to piece together the sequence of human occupation and use of an area, and they begin to create a picture of the former inhabitants and their environment.

Staff's primary concerns in its cultural resource analysis are to ensure that all potential impacts are identified and that significant adverse impacts are avoided or reduced to a level of insignificance. The determination of potential impacts to cultural resources from the proposed AES Huntington Beach Generating Station (HBGS) Retool Project is required by the Siting Regulations of the California Energy Commission (Energy Commission) and by the California Environmental Quality Act (CEQA). Three aspects of cultural resources are addressed in Staff's analysis: prehistoric archaeological resources, historic period resources, and ethnographic resources.

PREHISTORIC RESOURCES

Prehistoric archaeological resources are those resources that resulted from prehistoric human occupation and use of an area. Such resources include sites and deposits, structures, artifacts, rock art, and trails. In California the prehistoric period began over 11,500 years ago and extended into the 18th century when the Euro-Americans first explored and settled the region.

HISTORIC RESOURCES

Historic period resources are those resources that resulted from human activity after the beginning of a written historical record. In California the historic period began in the 18th Century when Euro-Americans first explored and settled the region. Historic period resources include archaeological deposits, sites, structures, traveled ways, artifacts, documents, buildings and objects.

ETHNOGRAPHIC RESOURCES

Ethnographic resources are those resources important to the heritage of a particular ethnic or cultural group, such as Native Americans, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431-433) and subsequent related legislation, policies, and enacting responsibilities. The following laws, ordinances, regulations, standards, and policies apply to the protection of cultural and ethnographic resources in California. Projects licensed by the Energy Commission are reviewed for compliance with these laws.

FEDERAL

Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.

STATE

- Public Resources Code, Section 5020.1 defines several terms, including the following:
 - (j) "Historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.
 - (q) "Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.

- Public Resources Code, Section 5024.1 establishes a California Register of Historical Resources (CRHR); sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures. The criteria are essentially the same as those used to determine eligibility to the NRHP, but they also stipulate that some properties that may not retain sufficient integrity to meet NRHP standards may still be eligible for the California Register.
- Public Resources Code, Section 5097.5 states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the state; or any city, county, district, authority, or public corporation; or any agency thereof.
- Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials. If the county coroner determines that the remains are Native American, the coroner is required to contact the Native American Heritage Commission, which is then required to determine the “Most Likely Descendant” to inspect the burial and to make recommendations for treatment or disposition of the remains and any associated burial items. This section also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.
- The California Environmental Quality Act (CEQA) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures. CEQA also requires a program for monitoring or reporting on the revisions that the public agency has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects.
- 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 historical resource; the section further defines a “historical resource” and describes what constitutes a “significant” historical resource.
- CEQA Guidelines, Title 14, California Code of Regulations, Section 15126.4(b) prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project’s impact on a historical resource; discusses documentation as a mitigation measure; and discusses

mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

- CEQA Guidelines, Title 14, California Code of Regulations, Section 15064.5 “Determining the Significance of Impacts on Historical and Unique Archeological Resource” defines the term “historical resources,” explains when a project may have a significant effect on historical resources, describes CEQA’s applicability to archaeological sites, and specifies the relationship between “historical resources” and “unique archaeological resources.” This section states that a project “that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” It also defines a substantial adverse change for historical resources.
- CEQA Guidelines, Title 14, California Code of Regulations, Appendix G, Section V lists questions that are relevant to evaluating a project’s impacts on archaeological and historical 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.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies. The City of Huntington Beach has no special provisions or regulations for cultural resources beyond compliance with CEQA.

PROJECT DESCRIPTION

All of the project elements described in the **PROJECT DESCRIPTION** section of this Staff Assessment would cause ground disturbance and have the potential to cause significant impacts to historical resources.

SETTING

REGIONAL DESCRIPTION

NATURAL ENVIRONMENT

The project site is located on the Pacific Ocean coast in the City of Huntington Beach. The site is on the inland side of Pacific Coast Highway and is built on imported fill placed in a former bay estuary and salt marsh. The project site

occupies approximately 12 acres at the corner of Pacific Coast Highway and Newland Street.

Refer to the **PROJECT DESCRIPTION** section of this Staff Assessment for additional information and maps of the project development region and the project area.

PREHISTORIC SETTING

The first well-documented occupation of the southern California coast occurred during the Milling Stone Period (about 7000 B.C. to 1000 B.C.). Small mobile groups probably moved through a seasonal round of settlement that included both inland and coastal residential bases. They relied on grass and sage seeds to provide calories and carbohydrates and hunted deer and rabbits. Shellfish and fish were exploited while at the coast (Mason, Koerper, and Langenwalter 1997).

The period from 1000 B.C. to A.D. 750 is known archaeologically as the Intermediate Period. During this period mortars and pestles appear, indicating the beginning of acorn exploitation. Use of the acorn, a storable high calorie food source, probably allowed greater sedentism, especially in inland areas. Large projectile points indicate that hunting was probably conducted using a spear thrower. Settlement patterns during this period are not well known.

Archaeological sites dating to the Late Prehistoric Period (A.D. 750 to A.D. 1769) were occupied by ancestors of the Gabrielino and Juaneño, the Native American groups encountered by the Spanish when they arrived in an overland expedition in A.D. 1769.

ETHNOGRAPHIC BACKGROUND

The Gabrielino and Juaneño were semi-sedentary hunters and gatherers (Bean and Smith 1978). One of the most important food resources for inland groups were acorns gathered from oak groves in canyons, drainages, and foothills. Hard seeds from sage and grasses were also important plant foods. Protein was supplied by hunting deer, rabbits, and other animals using a bow and arrow as well as various traps and snares. Coastal dwellers collected shellfish and engaged in fishing for bay/estuary, nearshore, and kelp bed species. Dried shellfish and fish were probably exchanged for inland products such as acorns.

The Gabrielino lived in villages of up to 150 people located near permanent water sources and a variety of food resources. The village was the center of a territory from which resources were gathered. Work parties left the village for short periods of time to hunt, fish, and gather plant foods elsewhere within the territory. While away from the village, they established temporary camps and resource processing locations. Archaeologically, such locations are indicated by manos and metates for seed processing, bedrock mortars for acorn processing, and lithic scatters indicating manufacturing or maintenance of stone tools (usually made of chert) used in hunting or butchering.

HISTORIC SETTING

Spanish missionaries began their exploration and development of the missions in California in 1769 starting in San Diego and ending with the missions in San Rafael and Sonoma, in 1823. The closest missions to the project area were Mission San Gabriel, established in 1771, and Mission San Juan Capistrano, established in 1776. The project area was part of a large Spanish land grant made to Jose Manuel Nieto in the 1780s. After Mexico became independent from Spain in 1822, the land grant was subdivided among Nieto's heirs in 1834. The project area was in Rancho Las Bolsas.

The Treaty of Guadalupe Hidalgo transferred California to the United States in 1848. That political transition combined with the Gold Rush changed California into a rapidly transforming frontier. In 1850, Abel Stearns purchased Rancho Las Bolsas and the adjacent Rancho Bolsa Chica. By 1901 the Huntington Beach area was owned by Philip Stanton of the West Coast Land Company. The land was platted into town lots and was named Huntington Beach in 1903. Since sale of parcels was slow, Encyclopedia Americana bought a block of lots and gave them away as a bonus with the purchase of a set of encyclopedias. Land values increased substantially when oil and gas were discovered in the northwestern part of Huntington Beach. The first exploratory wells were drilled by Standard Oil in 1920. Oil and agriculture dominated the economy until the 1960s when the city expanded as a residential area (Kossen 1989).

RESOURCES INVENTORY

LITERATURE AND RECORDS SEARCH

Prior to preparation of the AFC, consultants to the applicant conducted a literature search and reviewed cultural resource records and maps at the South Central Coastal Information Center of the California Historical Resources Information System (CHRIS). The literature search included the project site and areas within one-half mile of the project site. Although the project site has not been previously surveyed, two surveys have been conducted within a one-half mile radius. No previously recorded cultural resources are located within the HBGS Retool Project site or within one-half mile of the project. The background information indicates that the project area is built on imported fill and there is a low probability of encountering prehistoric sites (AES 2001a:5.7-6).

Consultants to the applicant also consulted various inventories of historic structures and properties in Huntington Beach including the City's General Plan. The nearest National Register eligible properties and the nearest historic structures over 50 years old are in the downtown area over a mile away (AES 2001a:5.7-8).

FIELD SURVEYS

Archeologist Constance Farmer conducted a reconnaissance level survey of the project area on October 24, 2000. It was determined that almost the entire 12 acre project site is either paved or covered by gravel and structures. The only area of

exposed ground was along the fence line where oleander bushes are planted in fill material. No cultural resources were identified as a result of the field survey. Although Units 3 and 4 of the existing power plant will be affected by the proposed project, they were built in 1963 and, therefore, do not meet the 50 year age criterion for eligibility for the CRHR, (AES 2001a:5.7-7,8). Units 3 and 4 also do not appear to be eligible under any additional criteria.

A reconnaissance of the area surrounding the project site was carried out by Roger Mason, a consultant to the CEC staff, on February 13, 2001. The Huntington By the Sea Mobile Home Park and the Cabrillo RV Resort occupy parcels across Newland Street from the project site. The offices at both facilities, based on construction techniques and style, are less than 50 years old. Edison Street runs along the northern boundary of the project site. There are a few structures along Edison Street consisting of Beach Auto Wrecking and a waste transfer station. On Newland Street north of Edison Street are the Humane Society Animal Hospital and All Space Self Storage. All of the structures on these properties were built in the 1960s and 1970s, according to DataQuick, a real estate services database. Further north are residential tract homes built in the 1960s and 1970s.

NATIVE AMERICAN CONTACTS

The consultant to the applicant contacted the Native American Heritage Commission (NAHC) to identify the location of any traditional Native American cultural properties in the project area and to obtain a list of local Native American contacts. At the time of preparation of the data adequacy response to the AFC, the consultant had not received a response from the NAHC (AES 2001a:5.7-6). Upon receipt of the list the consultant will send letters to representatives of the Native American community describing the project and inquiring whether they have concerns regarding the project.

SUMMARY OF IDENTIFIED CULTURAL RESOURCES IN THE PROJECT VICINITY

No cultural resources have been recorded within one-half mile of the project and none were identified as a result of the surveys.

IMPACTS

Since project development and construction usually entail surface and sub-surface disturbance of the ground, the proposed HBGS project has the potential to adversely affect both known and previously unknown cultural resources. Direct impacts are those which may result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, or excavation, or alteration of the immediate surroundings. Indirect impacts are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource materials due to improved accessibility. Cumulative impacts to cultural resources may occur if increasing amounts of land are cleared and disturbed for the development of multiple projects in the same vicinity as the proposed project.

The potential for the project to cause impacts to cultural resources is related to the likelihood that such resources are present and whether they are actually encountered during project development and construction activities. Although the existence of known cultural resources indicates further potential for unknown resources to be encountered, the absence of known resources does not necessarily mean that unknown resources will not be encountered and that impacts will therefore not occur. In addition, the potential for discovery does not measure the significance of individual artifacts or other cultural resources present, since it is impossible to accurately predict what specific materials could be encountered. Furthermore, sometimes the full significance of discovered cultural resources can only be determined after they have been collected, prepared, and studied by professional archaeologists and/or historians.

PROJECT IMPACTS

Because project-related site development and construction would entail subsurface disturbance of the ground, the proposed project has the potential to adversely affect previously unknown cultural resources that might exist in the native soils. The consultant to the applicant has indicated that 2 to 3.5 feet of fill exists on top of the old ground surface. A concrete slab foundation 3.5 to 4 feet thick covers the fill. Excavations for the new foundations for SCR equipment for Units 3 and 4 are expected to require 3.5 feet for the new slab foundation plus 2 to 3 feet of over-excavation in the underlying fill material (AES 2001b). Impacts would likely not extend into the native soil as a result of excavations for SCR equipment foundations. However, it is possible that the estimated maximum depth of excavation could exceed the minimum estimated existing depth of slab and fill. Therefore, previously unknown resources could be affected in these areas.

The City of Huntington Beach has recommended landscape planting and/or physical architectural improvements to the project. They also recommend that a cultural resource monitor be present where excavations exceed the previous approximate level of fill (Pak, 20001:20).

The absence of sites in the project vicinity indicates a low potential for previously unknown historic and prehistoric archeological resources to be encountered and affected during project construction.

There are no historic resources within one mile of the project site. Therefore, the proposed project would not affect the setting of any historic resources. In addition, the proposed project would not alter the outward appearance of the existing power plant structures in any significant way. The visible portions of the SCR unit will be fairly small in relation to the massive structures of the four existing units. In addition the visible portions of the SCR will be painted to blend in with existing structures.

CATEGORIZATION OF IDENTIFIED CULTURAL RESOURCES

Various laws apply to the treatment of cultural resources. These laws require the Energy Commission to categorize resources by determining whether they meet several sets of specified criteria. These categories then in turn influence the

analysis of potential impacts to the resources and the mitigation that may be required to ameliorate any such impacts.

Under federal law, only historical or prehistoric sites, objects, or features, or architectural resources that are assessed by a qualified researcher as “important” or “significant” in accordance with federal guidelines need to be considered regarding potential impacts. The significance of historical and prehistoric cultural resources is judged in accordance with the criteria for eligibility for nomination to the National Register of Historic Places as defined in 36 CFR 60.4. If such resources are determined to be significant, and therefore eligible for listing in the National Register, as well as the California Register, they are afforded certain consideration under the National Historic Preservation Act and/or CEQA.

The National Register criteria state that “eligible historic properties” are: districts, sites, building, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (a) are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or (d) that have yielded, or may be likely to yield, information important to history or prehistory. Isolated finds by definition do not meet these criteria. California has adopted a very similar set of criteria for assessing resources of statewide importance.

Under federal law, resources determined not to be significant, that is, not eligible for National Register listing, are subject to recording and documentation only, and are afforded no further protection. However, occasionally certain resources, although they may not be assessed as “significant,” may nonetheless be of local or regional importance such that mitigation may be warranted regardless of their assessed significance. Staff evaluates the survey reports and site records for any known resources located within or adjacent to the project Area of Potential Effect (APE) to determine whether they meet the eligibility criteria.

The record and literature search and the survey of the proposed project APE were conducted to identify the presence of any cultural resource sites or materials. Where resources were identified, additional evaluation would be conducted to determine whether the resources are already listed on, or are potentially eligible for listing on, either the National Register of Historic Places (National Register) or the California Register of Historic Resources. The determination of eligibility is made in compliance with the applicable provisions of the National Historic Preservation Act.

The CEQA Guidelines now explicitly require the lead agency (in this case, the Energy Commission) to make a determination of whether a proposed project will affect “historical resources.” The guidelines provide a definition for historical resources and set forth a listing of criteria for making this determination. As used in CEQA, the term “historical resources” includes any resource, regardless of age, as long as it meets these criteria. If the criteria are met, the Energy Commission must

evaluate whether the project will cause a “substantial adverse change in the significance of the historical resource,” which the regulation defines as a significant effect on the environment. The recent CEQA changes also indicate that the mitigation for impacts to historical resources that meet these criteria shall not be subject to the limitations provided in Public Resources Code, Section 21083.2.

A section in CEQA addressing “unique” archeological resources provides a definition of such resources (Public Resources Code, Section 21083.2). This section establishes limitations on analysis and prohibits imposition of mitigation measures for impacts to archeological resources that are not unique. However, the CEQA Guidelines state that the prohibition in this section does not apply when an archeological resource has already met the definition of a historical resource (Title 14, California Code of Regulations, Section 15064.5).

CUMULATIVE IMPACTS

The potential for cumulative impacts may be associated with the degree of prehistoric and historic sensitivity. The HBGS site is proposed in an area that is not sensitive for archeological or historical resources. The proposed project is in an area of industrial and mobile home park uses. The Poseidon desalination facility is planned for 3.9 acres of the AES Huntington Beach project site. An impact from this facility would only occur if unanticipated cultural resources are discovered in this area during ground disturbance. There are no previously identified cultural resources on the HBGS site. Although it is always possible that unanticipated cultural resources might be discovered, it is unlikely in this location. Therefore, unless there is a discovery, there will be no cumulative impacts to cultural resources from the proposed project.

COMPLIANCE WITH APPLICABLE LORS

Staff’s proposed conditions of certification will ensure compliance with applicable LORS.

MITIGATION

The proposed project will not cause the significance of any known cultural resources to be materially impaired. Since the original soils below the fill are inaccessible, there is a chance that an undiscovered cultural resource in or on the original soil surface could be impaired by the project if the depth of excavation for new foundations, in the vicinity of the SCR, exceeds the depth the existing slab foundations and fill. It is also possible that a cultural resource could be discovered if excavation for landscaping or architectural improvements exceeds the previous level of fill. If an undiscovered cultural resource is encountered and it cannot be avoided, then other measures such as subsurface testing and data recovery must be implemented to minimize the adverse impact. Mitigation measures are developed to reduce the potential for adverse project impacts on cultural resources to a less than significant level.

APPLICANT'S PROPOSED MITIGATION

Because no cultural resources were identified in or within one-half mile of the project site, the applicant proposed no mitigation measures for cultural resources in the AFC. However, in response to a data request, the applicant's consultant proposed monitoring of excavation for the new slabs in the vicinity of the SCR.

STAFF'S PROPOSED MITIGATION MEASURES

Commission staff has proposed construction monitoring by a qualified archaeologist as a mitigation measure because of the possibility that excavations for new slab foundations for the SCR equipment for Units 3 and 4 and landscaping and/or architectural improvements will penetrate below the imported fill and reach the original ground surface. Staff has stated the proposed mitigation measures as a series of conditions of certification. Adoption of staff's proposed conditions of certification is expected to reduce the potential for adverse project impacts on cultural resources to a less than significant level.

The proposed mitigation measures would apply to any potential for impacts to sensitive cultural resources in all areas affected by the project. Mitigation measures are derived from good professional practice and they are based on the U.S. Secretary of the Interior's guidelines. The mitigation measures set forth in the conditions have been applied to previous projects before the Commission and they have proven successful in protecting sensitive cultural resources from construction-related impacts while allowing the timely completion of many projects throughout California.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

No cultural resources have been identified on the project site or within one-half mile of the project site. However, because project construction may impact the original ground surface below the imported fill and, because the original ground surface could not be examined during the survey, there is the potential for encountering cultural resources during construction.

There is a possibility that project construction could encounter potentially significant archeological resources. If the following conditions of certification are properly implemented, the project will comply with applicable laws, ordinances, regulations, and standards, and no significant adverse direct, indirect, or cumulative impacts to cultural resources will occur.

RECOMMENDATION

Staff recommends that the Commission adopt the following proposed conditions of certification, which incorporate the mitigation measures discussed above.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 The cultural resource specialist (CRS) shall be retained to conduct or supervise monitoring activities during ground disturbance that may exceed existing fill and in the vicinity of the selective catalytic reduction (SCR) unit. Prior to the start of ground disturbance (defined in general conditions), in areas where ground disturbance may exceed existing fill and in the vicinity of the SCR, the project owner shall provide the California Energy Commission (Energy Commission) Compliance Project Manager (CPM) with the name and statement of qualifications of its Cultural Resource Specialist (CRS), and an alternate CRS, if an alternate is proposed, who would be responsible for implementation of all cultural resources Conditions of Certification.

The statement of qualifications for the CRS and alternate shall include all information needed to demonstrate that the specialist meets the minimum qualifications specified by the National Park Service, Heritage Preservation Services and shall be qualified by the Register of Professional Archaeologists (RPA). The minimum qualifications include the following:

1. a graduate degree in anthropology, archaeology, California history, cultural resources management, or a comparable field;
2. at least three years of archaeological resource mitigation and field experience in California; and
3. at least one year experience in each of the following areas:
 - a. leading archaeological resource field surveys;
 - b. leading site and artifact mapping, recording, and recovery operations;
 - c. marshaling and use of equipment necessary for cultural resources recovery and testing;
 - d. preparing recovered materials for analysis and identification;
 - e. determining the need for appropriate sampling and/or testing in the field and in the lab;
 - f. directing the analyses of mapped materials; and recovered artifacts;
 - g. completing the identification and inventory of recovered cultural resources material; and
 - h. preparing appropriate reports to be filed with the receiving curation repository, the SHPO, and the appropriate regional archaeological information center.

The statement of qualifications shall include:

- a. a list of specific projects that the specialist has previously worked on;
- b. the role and responsibilities of the specialist for each project listed; and
- c. the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

At least 30 days prior to the start of ground disturbance that may exceed the level of fill and in the vicinity of the SCR, the project owner shall submit the name and statement of qualifications of its CRS and alternate CRS to the CPM for review and approval.

At least 10 days, prior to the start of any ground disturbance that may exceed existing fill and ground disturbance in the vicinity of the SCR, the project owner shall confirm in writing to the CPM that the approved CRS will be available and is prepared to implement the cultural resource Conditions of Certification.

At least 10 days prior to the termination or release of a CRS, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and a statement of qualifications of the proposed new CRS.

Cul-2 Prior to the start of ground disturbance, where ground disturbance may exceed existing fill and in the vicinity of the SCR, the project owner shall provide the CRS and the CPM with maps and/or drawings showing the footprint of the SCR and/or areas where disturbance may exceed existing fill. The project owner shall also provide a schedule of anticipated construction in the vicinity of the SCR and in areas where ground disturbance may exceed existing fill. If the footprint or construction schedule in any of these areas of ground disturbance changes, the project owner shall provide maps and/or drawings reflecting these changes, to the CRS within three days and to the CPM within 5 days.

At least 10 days prior to the start of ground disturbance in the vicinity of the SCR or areas where ground disturbance may exceed existing fill, the project owner shall provide the CRS and the CPM with the maps and/or drawings and a construction schedule of these areas. Copies of maps, drawings or schedules reflecting changes shall be submitted to the CPM within five days of the changes.

CUL- 3 Prior to the start of ground disturbance, in the vicinity of the SCR and in areas where ground disturbance may exceed existing fill, the CRS shall prepare, and the project owner shall submit to the CPM for review and approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts in the event of an unanticipated discovery.

The CRMMP shall include the following elements and measures.

- a. Identification of the person(s) expected to perform monitoring tasks (resumes); a description of each team member's qualifications and their responsibilities;
- b. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and that all significant or diagnostic resources will be collected for analysis and eventual curation into a 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.

- c. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

At least 15 days prior to the start of ground disturbance, in the vicinity of the SCR or in areas that may exceed existing fill, the project owner shall provide the CRMMP, prepared by the CRS, to the CPM for review and approval.

CUL-4 The CRS, alternate or the monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered.

If such resources are found, the halting or redirection of construction shall remain in effect until:

- a. The specialist has notified the CPM and the project owner of the find and the work stoppage;
- b. The specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
- c. Any necessary data recovery and mitigation has been completed.

The specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, determination of significance, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

If unearthed cultural resources appear to be Native American in origin, a monitor who traces ancestry to the affected area shall be added to the cultural resource team. The Native American monitor shall be present during any monitoring of cultural resources that appear to be Native American in origin.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

For any cultural resource encountered, the project owner shall notify the CPM within 24 hours after the find.

At least 5 days prior to the start of ground disturbance, the project owner shall provide the CPM with a letter confirming that the CRS, alternate and monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find.

Within 3 days of obtaining a Native American monitor, the project owner shall notify the CPM by letter that the monitor has been obtained.

CUL-5 Throughout monitoring and mitigation (if necessary), phases of the project, the CRS, alternate and monitor(s) shall keep a daily log of any

resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate where and when monitoring has taken place and where cultural resources were found.

The CRS and monitor(s) may informally discuss the cultural resource monitoring and mitigation activities with Energy Commission technical staff.

Throughout the monitoring activities and during any data recovery (if necessary), the project owner shall ensure that copies of the daily logs are included in the monthly compliance report.

CUL-6 If cultural resources are discovered, the project owner shall ensure that the CRS performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

If cultural resources are discovered, the project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university (ies), or other appropriate research specialists. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource site shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-7 The project owner shall ensure that the CRS prepares a Cultural Resources Report (CRR). The project owner shall submit the report to the CPM for review and approval.

The CRR shall include (but not be limited to) the following:

a. For all projects:

1. description of pre-project literature search, surveys, and any testing activities;
2. maps showing areas surveyed or tested;
3. description of any monitoring activities;
4. maps, including maps of any areas monitored; and
5. conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under "a" and also provide:

- site and isolate records and maps;

- description of testing for, and determinations of, significance and potential eligibility; and
 - a discussion of the research questions answered or raised by the data from the project.
- c. For projects regarding which cultural resources were recovered, include the items specified under “a” and “b” and also provide:
1. a description of the methods employed in the field and laboratory; a description (including drawings and/or photos) of recovered cultural materials;
 2. results and findings of any special analyses conducted on recovered cultural resource materials;
 3. an inventory list of recovered cultural resource materials; an interpretation of the site(s) with regard to the research design; and
 4. the name and location of the public repository receiving the recovered cultural resources for curation.

The project owner shall ensure that the CRS completes the CRR within 60 days following the monitoring activity and within 90 days following completion of the analysis of the recovered cultural materials, if cultural materials are discovered. Within seven days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval.

CUL-8 The project owner shall submit an original, an original-quality copy, and a computer disc copy (or other format to meet the repository’s requirements), of the CPM-approved CRR to the public repository to receive the recovered data and materials for curation, with copies to the State Historic Preservation Officer (SHPO), the appropriate regional California Historical Resources Information System information center(s). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the CRR to be sent to the entities specified above shall include the following (based on the applicable scenario [a, b, or c] set forth in condition Cul-7):

- a. originals or original-quality copies of all text;
- b. originals of any topographic maps showing site and resource locations;
- c. originals or original-quality copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys or during project monitoring and mitigation and subjected to post-recovery analysis and evaluation.
- d. photographs of any cultural resource site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner

shall provide the curation repository with a set of negatives for all of the photographs.

Within 30 days after receiving approval of the CRR, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO and the regional California Historical Resources Information System information center(s).

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved CRR with the public repository receiving the recovered data and materials for curation.

CUL-9 If cultural resources are discovered, following the filing of the CPM-approved CRR with the appropriate entities, specified in condition CUL-8, the project owner shall ensure that all cultural resource materials, maps, and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

If cultural resources are discovered, the project owner shall ensure that all recovered cultural resource materials are delivered for curation within 30 days after providing the CPM-approved CRR to the entities specified in CUL-8.

If cultural resources were discovered, the project owner shall provide a document that identifies the public institution and that discussed requirements, specifications or funding needed for the curation of the materials and how they will be met. Also the name and phone number of the contact person at the institution shall be provided.

If cultural resources were discovered, for the life of the project the project owner shall maintain in its compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

REFERENCES

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SOCIOECONOMICS

Michael Fajans

INTRODUCTION

The technical area of Socioeconomics includes several related areas of interest and concern. A typical socioeconomic impact analysis evaluates the effects of short-term and long-term project-related population changes on local schools, medical and protective services, as well as the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes in population. The socio-economic analysis also includes consideration of Environmental Justice, a determination of whether any project impacts fall disproportionately on a low-income or minority population. This analysis discusses the potential direct and cumulative impacts of the proposed Huntington Beach Generating Station (HBGS) Retool Project on local communities, community resources, and public services.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

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.

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.

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.

LOCAL

HUNTINGTON BEACH GENERAL PLAN ECONOMIC DEVELOPMENT ELEMENT

Goal ED1. Provide economic opportunities for present and future Huntington Beach residents and businesses through employment and local fiscal stability.

Goal ED2. Aggressively retain and enhance the existing commercial, industrial, and visitor serving uses while attracting new uses to Huntington Beach.

Policy ED 2.5.1 Encourage and assist existing and potential industrial owners to update, modernize, and expand their industrial properties.

SETTING

PROJECT LOCATION

The proposed project is at the site of the existing Huntington Beach Generating Station at 21730 Newland Street, southeast of the intersection of Newland Street and the Pacific Coast Highway in the City of Huntington Beach, California. For a more complete description of the location, please refer to the **Project Description** section of this document and the facility location section of the Application for Certification (AES Huntington Beach, AFC, page 3.2-1). The study area for socioeconomics is defined in the AFC as “the five-county metropolitan Southern California area.” The project is just inland from the Pacific Ocean in Huntington Beach, in central Orange County, which is located between Los Angeles and San Diego Counties along the Southern California coast.

DEMOGRAPHIC CHARACTERISTICS

The five-county Southern California area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura) had a population of 14.6 million people in 1990. The estimate for 2000 is 17.6 million. Of the year 2000 total, an estimated 2.85 million live in Orange County, an 18 percent increase from 1990, and just less than 200,000 live in the City of Huntington Beach (EDD, 2000). Orange County population growth is expected to continue, with projections of 3.17 million people in 2010 and 3.34 million by 2020. As Huntington Beach approaches build-out, its rate of population growth is expected to diminish (AFC, page 5.10-4).

Large portions of the cities of Huntington Beach, Costa Mesa, Newport Beach, and Fountain Valley are within a six-mile radius of the project site. In addition, small portions of Santa Ana and Westminster are within the six-mile radius. Past and projected population characteristics of the census tracts within a six-mile radius are

shown in **Socioeconomics Figures 1 and 2**. **Figure 1** shows the percentage of minority residents by census tract based on 1990 Census results. Approximately 10 percent of the tracts had a minority population of 25 to 50 percent, while 90 percent of the tracts had a white population proportion greater than 75 percent. Of tracts with more than 25 percent minority population, one was located between two and three miles from the proposed project, three tracts were four or more miles away, and four tracts were mostly outside the six-mile radius with small proportions within the six-mile limit.

The demographic profile displayed in **Socioeconomics Figure 2** shows the estimated percentage of minority population by census tract for 2000 using data projections by the marketing firm of Claritas, Inc. (Claritas, 2001). While less reliable than Census Bureau counts, the Claritas estimates for 2000 show a significantly higher minority population – 52 percent of the tracts show a minority population of 25 percent or higher, including five tracts with a 50 – 75 percent minority population and three tracts with a minority population greater than 75 percent. **Socioeconomics Table 1** shows the 1990 demographic profile for the communities closest to the project site.

SOCIOECONOMICS TABLE 1

Demographic Profile of Nearby Communities: 1990

| Race/ethnicity | Huntington Beach | Costa Mesa | Newport Beach | Fountain Valley | Orange County |
|--------------------------------|------------------|------------|---------------|-----------------|---------------|
| Total population | 181,519 | 96,357 | 66,643 | 53,691 | 2,410,556 |
| White (excluding Hispanic) | 79.1% | 72.0% | 92.6% | 73.2% | 64.5% |
| Black | 1.0% | 1.2% | .3% | .8% | 1.7% |
| American Indian | .8% | .5% | .3% | .6% | .5% |
| Asian | 8.3% | 6.4% | 2.9% | 17.8% | 10.4% |
| Other | 3.9% | 7.3% | .8% | 2.5% | 8.7% |
| Hispanic origin (1) | 11.0% | 19.9% | 4.0% | 7.7% | 23.0% |
| Median Household Income (1989) | \$50,633 | \$40,313 | \$60,374 | \$56,255 | \$45,922 |
| % Poverty status | 5.1% | 9.0% | 5.6% | 3.5% | 8.3% |

Source: 1990 Census

(1) Hispanic total includes several race categories, so totals do not add up to 100%

With the exception of Costa Mesa which is similar to Orange County as a whole, the communities around the proposed project contain a higher proportion of higher

income white population. The percentage of the population living below the poverty level was 5.1 percent in Huntington Beach, compared to 8.3 percent in Orange County, while the Huntington Beach median household income was about 10 percent higher than the county average of \$45,922.

EMPLOYMENT CHARACTERISTICS

In fall 2000, the five Southern California counties had a civilian labor force of 8.2 million, and an unemployment rate of 4.4 percent. In comparison, Orange County had a November 2000 labor force of 1,526,200 and a 2.2 percent unemployment rate. **Socioeconomics Table 2** shows the distribution of employment by industrial sector for Orange County and Huntington Beach.

The estimated Gross County Product (GCP) for Orange County was \$125 billion for 2000, and projected retail sales for 2001 in the County are \$46 billion according to the Economic and Business Review (CDR).

Key businesses in Huntington Beach include aerospace and high tech, petroleum and petroleum support, manufacturing, computer hardware and software, financial and business services, and automobile services (Huntington Beach Chamber of Commerce, 2000). Orange County's construction labor force represents almost six percent of local employment.

SOCIOECONOMICS TABLE 2.
Employment by Industry: 1999-2000

| Sector | Orange County | Huntington Beach |
|---------------------------------|---------------|------------------|
| Agriculture/mining | 8,200 | N.A. |
| Construction | 81,700 | 3,335 |
| Manufacturing | 233,300 | 14,369 |
| Transportation/Public Utilities | 40,800 | 1,341 |
| Trade | 334,000 | 15,069 |
| Finance/Insurance Real Estate | 107,100 | 3,924 |
| Services | 437,700 | 15,170 |
| Government | 148,700 | 6,361 |
| Total | 1,411,500 | 49,569 |

Sources: California EDD and Huntington Beach Planning Dept., 2000.

With amusement parks and ocean beaches, tourism is a major element of the Orange County economy. Two state beaches (Bolsa Chica and Huntington State Beaches) and Huntington City Beach cover the 8.5 miles of Pacific Ocean shoreline in the City. Renown for surfing and sunbathing, the beaches attract millions of visitors each year, which contribute to the economy of Huntington Beach through retail sales, restaurant meals, and hotel stays. According to a recent study, beach visitors in 1998 spent approximately \$140 million in direct expenditure related to their visits, of which approximately half was spent within the City of Huntington Beach (King). This supports jobs in the City and potentially generates \$750,000 in sales tax revenue for the City

The existing HBGS employs approximately 34 full-time equivalent operations employees in 1999 (AFC, page 5.10-3). Businesses near the project site include a Southern California Edison substation, oil production facilities, and light industrial and commercial businesses along Newland and Edison Streets.

HOUSING

The estimated size of the Orange County housing stock was 978,004 units in 2000 (CDR, 2001). There are almost 73,000 housing units in the City of Huntington Beach, including 43,500 detached single-family homes, 26,000 multi-family dwellings, and 3,200 mobile homes.

SCHOOLS

The closest schools to the site include Edison High School, located at 21400 Magnolia Street, about one-half mile from the site, and Kettler Elementary, located at 8750 Dorsett Drive, slightly over one-half mile from the site (AFC, page 5.10-5). Because there is a sufficient labor pool of construction workers within the study area and workers will not need to relocate, data on school capacity were not compiled.

UTILITIES, EMERGENCY, AND OTHER SERVICES

Southern California Gas Company provides natural gas to the project site, and Southern California Edison provides electricity. The Huntington Beach City Water Department supplies potable water to the site, and the city's Department of Public Works provides sanitary sewer service to the site. Local telephone service is provided by General Telephone of California (AFC, page 5.10-5 and HB C of C).

Fire protection and emergency medical response to the site is provided by the Huntington Beach Fire Department, which has seven stations, and a Central Net Operations Authority with the Fountain Valley and Newport Beach Fire Departments. The Fire Department's emergency operations, including ambulance services, are provided by a minimum daily staffing of 47 people. The Department also has a Petrochem Section. The closest station to the HBGS site is less than one mile northeast at 21441 Magnolia Street (Station # 4). Station # 5, at 530 Lake Street, is approximately two miles from the site. The closest hospital is Hoag Memorial Hospital in Newport Beach, just over three miles from the site (AFC, page 5.10-4 and Huntington Beach Fire Department, 2001).

The Huntington Beach Police Department provides law enforcement services in the City.

IMPACTS

PROJECT-SPECIFIC IMPACTS

Staff reviewed the AES Huntington Beach Generating Station Retool Project Application for Certification, dated December 2000, as well as the responses to data adequacy requests dated January 18, 2001. Additionally, staff requested and

reviewed a demographic research analysis from the marketing firm Claritas, Inc. The analysis was specific to the projected year 2000 demographic profile of the area within a six-mile radius of the HBGS site. The applicant used appropriate public databases in the analysis contained in the AFC. Staff's analysis is based on verification of the information in the AFC and independent research.

EMPLOYMENT

During the engineering, procurement, and construction periods extending nine months, peak employment at the proposed project site would be 548 workers, including 538 craft workers and 10 contractor staff. **Socioeconomics Table 3** shows the distribution of workers by craft over the construction effort.

The peak construction employment of 548 represents a small proportion of all construction jobs in Orange County (.7%), and the labor pool also extends to surrounding counties that also have a large labor force. Thus, no difficulty is expected in finding a construction labor force within commute distance for the proposed project, and few if any workers would be expected to relocate to Huntington Beach or Orange County as a result of the project. Estimated construction payroll would be \$43 million (AFC page 5.10-7).

The permanent employment associated with the proposed project is approximately 10 full-time workers, with an estimated annual operational payroll of \$1.5 million. Within the large labor force of Orange County, this will not have a significant impact.

HOUSING

As cited previously, construction of the proposed project is not expected to result in workers moving to the area for construction or permanent jobs. Even if a few workers were attracted to the area as a result of cumulative construction opportunities, their impact on a housing market containing approximately one million housing units in Orange County would be indiscernible. Huntington Beach has housing turnover and vacancy as well as mobile home, RV parks, and motels providing temporary living opportunities. According to recent statistics, there were approximately 4,000 vacant housing units in Huntington Beach in 2000, the equivalent of a 5.3 percent vacancy rate (California DOF).

SCHOOLS

Because of the large resident labor force available for construction and small permanent labor force that will operate the proposed project, there will not be any enrollment impacts on the Huntington Beach or other nearby school districts. One-time school impact fees would not be generated by the project since no additional square footage will be added (AFC, page 5.10-9)

SOCIOECONOMICS TABLE 3.
PROJECTED MONTHLY CONSTRUCTION LABOR BY CRAFT

| Craft Type | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | Month 7 | Month 8 | Month 9 |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Electrical | | | | | | | | | |
| Superintendents | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| Foremen | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Electrician | 14 | 23 | 32 | 42 | 42 | 42 | 42 | 42 | 30 |
| Instrumentation | 4 | 6 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Test | 2 | 2 | 2 | 5 | 5 | 5 | 5 | 5 | 5 |
| Helper | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 20 | 13 |
| Boiler & Balance of Plant | | | | | | | | | |
| Laborers | 8 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Carpenters/millwrights | 18 | 10 | 10 | 10 | 10 | 10 | 18 | 18 | 18 |
| Ironworkers | | 20 | 30 | 30 | 30 | 30 | 30 | 10 | 10 |
| Heavy equipment Operator | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 |
| Pipefitters | 7 | 70 | 70 | 110 | 120 | 130 | 130 | 70 | 20 |
| Boilermakers | 16 | 70 | 70 | 165 | 165 | 180 | 180 | 120 | 20 |
| Insulators | 46 | 33 | 15 | 4 | 4 | 15 | 30 | 40 | 60 |
| Cement finishers/ Masons | | | | | 20 | 20 | 20 | 20 | |
| Mechanics | 18 | 18 | 12 | 12 | 12 | 18 | 18 | 18 | |
| Total craft staff | 167 | 301 | 305 | 443 | 473 | 515 | 538 | 405 | 217 |
| Contractor staff | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total staff | 177 | 311 | 315 | 453 | 483 | 525 | 548 | 415 | 227 |

Source: AFC Table 3.8-3, page

UTILITIES, EMERGENCY AND OTHER SERVICES

Southern California Gas Company currently provides natural gas to the HBGS via a 30-inch distribution line. Sufficient capacity is available to supply the existing units and the retool of Units 3 and 4 (AFC, page 3.9-6). Cooling water for the proposed facility will be taken from and returned to the Pacific Ocean through existing pipes. Water for process use and potable water for plant personnel will be provided by the City of Huntington Beach, which will also provide sewage treatment service. The current water connection should be sufficient to supply the additional 10,000 gallons a month of water from the City system.

The owner of the facility will provide on-site security. Project construction and operation may result in a small number of increased calls to the Huntington Beach Police and Fire Departments. Staff believes that the construction and operation of the Retool Project is not expected to create a significant impact on emergency services.

PUBLIC FINANCE AND FISCAL

Construction of the proposed project will generate one-time sales tax receipts, but since the majority of supplies and equipment will be purchased outside of the City of Huntington Beach, little local sales tax will be generated by the project. The existing HBGS generated approximately one million dollars in property tax to the City of Huntington Beach and other agencies in 1999, based on an assessed value of \$99.7 million (Ramirez). The capital investment in the HBGS Retool Project is estimated to be \$130 million (AFC, page 6-1). Based on the expectation that approximately \$120 million of improvements will represent assessable value, the City of Huntington Beach will receive \$187,000 in additional property tax revenue, and the High School and Elementary School Districts will receive \$264,000 and \$268,000 annually, respectively (**Socioeconomics Table 4**).

There has been speculation that the intake for the power plant may be a contributing factor to the pollution that caused beach closures during summer 1999. If a greater use of the plant's intake system contributes to future beach closures, this would have an adverse economic and fiscal impact on Huntington Beach. A reduction of beach visitors causes a loss of direct City parking revenue (Dapkus) as well as a reduction of visitor spending in local business establishments. Updating 1998 estimates, beach visitors may spend \$80-100 million annually in Huntington Beach, including purchases such as food and drink, restaurants, sporting goods, gasoline, etc. Any loss of spending related to beach usage would be an adverse economic impact on the City.

Socioeconomics Table 4
Estimated Property Tax Distribution for Huntington Beach Retool Project

| Taxing Jurisdictions | Approximate Share of Tax Increment | Approximate Incremental Revenue |
|-------------------------------------------|------------------------------------|---------------------------------|
| County General Fund | | \$71,000 |
| City of Huntington Beach | | \$187,400 |
| Huntington Beach Elementary General Fund | 5.91% | \$267,900 |
| Huntington Beach High General Fund | 15.61% | \$264,300 |
| Educational Revenue Augmentation Fund | 22.32% | \$198,100 |
| Coast Community College | 22.02% | \$111,700 |
| Orange County (OC) Sanitation District 11 | 16.51% | \$28,800 |
| OC Flood Control District | 9.31% | \$22,800 |
| OC Harbors, Beaches, and Parks | 2.40% | \$17,600 |
| OC Dept. of Education | 1.90% | \$16,100 |
| OC Water District | 1.47% | \$9,800 |
| OC Transit District Operation Fund | 1.34% | \$3,200 |
| OC Vector Control | .82% | \$1,300 |
| | .27% | |
| | .11% | |
| TOTALS | 100.00% | \$1,200,000 |

Source: Estimates based on Orange County Tax Collectors Office

ENVIRONMENTAL JUSTICE

For all siting cases staff follows the U.S. Environmental Protection Agency's guidance in conducting a two-step environmental justice analysis. The analysis assesses:

Whether the potentially affected community has a population that is more than 50 percent minority and/or low-income; and whether the environmental impacts are likely to fall disproportionately on the minority and/or low-income population.

If the analysis indicates the presence of a substantial minority or low-income population, staff contacts local community groups to provide the Commission with a fuller understanding of the community and the potential environmental justice issues. In addition, community groups are asked to help identify potential mitigation measures.

Staff has determined the affected area for this environmental justice analysis to be the area within a six-mile radius of the proposed project site. The affected area is defined as the area potentially impacted by the proposed project (primarily for air quality and public health). **Socioeconomics Figure 1** shows census tracts within the six-mile radius that had a minority population of more than 50 percent as determined by the 1990 Census. **Socioeconomics Figure 2** depicts the same census tracts using the 1999 Claritas estimate.

Because the federal guidance does not give a percentage of population threshold to determine when a low-income population becomes recognized for an environmental justice analysis, staff use the same greater than 50 percent threshold that is used for minority populations. The low-income population, at five percent in the area, is significantly below this threshold; therefore there is no low-income environmental justice issue. Based on previous power plant siting projects, staff does not believe that there will be any significant adverse impacts within a 6-mile radius.

PROPERTY VALUES

Neighbors of projects similar to the proposed project have expressed property value concerns. To address such concerns on previous projects, staff has assessed the potential property value impacts associated with natural gas-fired power plants. In general, staff has determined that there is no information or study that demonstrates an adverse or negative impact on surrounding property values directly attributable to a natural gas-fired power plant. Based upon this finding and the fact that the proposed project is a modification to an existing power plant and not a change in land use, staff has concluded that the proposed project is unlikely to adversely impact property values in the vicinity.

CUMULATIVE IMPACT

Orange County is a dynamic area that has constant development of public and private projects, including highway projects, new commercial development, and new residential development. There are on-going projects in Huntington Beach that may overlap with construction of the HBGS Retool Project should it be approved. The only potential impact from a cumulative socioeconomic point of view would be a possible shortage of workers in some trades. However, because of the large available work force in Orange County and adjacent counties, staff believes that there are an adequate number of workers in the area.

FACILITY CLOSURE

UNEXPECTED PERMANENT CLOSURE

Should the plant be permanently closed, the beneficial socioeconomic impacts such as worker payroll, project expenditures, local economic stimulus, and property tax revenues would no longer occur. The HBGS AFC (page 3.10-1) describes what will happen if the plant is shutdown or closed prematurely. The planned lifetime of the proposed power plant is five to eight years; however, given unforeseen circumstances the plant may be retired prematurely for a variety of reasons. This could include the determination that the plant is no longer economically viable.

UNEXPECTED TEMPORARY CLOSURE

Should the plant be temporarily shutdown or closed, there would not be any significant socioeconomic impacts. The applicant would conduct a review to determine if there had been any environmental damage or release of hazardous materials. If not, the plant could be mothballed. Before the plant begins commercial operation, the applicant will develop a contingency plan to deal with

premature or unexpected closures. This would include communication with the Energy Commission, the City of Huntington Beach, and local agencies regarding schedule of facility closure and compliance with LORS.

PLANNED CLOSURE

In the event that the decision is made to permanently close the facility, the applicant will develop a plan for decommissioning that will be submitted to the Energy Commission and other appropriate agencies. The plan will include compliance with all applicable LORS. Should the plant be permanently closed, the beneficial socioeconomic impacts such as worker payroll, project expenditures, local economic stimulus, and property tax revenues would no longer occur.

MITIGATION

Energy Commission staff has identified economic and fiscal benefits to the project area such as employment, project expenditures, sales, and property tax revenues. To ensure that the local area benefits from the project, staff is proposing a condition of certification that will lead to local employment and project-related expenditures.

There has been speculation that the power plant may contribute to beach closures by drawing a sewage plume closer to shore. It is not possible to determine the possible role of the power plant in past beach closures. Considerable study is underway to determine the causes of the pollution which led to past beach closures. Staff is proposing a condition of certification that will assist in the evaluation of the causes of beach closure.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff believes that the HBGS Retool Project would not cause a significant adverse direct or cumulative impact on housing, employment, schools, public services or utilities. The HBGS Retool Project would have a temporary benefit to the City of San Jose and adjacent areas in terms of an increase in local jobs and commercial activity during the construction and operation of the facility. The construction payroll and project expenditures would also have a positive effect on the local and county economy. The estimated benefits from the project include increases in the affected area's property and sales taxes, employment, and sales of services, manufactured goods, and equipment. The estimated annual operating budget will be \$2 to \$4 million. Overall, staff believes that the project will have a positive socioeconomic impact on the Huntington Beach area. However, future studies are required to determine if the project may contribute to a pollution plume that may cause beach closures, which would have adverse economic consequences to the City of Huntington Beach. The project, as proposed, would be consistent with all applicable socioeconomic LORS.

RECOMMENDATIONS

Staff has no conditions of certification.

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BIOLOGICAL RESOURCES

Testimony of Dr. Noel Davis, Shari Koslowsky, Dr. Mike Foster, and Rick York

INTRODUCTION

This section provides the Energy Commission staff's analysis of potential impacts to biological resources from the Huntington Beach Generating Station (HBGS) Retool Project, 00-AFC-13 (AES, 2000). 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 document presents information regarding the affected biotic community and the potential environmental impacts associated with the construction and operation of the proposed project. Impacts to biological resources may be directly associated with structures or actions undertaken as part of the retooling effort or indirectly as they may affect the physical environment, which in turn, negatively affects habitat conditions for sensitive species. Impacts to biological resources that are similar in nature to existing or foreseeable future projects in the area are addressed in the Cumulative Impacts section.

Where necessary, the document specifies mitigation planning and compensation measures to reduce potential impacts to non-significant levels. This document also determines compliance with applicable laws, ordinances, regulations and standards (LORS) and specifies conditions of certification.

This information is based, in part, on information provided in the Application for Certification (AFC) (AES, 2000), AES's supplemental AFC material submitted during February (AES 2001), and staff's site visit completed on February 21, 2001.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

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. The administering agency is the USFWS.

MIGRATORY BIRD TREATY ACT

Title 16, United States Code, sections 703 through 711, prohibits the take of migratory birds, including nests with viable eggs. The administering agency is the USFWS.

CLEAN WATER ACT

Title 33 United States Code, section 404 et seq., prohibits the discharge of dredged or fill material into the waters of the United States without a permit. Nationwide

permit (NWP) 7 is required to construct an outfall structure and the effluent is authorized under the National Pollution Discharge Elimination System program (Section 402). The administering agencies are the Army Corps of Engineers and the Regional Water Quality Control Board.

FISH AND WILDLIFE COORDINATION ACT

Title 16 United States Code, section 661 et seq., requires federal agencies such as the Corps of Engineers to coordinate federal actions with the USFWS to conserve fish and wildlife resources. The administering agency is the USFWS.

MARINE MAMMAL PROTECTION ACT

Title 16 United States Code, Chapter 31 1361-1375 provides protection for marine mammals.

STATE

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

Fish and Game Code sections 2050 et seq. protects California's rare, threatened, and endangered species.

NEST OR EGGS

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

BIRDS OF PREY OR EGGS

Fish and Game Code section 3503.5 protects California's birds of prey and their eggs by making it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

MIGRATORY BIRDS

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

FULLY PROTECTED SPECIES

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibits take of animals that are classified as Fully Protected in California.

SIGNIFICANT NATURAL AREAS

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

STREAMBED ALTERATION AGREEMENT

Fish and Game Code section 1600 et seq. requires California Department of Fish and Game to review project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions and other disturbances.

NATIVE PLANT PROTECTION ACT OF 1977

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

CALIFORNIA CODE OF REGULATIONS

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

GOVERNOR EXECUTIVE ORDER D-22-01

Governor Gray Davis Executive Order, proclaiming a State of Emergency regarding energy shortages in California. Dated: January 17, 2001.

LOCAL

CITY OF HUNTINGTON BEACH GENERAL PLAN, COASTAL ELEMENT VOLUME 1

The City requires action to ensure that proposed development projects demonstrate a high degree of compatibility with any threatened or endangered species habitat they may affect. Additionally, the City of Huntington Beach protects and preserves significant habitats of plant and wildlife species, including wetlands, for their intrinsic values. Coordination requirements are set forth in the policies of this document that require coordination with the administering agency, as well as mitigation measures. The administering agency is the City of Huntington Beach Planning and Development Department.

The City of Huntington Beach has established a goal to prevent the degradation of marine resources in the Coastal Zone from activities associated with urban development. The City of Huntington Beach General Plan states an objective to promote measures to mitigate the adverse impacts of human activities on marine organisms and the marine environment through regulation of new development, monitoring of existing development, and retrofitting when necessary and feasible.

POLICY C6.1.12

Prior to the approval of any new or expanded outfalls, requires the provision of mitigation measures to minimize damage to marine organisms in accordance with state and federal law.

POLICY C6.1.13

Prior to any new or expanded seawater pumping facilities, requires the provision of maximum feasible mitigation measures to minimize damage to marine organisms due to entrainment in accordance with state and federal law.

POLICY C7.1.3

Requires that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones. Buffer zones shall be a minimum of one hundred feet setback from the landward edge of the wetland with the exception of the following:

A lesser buffer may be permitted if existing development or site configuration precludes a 100-foot buffer or site configuration precludes a 100-foot buffer, or conversely, a greater buffer zone may be required if substantial development or significantly increased human impacts are anticipated. In either case the following factors shall be considered when determining whether a lesser or wider buffer zone is warranted. Reduced buffer zone areas shall be reviewed by the Department of Fish and Game prior to implementation.

- a) Biological significance of adjacent lands
- b) Sensitivity of species to disturbance
- c) Susceptibility of parcel to erosion
- d) Use of existing cultural features to locate buffer zones.

POLICY C7.2.4

Requests that the Orange County Flood Control District improve, and continue to maintain once improved, the Huntington Beach and Talbert Flood Control Channel embankment from Beach Boulevard to the Santa Ana River with plantings of native plant species to enhance wildlife diversity and visual appearance in the wetland areas.

SETTING

PROJECT BACKGROUND AND LAYDOWN AREA

The HBGS site is located along the Pacific Coast Highway (PCH), in the City of Huntington Beach, California. The retooling project will be constructed entirely within the boundary of the HBGS and primarily within the structures of existing Units 3 and 4. The units have currently been off-line for inspection and maintenance and the bulk of construction will occur from April to June to ensure that the units can be back to operation sometime in July 2001. Existing systems will be used for transmission, as well as for water intake and wastewater discharge. Units 3 and 4 will operate along with Units 1 and 2 to serve intermediate loads; Unit 5 was used primarily to serve peaking loads. However, given the current deficit of generating capacity in the state, the impact assessment that follows presumes a scenario in which all five units are operating, at least for the next three to five years.

The project site is located on relatively flat terrain with little vegetation beyond patches of non-native and native landscaping at the property perimeter. The elevation is approximately six to ten feet above mean sea level and the property gradient is towards the channelized Santa Ana River to the southeast. The site is enclosed by a system of berms designed to contain and direct surface runoff to an internal drainage system.

EXISTING LAND USE

The site runs northwest-southeast and is bordered on the northwest by a mobile home unit, on the north by industrial uses, on the northeast and east by commercial and industrial use, on the southeast by the Huntington Beach Wetlands (designated as limited use), and on the south by the Pacific Coast Highway and shoreline.

TERRESTRIAL BIOLOGICAL RESOURCES

OBSERVED PLANT COMMUNITIES AND WILDLIFE

The HBGS is located in Orange County's northern coastal area. This area is characterized by broad sandy beaches backed by low bluffs and mesas, coastal sand dunes, non-native dominated grasslands and lowland areas that once held extensive wetlands (Envicom, 1996). Urbanization has obscured much of these vegetation characteristics in the project vicinity. However, coastal salt marsh, sand dune and ruderal vegetation are found adjacent to or within a one-mile radius of the project site.

Coastal salt marsh vegetation supports habitat in the upper reaches of the coastal estuarine system and is subject to periodic tidal inundation by salt water. The high and low tides that occur from December to February may exceed five feet. Freshwater often flows through this community whether from winter rains or surface drainages, which serves to dilute the salinity of the seawater. Coastal salt marshes demonstrate noticeable seasonality in terms of water quality, plant life histories, and resident and migratory waterfowl. They are among some of the most productive ecosystems and provide habitat to several hundred species of birds, mammals, reptiles, mollusks and insects.

Areas of coastal salt marsh occur approximately 0.5 mile to the northwest and immediately to the southeast of HBGS. The latter is an Orange County-protected wetland resource and is referenced as the Huntington Beach Wetlands, which is noticeably dominated by pickleweed (*Salicornia virginica*). Formerly this marsh would have been open enough to maintain an ocean inlet and sufficient tidal action; however, urbanization over time has altered this hydrology to support shallower water, diminished tidal action and limited ocean connection, with potentially greater influence from fresh water.

Sand dune communities are found on undisturbed dunes above the high tide level typically on the margin of the coastal salt marshes. They extend from what may also be termed as "beach" area inland to more stabilized substrate. Plants in these areas demonstrate particular adaptations to the harsh conditions characterized by

shifting and infertile soils, wind, salt spray and temperature extremes. Native species typically include saltbush (*Atriplex lentiformis*), heliotrope (*Heliotropium curassavicum*), beach primrose (*Camissonia cheiranthifolia*) and beach morning-glory (*Calystegia soldanella*). There are small areas of sand dune vegetation near HBGS that border the Huntington Beach Wetlands. In these areas aggressive non-native species such as ice plant (*Mesembryanthemum* spp.) are noticeably present.

Ruderal areas are dominated by highly competitive and invasive non-native species mixed with a few native species. These areas are characterized by significant and/or repeated surface disturbance. Typically the vegetation includes non-native grasses (*Avena*, *Bromus* and *Hordeum*), mustards (*Brassica* sp.), Russian thistle (*Salsola iberica*), and telegraph weed (*Heterotheca grandiflora*). The ruderal vegetation identified at the HBGS is a Super Fund site slated for clean-up, located to the northwest in a fenced field.

These plant communities support a limited number of wildlife species because they are fragmented and impacted by surrounding residential, recreational, commercial and flood control uses, in addition to the existing industrial activities at the HBGS site. However, because of the proximity of the marshes, beaches and dunes in the project area to less disturbed areas, it is not surprising that several species of shorebirds and gulls use the upper beach for foraging and possibly nesting. Similarly the Huntington Beach Wetland may provide a refuge for migrant and wintering waterfowl, waders, shorebirds and terns. Mammals potentially present in the salt marsh habitat include the Audubon's cottontail, black-tailed hare, California ground squirrel, Botta's pocket gopher and other small rodents (Envicom, 1966). Table 1 lists the various plant and wildlife species that were observed during a cursory survey completed in a one-mile radius around the plant on November 4, 2000 by a URS biologist.

Biological Resources Table 1: Plant and Wildlife Species Observed During the Site Field Survey

| Common Name | Scientific Name |
|---------------------------|-----------------------------------------|
| Chapter 282 Plants | |
| Pickleweed | <i>Chapter 283 Salicornia virginica</i> |
| Five-hooked bassia | <i>Bassia hyssopifolia</i> |
| Spear saltbush | <i>Atriplex triangularis</i> |
| Saltgrass | <i>Distichlis spicata</i> |
| Alkali heath | <i>Frankenia salina</i> |
| Heliotrope | <i>Heliotropium curassavicum</i> |
| Iceplant | <i>Mesembryanthemum</i> spp. |
| Black mustard | <i>Chapter 284 Brassica nigra</i> |
| Russian thistle | <i>Salsola iberica</i> |
| Soft chess | <i>Bromus hordeaceus</i> |
| Telegraph weed | <i>Heterotheca grandiflora</i> |
| Coyote brush | <i>Baccharis pilularis</i> |

Chapter 285 Birds

| | |
|-------------------|------------------------------|
| Rock dove | <i>Columba livia</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| European starling | <i>Sturnus vulgaris</i> |
| House sparrow | <i>Passer domesticus</i> |
| American crow | <i>Corvus brachyrhynchos</i> |
| Heermann's gull | <i>Larus heermanni</i> |
| California gull | <i>Larus californicus</i> |

SENSITIVE SPECIES AND HABITATS

The only sensitive habitat within a one-mile radius of the HBGS is the Huntington Beach Wetlands described in the previous section. This site occupies approximately 25 acres in a strip approximately 1.3 miles by 500 to 750 feet starting from the HBGS' southeastern boundary and extending into Talbert Marsh. The Huntington Beach Wetlands is subject to degradation due to loss of tidal influence, influx of fresh water and drought. The area reopened in the Talbert Marsh has only restored a small area. Another area of coastal marsh is located about 0.5 mile to the northwest on the other side of the trailer park. The Talbert Nature Preserve is located about 1.25 miles to the northeast of the HBGS; Newport Bay and the Newport Bay Ecological Reserve are located approximately 5 miles to the east; the Bolsa Chica Ecological Reserve is located about 4.5 miles to the northwest; and the Seal Beach National Wildlife Refuge is located about 7.5 miles to the northwest.

Table 2 provides a list of special status plant and animal species in the project vicinity. Although none of these species were observed during the field survey conducted by the Applicant, it should be noted that the 1991 survey of Belding's savannah sparrow resulted in 19 territories observed in the Huntington Beach Wetlands, although only one territory was identified adjacent to the power plant

(CDFG, 1991). The sparrow was also observed in this area during the 1996 survey, which is due to be repeated in 2001 (Zembal pers comm. 2001).

Biological Resources Table 2 Special-Status Terrestrial Species in the Project Vicinity

| Common Name | Habitat | Status | Scientific Name |
|----------------------------------|----------------------------------------------------------------------------|---------|-----------------------------------------------------|
| Chapter 287 Plants | | | |
| Salt marsh bird's beak* | Coastal salt marsh, coastal dunes in higher zones | FE, SE | <i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> |
| Southern tar plant* | Margins of marshes, valley and foothill grasslands and vernal pools | FSC | <i>Centromadia parryi</i> ssp. <i>australis</i> |
| Aphanisma | Coastal bluff, coastal dunes and coastal scrub | FSC | <i>Aphanisma blitoides</i> |
| Many-stemmed dudleya | Chaparral, coastal scrub and valley and foothill grassland | FSC | <i>Dudleya multicaulis</i> |
| Los Angeles sunflower | Coastal salt and freshwater marshes and coastal swamps | FSC | <i>Heliantus nuttallii</i> ssp. <i>parishii</i> |
| South coast saltscale* | Coastal scrub, coastal bluff scrub, playas and chenopod scrub | FSC | <i>Atriplex pacifica</i> |
| Coulter's goldfields | Coastal salt marsh, playas, valley and foothill grassland and vernal pools | FSC | <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> |
| San Fernando valley spineflower | Coastal scrub | FC, SC | <i>Chorizanthe parryi</i> var. <i>fernandina</i> |
| Chapter 288 Birds | | | |
| Light-footed clapper rail | Coastal salt marshes | FE, Se | <i>Rallus longirostris levipes</i> |
| Coastal California gnatcatcher | Coastal sage scrub | FT | <i>Polioptila californica</i> |
| Belding's savannah sparrow* | Coastal salt marshes, margins of tidal flats | SE, FSC | <i>Passerculus sandwichensis beldingi</i> |
| California black rail | Coastal salt marshes | ST | <i>Laterellus jamaicensis coturniculus</i> |
| Chapter 289 Reptiles | | | |
| San Diego horned lizard | Coastal sage scrub and chaparral | SSC | <i>Phrynosoma coronatum blainvillei</i> |
| Chapter 290 Invertebrates | | | |
| San Diego fairy shrimp | Shallow vernal pools | FE | <i>Branshinecta sandi egoensis</i> |

* : Species more likely than other sensitive species to be present in the project vicinity because of habitat conditions and/or recent sightings.

FE: Federally endangered

SE: State endangered

FT: Federally threatened

ST: State threatened

FSC: Federal species of concern

SSC: State species of concern

FC: Federal candidate species for listing

SC: State candidate species for listing

MARINE BIOLOGICAL RESOURCES

MARINE COMMUNITIES

Marine habitats in the vicinity of HGBS consist primarily of sand substrate. A wide sandy beach, broken by various jetties and groin fields, extends from the entrance to Newport Harbor about 6.5 miles southeast of the generating station upcoast to Anaheim Bay. Characteristic sandy beach invertebrates along the Huntington Beach coast include bean clams (*Donax gouldii*), Pismo clams (*Tivela stultorum*), sand crabs (*Blepharipoda occidentalis* and *Emerita analoga*) and other crustaceans, as well as a number of species of polychaete worms (Straughan 1980).

The intake and outfall structures for the cooling water system are located approximately 1500 feet offshore at a water depth of approximately 27 feet Mean Lower Low Water (MLLW). The seafloor in the vicinity of the study area is a gently sloping sand bottom.

MBC Applied Environmental Sciences has monitored the marine environment in the vicinity of HGBS for the past 25 years (MBC 2000). The community of invertebrates living in the sand (infauna) is dominated by annelid worms, crustaceans and molluscs (MBC 1993). Table 3 lists the ten most abundant species collected between 1975 and 1991.

Biological Resources Table 3. Most Abundant Infaunal Species Collected by MBC Offshore HGBS between 1975 and 1991(MBC 1993)

| <u>Phylum</u> | <u>Species</u> | <u>Cumulative Percent</u> |
|---------------|-----------------------------------|---------------------------|
| Annelida | <i>Apoprionospio pygmaea</i> | 7.6% |
| Arthropoda | <i>Rhepoxynius menziesi</i> | 14.6% |
| Annelida | <i>Goniada littorea</i> | 20.7% |
| Arthropoda | <i>Diastylopsis tenuis</i> | 26.3% |
| Mollusca | <i>Olivella baetica</i> | 30.9% |
| Annelida | <i>Mediomastus</i> spp. | 35.1% |
| Annelida | <i>Owenia collaris</i> | 39.1% |
| Annelida | <i>Polydora</i> spp. | 42.9% |
| Mollusca | <i>Crepidula</i> spp. | 45.7% |
| Annelida | <i>Leitoscoloplos pugettensis</i> | 47.8% |

Common epifaunal invertebrates (living on top of the sand) in the vicinity of HGBS include the tube worm, (*Diopatra* spp.), the blackspotted bay shrimp (*Crangon nigromaculata*), the tuberculate pear crab (*Pyromaia tuberculata*), the yellow rock crab (*Cancer anthonyi*), sea anemones (*Harenactis attenuata* and *Zaolutus actius*), the sea star (*Astropecten armatus*), and unidentified crabs, tube worms, and brittle stars (MBC 2000).

Fish populations in the vicinity of HGBS are typical of southern California nearshore soft bottom habitats. Table 4 shows the 15 most abundant fish species caught by otter trawl in the vicinity of HGBS and the percentage of the total individuals

collected between 1976 and 2000. Although there has been variability in fish abundance over the 25 years of surveys, the fish community in the area has remained fairly consistent over time (MBC 2000). In most years white croaker (*Genyonemus lineatus*), queenfish (*Seriphus politus*), and northern anchovy (*Engraulis mordax*) are the most abundant species caught. An exception was in 1999 in which the most abundant species were California lizardfish (*Synodus lucioceps*) and speckled sanddab (*Citharichthys stigmaeus*).

Biological Resources Table 4: Fifteen Most Abundant Fish Species Collected by Otter Trawl Offshore HBGS between 1976 and 2000 (MBC 2000)

| <u>Chapter 293 Common Name</u> | <u>Chapter 294 Scientific Name</u> | <u>Percent Total</u> |
|--------------------------------|------------------------------------|----------------------|
| Northern Anchovy | <i>Engraulis mordax</i> | 50.4% |
| White Croaker | <i>Genyonemus lineatus</i> | 26.5% |
| Queenfish | <i>Seriphus politus</i> | 18.4% |
| White Seaperch | <i>Phanerodon furcatus</i> | 1.0% |
| Walleye Surfperch | <i>Hyperprosopon argenteum</i> | 0.5% |
| California Halibut | <i>Paralichthys californicus</i> | 0.5% |
| Barred Surfperch | <i>Amphistichus argenteus</i> | 0.3% |
| Pacific Butterfish | <i>Peprilus simillimus</i> | 0.3% |
| Speckled Sanddab | <i>Citharichthys stigmaeus</i> | 0.3% |
| Shiner Surfperch | <i>Cymatogaster aggregata</i> | 0.3% |
| California lizardfish | <i>Synodus lucioceps</i> | 0.3% |
| Spotted Turbot | <i>Pleuronichthys ritteri</i> | 0.1% |
| Fantail Sole | <i>Xystreurys liolepis</i> | 0.1% |
| Pacific Sardine | <i>Sardinops sagax</i> | 0.1% |
| Pacific Staghorn Sculpin | <i>Leptocottus armatus</i> | 0.1% |

Fish impingement sampling is conducted during representative periods of normal operation and during all heat treatment procedures to obtain an estimate of total impingement for the year. Queenfish was the dominant species impinged in 2000, and, except for 1999, it has been the most abundant fish in impingement collections since 1979 (MBC 2000). White croaker and jacksmelt (*Atherinopsis californieinsis*) were the other most abundant fishes impinged in 2000. Table 5 shows the 10 most abundant species impinged by the HBGS intake between 1979 and 2000. During this 21 year period, queenfish accounted for 81.8% of the fish impinged and queenfish, white croaker and northern anchovy accounted for 91.3% of the impinged fishes.

**Biological Resources Table 5: Ten Most Abundant Fish Species Impinged
at the HBGS Intake between 1979 and 2000 (MBC 2000)**

| <u>Common Name</u> | <u>Scientific Name</u> | <u>Cumulative Percent</u> |
|--------------------|------------------------------------|---------------------------|
| Queenfish | <i>Seriphus politus</i> | 81.8% |
| White Croaker | <i>Genyonemus lineatus</i> | 88.0% |
| Northern Anchovy | <i>Engraulis mordax</i> | 91.3% |
| Walleye Surfperch | <i>Hyperprosopon argenteum</i> | 93.6% |
| White Seaperch | <i>Phanerodon furcatus</i> | 95.0% |
| Pacific Butterfish | <i>Peprilus simillimus</i> | 96.2% |
| Grunion | <i>Leuresthes tenuis</i> | 97.0% |
| Jacksmelt | <i>Atherinopsis californiensis</i> | 97.5% |
| Shiner Surfperch | <i>Cymatogaster aggregata</i> | 97.9% |
| Deepbody Anchovy | <i>Anchoa compressa</i> | 98.3% |

Common bird species in the ocean waters offshore HBGS include the California brown pelican (*Pelecanus occidentalis californicus*), surf scoter (*Melinita perspicillata*), western gull (*Larus occidentalis*), western grebe (*Aecmophorus occidentalis*), and double-crested (*Phalacrocorax auritus*), Brandt's (*P. pencillatus*) and pelagic (*P. pelagicus*) cormorants. The sandy beach in the vicinity of HBGS is used for foraging by a variety of shorebirds including sanderling (*Calidrus alba*), willet (*Catrophorus semipalmatus*), marbled godwit (*Limosa fedoa*), and black-bellied plover (*Pluvialis dominica*).

Marine mammal species that occur regularly in the nearshore coastal waters near HBGS include the California gray whale (*Eschrichtius robustus*), the Pacific bottlenose dolphin (*Tursiops truncatus*), the common dolphin (*Delphinus delphis*), the California sea lion (*Zalophus californicus*), and the harbor seal (*Phoca vitulina*).

SENSITIVE MARINE SPECIES

Table 6 lists sensitive marine species that have the potential to occur in the vicinity of HBGS.

**Biological Resources Table 6: Sensitive Marine Species Potentially
Occurring in the Project Vicinity**

| <u>Scientific Name</u> | <u>Common Name</u> | <u>Status</u> |
|--------------------------------------------|--------------------------|---------------|
| CLASS | REPTILES | |
| REPTILIA | | |
| <i>Chelonia midas</i> | Green sea turtle | FE |
| CLASS AVES | BIRDS | |
| <i>Gavia immer</i> | Common loon | SSC |
| <i>Pelecanus occidentalis californicus</i> | California brown pelican | FE,SE |
| <i>Phalacrocorax auritus</i> | Double-crested cormorant | SSC |
| <i>Charadrius alexandrinus nivosus</i> | Western snowy plover | FT,SSC |
| <i>Numenius americanus</i> | Long-billed curlew | SSC |
| <i>Larus californicus</i> | California gull | SSC |
| <i>Sterna elegans</i> | Elegant tern | FSC,SSC |
| <i>Sterna antillarum browni</i> | California least tern | SE,FE |
| <i>Rynchops niger</i> | Black skimmer | SSC |
| CLASS | MAMMALS | |
| MAMMALIA | | |
| <i>Enhydra lutris nereis</i> | Southern sea otter | FT |
| <i>Arctocephalus townsendii</i> | Guadalupe fur seal | FT,ST |
| <i>Balaenoptera musculus</i> | Blue whale | FE |
| <i>Balaenoptera physalus</i> | Fin whale | FE |
| <i>Balaenoptera borealis</i> | Sei whale | FE |
| <i>Megaptera novaenglinae</i> | Humpback whale | FE |
| <i>Eubalaena glacialis japonica</i> | Pacific right whale | FE |
| <i>Physeter catodon</i> | Sperm whale | FE |

FE = Federal Endangered

FT = Federal Threatened

SE = State Endangered

ST = State Threatened

FSC = Federal Species of Concern

SSC = State Species of Special Concern

The State and Federal Endangered California least tern (*Sterna antillarum browni*) nests on the sandy beach a little over a mile south of HBGS adjacent to the Santa Ana River mouth. In recent years the site has supported over 200 pairs of nesting least terns. In 1999, 303 pairs fledged 25 young (K. Keane, pers. comm., 2000). Least terns nest between April and August and winter in Central or South America. The preferred prey of California least terns is northern anchovy and topsmelt (*Atherinops affinis*). Least terns from the Huntington Beach colony use all the waters in the vicinity of the colony for foraging, but feed most frequently in shallow nearshore waters within 2 miles of the colony (Atwood and Minsky 1983).

The western snowy plover (*Charadrius alexandrinus nivosus*) is a Federal Threatened species and a California Species of Special Concern. This small shorebird nests on coastal sandy beaches and the shores of salt ponds and alkaline lakes. They forage for insects and marine invertebrates in wet sand along the edge of the water. The closest regular snowy plover nesting site to HBGS is in the Bolsa Chica wetlands approximately 5 miles to the northwest. Snowy plovers nested within the Huntington Beach California least tern colony in 1993. Wintering snowy plovers have been observed to forage along the sandy intertidal zone in the vicinity of HBGS (MEC 1991).

The Federal and State Endangered California brown pelican nests on Anacapa and Santa Barbara Islands, off the Pacific Coast of Baja California, Mexico and in the Gulf of California, Mexico. California brown pelicans are common in the waters offshore HBGS especially during the non-breeding season of July through December. They feed primarily on northern anchovy.

Several marine bird species that are California Species of Special Concern are fairly common in the nearshore waters offshore HBGS. These species include the common loon (*Gavia immer*), double-crested cormorant, and elegant tern (*Sterna elegans*). Of these species only elegant terns breed locally. There is a large elegant tern colony in the Bolsa Chica wetlands. Black skimmers (*Rynchops niger*) also nest at Bolsa Chica as well as in Upper Newport Bay, and forage occasionally in ocean waters.

California gulls (*Larus californicus*), a California Species of Special Concern, nest inland primarily at Mono Lake but are common on the beaches and nearshore ocean waters in the vicinity of HBGS during the non-breeding season. The long-billed curlew, a California Species of Special Concern, is a shorebird that winters in southern California and is most common in wetlands. They might occasionally forage on the sandy beach near HBGS.

The other sensitive species listed in Table 6 would be expected to occur only very rarely in the nearshore waters in the vicinity of HBGS.

DIRECT AND INDIRECT IMPACTS

There are no direct impacts associated with the project footprint or laydown area. In the present case terrestrial biological resources in the Huntington Beach Wetlands may be indirectly impacted by noise and surface water runoff during project construction and operation.

NOISE

Project noise impacts can be created by construction and by normal operation of the power plant. The HBGS must comply with the City's noise standards for Industrial Zone up to the AES property line and within adjacent industrial zones to the north. The Huntington Beach Wetlands, as an open space area, does not fall

into any of the City's noise zones. The biological literature provides very little information on noise related impacts relevant to the conditions of this site and the wildlife that may be present in the marsh. Any birds nesting within or adjacent to the project site during construction or operation may be adversely affected by noise. Noise levels in excess of 60 dBA are believed to adversely affect territorial behavior in the least Bell's vireo (Recon, 1989); this level has been generally applied by the USFWS as a point of departure for assessing impacts.

Measurements taken 100 feet to the east and south of Unit 1 (AES, 2000) would indicate that these levels are already exceeded at least within the property boundary. No measurements were taken within the marsh area and the nearest human receptor measuring point OML4 indicates that existing noise levels are generally below 60 dBA and the primary noise source at this location (intersection of Magnolia Street and Banning Avenue) is traffic. The cumulative noise emission level estimated for OML4 based on three hours of noise measurement is estimated at 62.6 dBA (AES, 2001).

It is likely that operation of Units 3 and 4 will not result in a net increase in noise levels in the Huntington Beach Wetlands beyond the present levels because operation of Units 1, 2 and 5, which are between Units 3 and 4 and the marsh, will mask this effect. It is likely that this impact will be less than significant; however, a quantitative evaluation should be provided to confirm this conclusion (see Biological Resources Condition of Certification **BIO-1**).

SURFACE WATER RUN OFF

Surface water runoff from the site may contain particulates and hydrocarbons that can result in long-term degradation of water quality and sediments in adjacent marshes. This is especially noticeable when precipitation that causes surface water run-off occurs after dry periods resulting in pulses of contamination. Excessive freshwater inputs to coastal salt marshes are also an important impact that affects species composition.

Because the HBGS is located immediately adjacent to a coastal salt marsh that is already subject to the stress of surrounding urbanization, staff feels that the applicant should recognize this potential impact when monitoring perimeter berms and the surface drainage system. The applicant has indicated that the current system will be adequate to accommodate any additional surface drainage produced during construction or operation of Units 3 and 4. Therefore, it is likely that this impact will be less than significant with continued monitoring and implementation of system improvements (see Condition of Certification **BIO-2**).

AIR EMISSIONS

The applicant has provided an assessment of the impacts of major sources on air quality related values in Class I wilderness areas that include:

- visibility

- terrestrial resources (e.g., vegetation, geological features and wildlife); and
- aquatic resources (e.g., lakes, streams and aquatic biota).

Verification: The identified Class I area is the Agua Tibia Wilderness Area, located approximately 89 kilometers east southeast from the HBGS site. The report concludes that, in the absence of air quality standards applicable to biological resources, national and California air quality standards that are established to protect human health are reasonably conservative. Since impacts from the project's air emissions have been demonstrated to be below significance levels, no adverse impacts to wildlife or their habitat are expected at the identified receptor.

Increased nitrogen and sulfur deposition may affect aquatic and marsh areas due to nitrogen and sulfur deposition and subsequent acidification. Increased nitrogen inputs may also create eutrophication due to increased inputs of nutrients beyond levels that can be adequately processed within the natural cycling of the marsh or aquatic system. However, the report concludes that any increased nitrogen and sulfur deposition due to the operation of Units 3 and 4 will be minimal and therefore, these impacts are unlikely to occur. The report provides an estimate of N and S deposition rates due to operation of Units 3 and 4 at the above-mentioned receptor, which are 3% and 2% of the USFS significance criteria, respectively. The report does not provide the same estimates for biological receptors in the marshes adjacent to the site. Although these sites are obviously closer, they are not in the prevailing easterly wind direction. In addition, the AFC has not considered the net positive effect that installation of SCR equipment into Units 1 and 2 will have on air emissions. Installation of this equipment is expected during spring-summer 2001.

Therefore, staff concludes that the overall effect of air emissions on biological receptors would be less than significant.

COOLING WATER SYSTEM

The applicant proposes to use the existing cooling water system. No modification of the existing intake or outfall is proposed. Therefore, construction impacts to marine resources will not occur.

Potential impacts of the HBGS Retool Project to marine resources are related to entrainment and impingement by the intake and the temperature effects of the thermal discharge. Impingement refers to the trapping of organisms on the screens of the intake. Entrainment refers to the process by which organisms are sucked into and through the cooling water system.

Intake and discharge volumes are expected to be within historic levels when Units 1, 2, 3, and 4 were operating, but greater than levels since 1995 when Units 3 and 4 were phased out.

Ocean water surface temperatures off Huntington Beach average approximately 52 to 62 degrees Fahrenheit (F) in the winter and 65 to 75 degrees F in the summer.

The applicant has provided information on current and expected temperature changes in ocean waters in the vicinity of the discharge (AES 2001). The HBGS's current National Pollution Discharge Elimination System (NPDES) permit allows a difference between the intake and discharge temperatures (Delta T) up to and including 30 degrees F. Typically, Delta T averages about 20 degrees. Daily measurements of intake temperatures during the summer months from August 1996 to August 2000 ranged from approximately 54 to 88 degrees F and discharge temperatures ranged from approximately 80 to 100 degrees F. During winter months, intake temperatures ranged from 54 to 65 degrees F and outfall temperatures from 57 to 96 degrees F.

To predict the effects of the HBGS Retool Project on water temperatures, the Applicant provided the results of the October 1971 to December 1972 Thermal Effects Study (EQA & MBC 1973) performed to comply with Section 316(a) of the Clean Water Act. The study was performed when all four units were operating and would be expected to be representative of temperature effects after Units 3 and 4 are put back into operation. The maximum vertical extent of the 4 degree F elevated temperature waters extended 10 to 15 feet below the surface, and the maximum horizontal extent was approximately 4000 feet, although about half the time during the survey it extended only about 1000 feet. The surface areas of waters affected by the 4 degree F and 1 degree F elevated temperature fields averaged about 62 and 2200 acres respectively. The radius of temperature elevated more than 4 degrees F was about 200 to 400 feet around the outfall.

In addition to the discharge of heated water as a result of unit operation, the applicant proposes to conduct monthly heat treatments to eliminate fouling organisms that grow within the cooling water system. During the treatment, heated effluent water from the discharge conduit is re-entrained via cross-connecting tunnels to the intake conduit until the temperature reaches approximately 105 degrees F. This temperature is maintained for at least one hour. Mussels, barnacles, fish and invertebrates living in the intake unit and forebay are killed, impinged onto the traveling screens and then removed from the forebay. Heat treatment raises discharge water temperatures to approximately 112 to 122 degrees F. The HBGS NPDES permit allows a Delta T of up to 125 degrees F during adjustment of the recirculation gate and allows a Delta T of up to 130 degrees F for no more than 30 minutes. Even during heat treatments elevation of temperatures above 4 degrees F are limited to within a few hundred feet surrounding the outfall.

Except for individuals trapped by currents within the forebay of the intake during heat treatments, fishes and mobile invertebrates will avoid water temperatures that are above their thermal tolerance. An elevation in ocean water temperature of 4 degrees F or less generally is within the natural range of ocean water temperatures off Huntington Beach and would be expected to be within the tolerance level of most marine organisms. Annual monitoring of fishes and invertebrates in the vicinity of HBGS has noted few differences between the marine life around the intake and discharge structures and control areas. The slight differences noted were of infaunal invertebrates and flatfish (sanddabs) in the immediate vicinity of the structures and were more likely related to the physical effect of the structures on

sediments than on temperature differences. The thermal effects of normal operations of the HBGS on marine life are expected to be insignificant.

The Huntington Beach colony of the State and Federal Threatened California least tern is dependent on an adequate prey base of small fishes in the vicinity of the colony. Terns from this colony forage heavily in ocean waters in the vicinity of the HBGS intake and outfall structures. Fish including the prey of California least terns (primarily topsmelt and northern anchovy) would be expected to avoid any portions of the thermal plume outside their tolerance range. Because the area elevated more than 4 degrees ambient is within a 400-foot or less radius of the discharge, the amount of foraging habitat for the California least tern adversely affected by the discharge would be minimal (5 acres or less). Impacts to the California least tern of the increased thermal discharge by the HBGS Retool Project would be expected to be insignificant. Other sensitive seabird species, such as the endangered California brown pelican, that forage in nearshore waters near HBGS also would not be expected to suffer a significant impact from the increased discharge. Any thermal effects on fish populations would be limited to within a 400-foot radius of the discharge plume.

Federal Threatened western snowy plovers forage on the beach near HBGS. The thermal discharge plume from HBGS will increase water temperatures at the shoreline 4 degrees F within about 2000 feet of the outfall. The discharge is not expected to result in an increase of more than 4 degrees on shoreline water temperatures. An increase in ocean water temperatures of 4 degrees F or less would be within the normal variability of ocean water temperatures and within the thermal tolerance of sandy beach organisms. The Thermal Effect Study for the HBGS (EQA and MBC 1973) did not find that there was a reduction in sandy beach organisms near the power plant compared to transects further away. Therefore, the discharge would not be expected to affect the prey base of the western snowy plover.

Some plankton organisms, which have limited mobility, might be carried into the area of high temperatures surrounding the outfall and would not be able to avoid water temperatures above their tolerance limits. The impacts to plankton of exposure to extreme temperatures would add to the impacts of entrainment by the intake.

To predict the effects of entrainment and impingement by the intake on marine resources, the applicant has presented the results of a 1983 study done by Southern California Edison to comply with Section 316(b) of the Clean Water Act (SCE 1983). The HBGS 316(b) study was part of a demonstration for all Southern California Edison's (SCE) power plants with intakes in offshore southern California marine waters and protected harbor waters including HBGS, then owned and operated by SCE. Instead of measuring entrainment impacts for each individual facility, the study estimated entrainment for each facility by studying representative sites and applying those results to facilities with similar intake structures. The Ormond Beach Generating Station and San Onofre Generating Station Unit 1 were the representative sites for entrainment sampling for the group of physically and

biologically similar intakes into which HBGS was classified. All three power plant intakes are located in the shallow nearshore zone of the Southern California Bight. The Ormond Beach Generating Station is in the City of Oxnard in Ventura County. The San Onofre Generating Station is in San Diego County near San Clemente. Mean daily entrainment at the Ormond Beach Generating Station and San Onofre Generating Station Unit 1 was determined from monthly samples collected from August 1979 through July 1980. Mortality of entrained larvae was assumed to be 100%. Estimates of entrainment at the HBGS intakes were developed by applying a flow rate adjustment to daily entrainment observed at the Ormond Beach and San Onofre Generating Station intake systems.

The most abundant fish larvae collected at both the Ormond Beach and San Onofre Generating Station intakes were those of northern anchovy, white croaker and queenfish. These three species comprised 78 % of the entrained individuals. Adult fish losses at HBGS result from impingement in the station cooling water system. Normal operation impingement data were collected regularly from October 1978 to September 1980. Impingement data were also collected during heat treatments. Normal operation fish losses were estimated by multiplying the mean daily impingement loss times the number of days that circulating water pumps were in operation during the period. Heat treatment fish loss, representing the actual count and weight, was added to the estimated normal operation fish loss to determine total fish loss on an annual basis. Individual fish impingement losses during the 1978 to 1980 study period were dominated by queenfish and white croaker, comprising 64.4 and 11.3% of the losses respectively. These two species have remained the species that is impinged in the greatest numbers at HBGS, although in 2000 large numbers of jacksmelt were also impinged (MBC 2000).

To estimate the total impact to fish populations of entrainment and impingement at HBGS, Southern California Edison adapted a fish population model developed by MacCall et al. (1983). The model calculates the magnitude of the probability (R_c) of a fish surviving entrainment and impingement mortality through five years of age. The statistic $(1-R_c)$ indicates the percent probability of mortality due to station operation. The effect of losses in each size class is summed and passed on to later stages to derive a cumulative R_c value. The probability of survival is estimated as a ratio of the loss of each size class of each species at the generating station intake to the estimated size of the population of that age class for that species in the Southern California Bight.

To evaluate the impact of HBGS on fish populations, the study calculated R_c for 15 target species. These target species were northern anchovy, white croaker, queenfish, Pacific butterfish, white seaperch, shiner surfperch, walleye surfperch, black surfperch (*Embiotica jacksoni*), kelp bass (*Paralabrax clathratus*), barred sandbass (*P. nebulifer*), sargo (*Anisotremus davidsoni*), spotfin croaker (*Roncador stearnsi*), bocaccio (*Sebastes paucispinus*), black croaker (*Cheilotrema saturnum*), and yellowfin croaker (*Umbrina roncadore*). With the exception of queenfish, all of the target species either had a probability of mortality $(1-R_c)$ due to the intake of less than 1 % or were entrained or impinged in numbers too low to calculate an R_c value. Queenfish, however, had an R_c value of 93.4 resulting in a 6.6% probability that individuals will experience entrainment or impingement mortality at HBGS. This

impact was due primarily to the large numbers of adult queenfish impinged on the intake and is considered potentially significant. The study concluded that the impact was not significant because queenfish have continued to be common in fish collections in the Southern California Bight and have not been observed to decline. However, it is not clear that sampling for this species has been systematic enough to observe a decline if it were occurring. The 1983 study also used a statistic, R_e , developed by MacCall et al. (1983) to estimate total mortality to a species. The rationale behind this approach is to utilize a "potential yield" formula to assert that net productivity is maximal when abundance is at one-half the unaffected level. When R_e is less than 0.5 it indicates depletion of the stock beyond the compensation capacity of the population. The study calculated R_e for queenfish in the Southern California Bight as 0.857 suggesting that the impingement losses would not result in economic or ecological impacts and determined that the impact was insignificant. However, the analysis only used impingement and entrainment at HBGS in the model, and did not take into account impingement and entrainment losses at all power plants within the Southern California Bight (C. Mitchell, MBC, pers. comm. 2001). When the effect of these other intakes is considered, it is possible that the stock of queenfish in the Southern California Bight is being depleted below self-sustaining levels for the region. Thus, impacts of the HBGS intake system on queenfish are considered to be potentially significant.

CEC staff is concerned that the determination of the effects of the HBGS intake is based on studies done 20 years ago for other generating stations. Recent analysis indicates that populations of queenfish and white croaker within the Southern California Bight may, in fact, have experienced a long-term decline (Herbinson et al. 2000 cited in AES 2001). Therefore, as a Condition of Certification the analysis of the impact of impingement and entrainment by the cooling water system should be repeated with new entrainment studies done at the HBGS intake and an evaluation of effects based on recent estimates of fish stocks in the Southern California Bight.

The HBGS Retool Project would be expected to increase flow rates to a level similar to that prior to 1994 when all units were operating. Mean daily flow between 1979 and 1993 ranged between 134.6 and 476.2 million gallons per day (mgd) compared to between 144.1 and 163.8 mgd after 1994. Total estimated fish impingement between 1979 and 1994, when Units 1 through 4 were operating, ranged between 3,679 and 905,003 individuals per year. Fish impingement at HBGS is significantly related to flow rate, although other factors also appear to be important (AES 2001). Therefore, because flow rate would be expected to increase, the HBGS Retool Project would be expected to increase fish impingement over current levels.

The HBGS has a large forebay on site, and many fishes apparently become trapped in the forebay. They swim into the structure and, because of the strong currents generated by the intake, cannot leave (C. Mitchell, MBC, pers. comm. 2001). All of the fishes trapped in the intake structure are killed during heat treatments although, because they apparently cannot escape, they might be lost anyway.

CEC staff is concerned that the design of the HBGS intake does not represent the Best Available Technology for the protection of marine life. Methods, such as a fish

return system, may be available to reduce the number of fish trapped within the forebay.

CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines requires a discussion of cumulative environmental impacts when they are determined to be potentially significant. Cumulative impacts are defined as those impacts that are created because of the combination of the project evaluated in conjunction with other projects causing similar impacts. The CEQA Guidelines require that the discussion reflect the severity of the impacts and the likelihood of their occurrence, but need not provide as much detail as the discussion of the impacts attributable to the proposed project alone.

The CEQA Guidelines also mandate two different ways in which cumulative impacts are to be evaluated. One of these mandated approaches is to summarize growth projections in an adopted General Plan or in a prior certified environmental document. The second method involves compilation of a list of past, present, and probable future projects producing related or cumulative impacts. The second method has been utilized for the purposes of this Staff Assessment.

With regard to cumulative impacts to terrestrial biological resources, power plants that are under development or application in the region are at too great a distance to contribute to the air, noise and surface water impacts described in the previous sections. However, potential impacts from air emission and noise may change when considered together with operation of Units 1, 2 and 5 and, because of their intimate association with Units 3 and 4, these changes have been addressed in the Direct and Indirect Impacts. No additional cumulative impacts to terrestrial species have been identified.

The impacts of impingement and entrainment by the HBGS cooling water intake on nearshore fish populations in the Southern California Bight will act cumulatively with the impacts of impingement and entrainment at the other Southern California power plants that draw water from the ocean for their cooling water systems. The 316(b) demonstration for the HBGS (SCE 1983) indicated that impacts of impingement on queenfish were close to significant. When the impacts of impingement and entrainment of queenfish at the HBGS are added to the impacts of impingement and entrainment at all the Southern California generating stations, the cumulative impacts on this and other marine species are likely to be significant.

POSEIDON DESALINATION PROJECT

Poseidon Resources Corporation is proposing the development of a desalination facility at HBGS. The applicant and Poseidon Company have filed for a Conditional Use Permit with the City of Huntington Beach, and the City is conducting an environmental impact study that will last 9 to 12 months. The desalination facility would use water from the power plant's cooling water system for treatment by reverse osmosis to remove salts. The brine would be combined with water from the cooling water system and discharged through the HBGS ocean outfall. Discharge of brine through the outfall of the cooling water system would change the

characteristics of the thermal plume and would change the impacts. In addition, it is not clear whether the desalination project would increase the amount of seawater that would be drawn into the intake. If the flow rate increased, plankton entrainment and fish impingement would also increase and add to the impacts of the power plant.

MITIGATION

APPLICANT'S PROPOSED MITIGATION MEASURES

The applicant did not propose any mitigation measures for terrestrial or marine biological resources.

STAFF'S PROPOSED MITIGATION MEASURES

SITE RUNOFF

Staff has identified that current site runoff may be contributing to degradation of water quality and sediments in adjacent sensitive habitat, including coastal marshes. Staff recommends that the applicant update the current Storm Water Pollution Prevention Plan, and implement Best Management Practices to ensure no off-site drainage. All drainage must be directed to either the permitted retention basin or into the ocean discharge structure in compliance with the current NPDES permit. This issue is also addressed in Soil and Water Resources Condition of Certification section. (See Biological Resources Conditions of Certification **BIO-1** and Soil and Water Resources Condition of Certification **SOIL & WATER-1.**)

NOISE

Staff is concerned that noise levels may be affecting sensitive species, including the Belding's savannah sparrow in the Huntington Beach Wetlands, if the 70 dBA noise level is exceeded. Staff proposes that noise levels be modeled in the marsh to determine if the threshold of 70 dBA may be exceeded. If the model shows that the 70 dBA level will be exceeded when Units 1 through 5 are running, then staff recommends that noise control measures be implemented to reduce the noise levels to below 70 dBA. (See Biological Resources Condition of Certification **BIO-2.**)

LANDSCAPING

The City of Huntington Beach General Plan Policy C7.2.4 encourages the use of native California species in landscaping. Staff supports the use of native California plants in the landscaping plan to be implemented by the project owner. (See Biological Resources Condition of Certification **BIO-3.**)

IMPINGEMENT AND ENTRAINMENT

Staff is concerned that project-specific and cumulative impacts from impingement and entrainment could be significant. Staff contends that a monitoring program to determine the actual impingement and entrainment losses of the HBGS Retool

Project and the cumulative effect of all power plants needs to be undertaken soon. The California Department of Fish and Game (Paznokas, personal communication, 2001) and the National Marine Fisheries Service (Hoffman, personal communication, 2001) support staff's recommendation that updated entrainment surveys are needed to assessment the project's current impacts. An updated analysis of impingement and entrainment effects of the cooling water system intake shall be done to determine whether impingement and entrainment are having a significant effect on queenfish and other species. This analysis should consider the cumulative impacts of all Southern California power plants that withdraw cooling water from the Pacific Ocean. Study results will be utilized during the review by the Santa Ana Regional Water Quality Control for the June 2005 renewal of the project's National Pollution Discharge Elimination System (NPDES) permit.

If the monitoring program and updated analysis determines that the HBGS is having a significant adverse impact on any marine species, the applicant shall be required to mitigate for those impacts. Mitigation shall be in the form of a monetary contribution to an appropriate coastal habitat restoration project(s) in Southern California. The final determination of monetary compensation will be determined in consultation with state, federal, and local agencies. For more information, see Biological Resources Conditions of Certification **BIO-4**, **BIO-5** and **BIO-6**.

COOLING WATER INTAKE STRUCTURE

Staff is concerned that a large number of fishes are currently trapped in the forebay portion of the cooling water intake system. These fish do not escape and ultimately are killed during heat treatment or die from exhaustion. The project's existing intake design may not be the best technology currently available for reducing impacts and protecting marine life. More recently constructed facilities often utilize fish return structures as part of the cooling water system. Staff recommends that the applicant conduct a study to determine if there is a feasible method to greatly reduce fish losses at the intake. If the study identifies a feasible method, the applicant should implement it. Study results, and implemented technology improvements to reduce the number of trapped fish, will be included in the Santa Ana Regional Water Quality Control Board's review for the project's anticipated June 2005 NPDES permit renewal.

This recommendation is consistent with the City of Huntington Beach General Plan Policy C6.1.13 that requires the provision of maximum feasible mitigation measures to minimize damage to marine organisms in seawater pumping facilities. For more information, see Biological Resources Condition of Certification **BIO-7**.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Regarding terrestrial biological resources, staff concludes that the HBGS Retool Project would likely be built and operated to comply with all applicable laws, ordinances, regulations and standards applicable to terrestrial biological resources.

Staff further concludes that the HBGS Retool Project would likely present no significant adverse impacts to terrestrial biological resources.

Regarding marine biological resources, staff concludes that impingement and entrainment impacts from the cooling water system are considered to be potentially significant at both the project-specific and cumulative levels. It is anticipated that with sufficient mitigation/compensation and the reduction of fish impingement those impacts can be mitigated to a less than significant level.

RECOMMENDATIONS

Staff recommends that the following Conditions of Certification be adopted and implemented to ensure compliance with all applicable laws, ordinances, regulations and standards.

CONDITIONS OF CERTIFICATION

STORMWATER RUNOFF

BIO-1 Prior to operation of Units 3 and 4, project owner's Storm Water Pollution Prevention Plan shall be updated, and approved by the CEC CPM, to ensure that all berms and surface drainage installations are constructed, or existing features modified, to prevent any treated or untreated surface water runoff originating within or crossing the AES property from reaching the Huntington Beach Wetlands.

Verification: No less than 30 days after certification, the project owner shall submit to the CEC CPM and City of Huntington Beach a copy of the revised Stormwater Pollution Prevention Plan that specifies all modification to berm and surface drainage installations and any other related facilities necessary to prevent any treated or untreated surface water runoff originating within or crossing the AES HBGS property from reaching the Huntington Beach Wetlands. This plan must incorporate all requirements specified by the City of Huntington Beach for the protection of water quality contained in Municipal Code Title 14. The project owner shall submit to the CEC CPM verification from the City of Huntington Beach that the revised plan complies with all applicable local requirements. This condition is consistent with **SOIL & WATER 1**.

NOISE

BIO-2 The project owner will quantitatively estimate (1) the projected noise levels from the operation of Units 3 and 4, and (2) the projected cumulative noise impacts from the operation of Units 1 through 5 including non-power plant related sources, in the Huntington Beach Wetlands and the marsh located approximately 0.5 mile northwest of the facility. If projected noise levels under either scenario exceed 70 dBA at any time outside the industrial zone (City of Huntington Beach Ordinance, Section 8.40.040 and 8.40.050) and within the marsh area, then appropriate measures (e.g. mufflers, silencers, baffling, insulation) to reduce noise levels to below 70 dBA at all times or

other appropriate mitigation measures, as determined by the CPM, shall be implemented.

Also, under either scenario (i.e. Units 3 and 4 alone or cumulative effects with other sources) if the area in the Huntington Beach Wetlands that currently experiences an Leq of 60 to 70 dBA increases during operation of Units 3 and 4, then appropriate noise mitigation measures will be implemented to reduce this area to Units 3 and 4 pre-operational levels or determine appropriate mitigation measures.

Verification: The project owner shall transmit to the CPM at least 30 days prior to construction, a report containing the required noise analysis and proposed mitigation measures, if the projected noise analysis indicates that expected noise levels are expected to exceed 70 dBA. If it is determined that the noise level is expected to be above 70 dBA, then the project owner must provide a plan to the CPM to address this concern, and implement the approved noise reduction mitigation measures in the project's construction to reduce the noise level below the 70 dBA threshold.

LANDSCAPING TO PROTECT HUNTINGTON BEACH WETLANDS

BIO-3 The project owner shall incorporate native plant species into the landscape at the property perimeter adjacent to the Huntington Beach Wetlands to prevent further degradation of the marsh habitat through the introduction of non-native plant species consistent with the City's General Plan Policy C7.2.4. Native plant species to be used must be compatible with the native species currently found in the Huntington Beach Wetlands.

Verification: The project owner shall provide a final Landscaping Plan to the CPM at least 30 days prior to the beginning of commercial operation. The final plan shall include a list of native species that will be immediately used for landscaping within the AES HBGS property when landscaping is implemented.

IMPINGEMENT AND ENTRAINMENT

BIO-4 The project owner will prepare a monitoring/study plan and conduct one year of monitoring to determine the actual impingement and entrainment losses resulting from the operation of the cooling water system for the new Units 3 and 4 and the existing Units 1 and 2. The project owner will sample the intake and source water to determine fractional losses relative to their abundance in the source water.

Sampling design and data analysis protocols should follow those developed from the most recent 316(a) and 316(b) studies at Diablo Canyon, Moss Landing and Morro Bay power plants and/or MacCall (1983), and the results used to determine the significance of impingement and entrainment losses on fish populations. This analysis shall consider the cumulative effect of all Southern California coastal power plants on nearshore fish populations. The study objectives, sample design, metrics and methods (protocols) shall be

submitted to CEC CPM and approved by the CPM. The study protocols will be developed and put into a study plan within 60 days of project certification. The project owner will commence the monitoring within 30 days of the start of commercial operation of the new Units 3 and 4. The methods, analysis, results, and conclusions of the monitoring study will be documented in a scientific style report and submitted to the CPM for review and approval. Other agencies, including the U. S. Fish and Wildlife Service and the California Department of Fish and Game, shall be included in the review of the draft report, if they so request. A final report shall be prepared upon completion of the field sampling. The study results will be utilized during the NPDES permit renewal evaluation to be completed by the Santa Ana Regional Water Control Board in June 2005.

Verification: The project owner will submit a draft study plan to the CEC CPM within 60 days of project certification for review and approval. Within 90 days of certification, an agency and CEC-approved final study plan will be provided to the CEC CPM. The project owner will submit quarterly reports to the CPM during the study sampling period within 60 days following the completion date of that quarter of field sampling.

The project owner will submit to the CEC CPM a draft report that discusses the results of the impingement, entrainment and source water sampling studies within six months of the end of field sampling, and a final report to the CEC CPM within nine months from the end of field sampling.

BIO-5 The project owner will provide a check for \$1,500,000 (One million and five hundred thousand) to the Center for Natural Lands Management (Contact: Ms. Sherry Teresa, Executive Director, 425 E. Alvarado Street, Suite H, Fallbrook, CA 92028-2960, (760) 731-7790) to establish the Huntington Beach Generating Station Trust Account to be used to fund the project's impingement, entrainment, and source water sampling studies. The CEC will authorize the project owner's expenditures from the fund for the field study protocol development and implementation (impingement, entrainment and source water sampling), data analysis, draft and final report preparation, and implementation of mitigation measures.

Verification: No later than 30 days prior to the start of commercial operation, the project owner will provide written verification to the CEC CPM that 1) a check for \$1,500,000 has been provided to the Center for Natural Lands Management and 2) that the Huntington Beach Generating Station Trust Account has been established.

BIO-6 If the entrainment and impingement study determines that significant impacts to one or more species of coastal fish is occurring, the project owner will provide funds for mitigation/compensation for impacts to Southern California Bight fish populations. Those funds should be used for such things as tidal wetlands restoration, creation of artificial reefs, or some other form of habitat compensation that is sufficient to fully address the species impacts identified in the final report required by Condition of Certification **BIO-4**, above. The CEC CPM in consultation with state, federal and local resource agencies will determine the amount and final application of those funds. When appropriate

mitigation is determined, a Memorandum of Understanding (MOU) will be prepared by the project owner and signed with the entity that will receive the compensation funds. The MOU will clearly identify acceptable uses of the funds, including an accounting of how the funds will be spent.

Verification: The CPM will review the draft MOU to ensure the wording is clear, meets the terms of the mitigation, and that it is enforceable. The CPM will ensure the MOU is completed within 120 days of determination of the need for mitigation/compensation. The project owner will provide written verification to the CEC CPM that the mitigation/compensation funds have been paid within 30 days after signing the MOU for the disposition of required compensation funds.

COOLING WATER INTAKE IMPROVEMENTS

BIO-7 The project owner shall conduct a study to determine if there is a feasible methodology that would greatly reduce the number of fishes trapped in the intake forebay. If the study determines that a feasible method(s) exists to reduce the number of fishes trapped in the cooling water system the project owner shall implement those methods.

Verification: The project owner will submit a draft study plan to the CEC CPM and resources agencies within 60 days of the date of certification for review and approval. CEC and resource agency staff will provide comments on the draft study plan, and within 90 days of project certification a CEC and resource agency approved final study plan will be provided to the CEC CPM. The project owner will submit an interim report on the progress of the study within 90 days following commencement of the study.

The project owner will submit a draft report that discusses the results of the study within 45 days following completion of the study and will submit a final report within 3 months of completion of the study. If the study determines that a feasible method(s) exists to greatly reduce fish losses in the intake, the project owner will implement the selected methodology upon CEC Huntington Beach Generating Station Project long-term operation reassessment and/or NPDES permit renewal June 30, 2005, and provide verification to the CEC CPM that the agreed to improvements have been implemented.

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WATER & SOIL RESOURCES

Testimony of M. Lorraine White

INTRODUCTION

This assessment addresses the water and soil resource aspects of AES' Huntington Beach Generating Station (HBGS) retooling project, specifically focusing on the following areas of concern:

- whether project construction or operation will lead to accelerated wind or water erosion and sedimentation;
- how the project's demand for water affects surface or groundwater supplies;
- whether project construction or operation will lead to degradation of surface or groundwater quality; and
- whether the project will comply with all applicable laws, ordinances, regulations and standards.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

CLEAN WATER ACT

The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality. Point source discharges to surface water are regulated by this act through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Stormwater discharges during construction and operation of a facility and incidental non-stormwater discharges associated with pipeline and transmission line construction also fall under this act, and are addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point source discharges and stormwater discharges are delegated to and administered by the nine Regional Water Quality Control Boards (RWQCB). For this project, the California Regional Water Quality Control Board, Santa Ana Region renewed a NPDES permit for the HBGS on June 30, 2000 regulating point and stormwater discharges of the facility. A separate general construction activity permit will not be required for the retooling.

Section 316 [33 U.S.C. 1326] of the Clean Water Act specifically addresses thermal discharges and cooling water intake structures. Subsection (a) provides that "...whenever the owner or operator of any such source... can demonstrate to the satisfaction of ...the State that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made...the State may impose an effluent limitation."

Subsection (b) requires that "...the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."

STATE WATER RESOURCES CONTROL BOARD PLANS

Where applicable, compliance with the following plans is addressed by the RWQCBs through the NPDES permit process.

CALIFORNIA THERMAL PLAN

In 1972, the State Water Resources Control Board adopted the "Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California", more commonly known as the Thermal Plan. The Thermal Plan, which was later amended in 1975, sets limits on the discharge of wastewaters with elevated temperatures into coastal, estuarine and interstate waters in order to meet water quality objectives. A major aim of the Thermal Plan is to protect marine resources in the ocean, enclosed bays and estuaries from the adverse impacts of thermal waste.

CALIFORNIA OCEAN PLAN

In 1997, the SWRCB (Resolution 97-026) adopted the latest version of the Water Quality Control Plan for Ocean Waters of California (California Ocean Plan). The California Ocean Plan establishes beneficial uses and water quality objectives for the state's ocean waters outside of enclosed bays, estuaries and lagoons. The plan also sets forth effluent limitations, management practices and prohibitions. Every three years the plan is reviewed and, if necessary, updated.

LOCAL

City of Huntington Beach has several requirements specified in the Municipal Code that apply to soil and water resources:

Chapter 14.08 – Service Connections: requires a application for services to the City Water Department be made for any City water service.

Chapter 14.24 – Water Pollution: specifies prohibitions and restrictions on the discharge of industrial liquid or solid wastes within the city for the protection of underground and surface waters (includes stormwater and or surface drainage).

Chapter 14.25 – Storm Water and Urban Runoff Management: specifies requirements for stormwater drainage and urban runoff management.

ENVIRONMENTAL SETTING

AES is proposing to retool for operation Units 3 and 4 (rated 225 MW each), both taken out of service in 1995. Prior to being retired these units were operated sparingly (AES 2000, p. 3.1-1). HBGS is located in the City of Huntington Beach, 1.5 miles southeast of the center of the city, separated from the Pacific Ocean by wetlands and the Pacific Coast Highway. Activities associated with the retooling will

take place on approximately 12 acres of the 53-acre HBGS at the north-central portion of the power facility; Units 3 and 4 occupy approximately four of these acres (AES 2000, p. 1-2; p. 3.4-1). Units 1, 2 and 5 are currently in operation. Much of the existing infrastructure will be utilized by the retooled units without modification. See the **Project Description and Facility Design** sections for a complete discussion of the proposed project.

Most of the existing site is covered with asphalt or concrete with little vegetation (AES 2000, p. 3.3-1). Soil units in the area of HBGS are Beaches (sandy, gravelly or cobbly coastal shores), Bolsa Silt Loam (high erosion potential) and Tidal Flats. However, approximately seven feet of fill underlay the generating units. For a more detailed discussion of these soils, please see AES' January 19, 2001 AFC Supplement (AES 2001a, p. 5.4-2). Because this site was previously graded and is generally flat, no further grading activities are required (AES 2000, p. 1-2). Located 6 to 10 feet above mean sea level in the tidal flats, the site is within the 100 yr. Floodplain, surrounded by berms that rise five to eleven feet above the outside grade. For a discussion of potential flooding and flood control, please see the **Facility Design** Section.

Surface water bodies in the vicinity of the project include the Pacific Ocean 600 feet to the west, the Huntington Beach Flood Control Channel approximately 900 feet to the north and the Talbert Flood Control Channel approximately 2,600 feet to the east. Further east of the site, runs the Santa Ana River. (AES 2000, p. 3.3-1)

Groundwater levels are typically shallow in the area, averaging depths between five and nine feet. The HBGS site contains 16 monitoring wells. During the Phase II investigations, several areas were identified as areas of potential concern, primarily for metals and Volatile Organic Compounds (VOCs). In addition, the ASCON landfill, located to the north of the site, is a state Superfund site. In the AFC, AES has identified this as a potential source for migration of contamination towards the HBGS site, although it is believed that the site has not yet been impacted by the landfill (AES 2000, p. 5.5-4).

The HBGS lies within the jurisdiction of the Santa Ana (Region 8) Regional Water Quality Control Board (RWQCB). This region includes the open ocean from Long Beach to San Clemente. Tides are semi-diurnal (two high and two low tides during the tidal period), with a mean tidal range of 3.7 feet. Flood tides flow upcoast; ebb tides flow downcoast. From February to October, northeasterly winds produce upwelling that brings colder, more saline water with less oxygen and high nutrient levels to the surface. Ocean water temperatures in typically ranges from 55°F in the winter to 67°F in the summer (AES 2000, p. 5.5-6).

The proposed HBGS retooling will use existing intake and outfall structures (constructed in the late 1950s) to supply Units 3 and 4 with cooling water from the Pacific Ocean. Designed to serve Units 1 through 4, the existing circulating cooling water system consists of a 14-foot diameter intake structure, intake and traveling screens, pumps, and a 21-foot diameter discharge pipe. Located approximately 1,650 feet offshore in roughly 27 feet of water (mean low low water), the intake

structure rises 15.8 feet above the ocean floor and is equipped with a velocity cap. Maximum mean velocity specified in the NPDES permit at the intake is 2.0 feet per second. With Units 1 and 2 operating, the discharge velocity is 1.1 ft/s.

Eight circulator pumps can deliver up to 44,000 gpm (507 mgd) each for a total capacity of 352,000 gpm (4056 mgd). Currently, 176,000 gpm of circulating water and boiler component cooling water is required for Units 1 and 2. The water is carried through a concrete conduit from the intake point into a screening facility. The initial screen system is designed to remove marine life and debris, while the traveling screens remove smaller debris and marine organisms. The Discharge structure is located approximately 1,500 feet off shore in water 25 feet deep, about 350 feet from the intake structure. With a diameter of 21-feet, the discharge pipe rises approximately 15 feet above the ocean floor (SARWQCB 2000).

The current NPDES permit for HBGS limits and requirements apply to the entire plant operation, including Units 3 and 4, and allows a maximum of a 30°F rise of return water temperature over receiving water temperature (SARWQCB 2000). According to the NPDES Monitoring Reports for 1996 to 2000, the differences in discharge temperature and that of the intake waters ranged from 8.4 degrees to 24.7 degrees (AES 2001b, Table 5.5-32, p. 5.5-11). During this time, only Units 1 and 2 were in operation.

CITY OF HUNTINGTON BEACH WATER SERVICE

Water is also supplied to HBGS by the City of Huntington Beach to meet potable and demineralized treatment system requirements. This water is supplied by an existing 10-inch main at the southeast corner of the site. No alterations to the existing facilities are proposed (AES 2000, p. 5.5-19). Since 1995, HBGS has used 0.285 mgd average and 0.445 mgd peak of City water (AES February 23, 2001 Date Response #52), less than one percent of the City's current demand. The City's system on average provides 32 mgd or approximately 35,000 acre-feet a year of water to more than 192,000 people in Huntington Beach. Dependent on groundwater as the primary source for this supply, the City operates nine wells at depths from 250 feet to 1,020 feet located throughout the Huntington Beach area.

ENVIRONMENTAL IMPACTS

PROJECT SPECIFIC IMPACTS

EROSION AND SEDIMENTATION

The proposed project does not involve any major ground disturbance, such as grading or excavation (AES 2000, p. 5.4-3). Most access is limited to existing paved roads in the construction area to minimize site compaction.

Installation of the selective catalytic reduction (SCR) units will require the removal of asphalt near the generating units resulting in minor soil disturbance. In addition the construction of the urea reactor tank will also require removal of the existing asphalt

cover where the foundation and loading area for this tank will be located. The surrounding asphalt will remain unaltered. Exposure of the soils can lead to their entrainment in surface water flows. The applicant proposes to institute measures to minimize soil erosion during construction. Because the area to be disturbed is small and the surrounding area is covered by impervious surfaces, staff concludes that no significant impacts will occur to soil resources.

WATER SUPPLY

As proposed, the HBGS will increase the demand for ocean and potable water to serve Units 3 and 4. Under normal operations, Units 3 and 4 will require 176,000 gpm (253.4 mgd) of ocean water for cooling, doubling the current water demands for the power plant (AES 2000, p. 3.4-4; 3.4-6) to 352,000 gpm (506,000 mgd) on average and peak (AES 2000, Table 5.5-21). According to the applicant, Units 1 and 2 will serve intermediate loads and Unit 5 will primarily serve peaking loads (AES 2000, p. 3.1-1) once Units 3 & 4 are operational. No water use for Unit 5 was reported by the applicant.

In their revised total municipal water demand estimates, AES indicates that HBGS will require 0.367 to 0.637 mgd (AES, Data Response #52, February 23, 2001). This represents an increase of approximately 50 percent over current demand based on estimates given in February 23, 2001 Date Response #52 submittal of 0.285 mgd average and 0.445 mgd peak. Make-up water for the steam turbines must first be treated to produce high purity demineralized water. Treatment includes reverse osmosis and electrical deionization.

In their letter dated Dec. 21, 2000, the City of Huntington Beach indicated that the applicant needs to contract with the City for water supply and reservoir studies required to verify or identify if any upgrades or modifications to the existing system are necessary to serve HBGS. According to the City, these studies are required because of changes to and increased demands on the system that supplies City water to HBGS since Units 3 and 4 were retired in 1995. Staff concurs and recommends Soil & Water 2 (below) to address this needed analysis and the need to determine if any modifications are required to the existing system to serve Units 3 & 4.

Chemical treatment of water supplies is required for use in the HBGS processes. Sodium hypochlorite is added to the cooling water to control biological growth in the generating unit condensers. Periodically, heat treatment is also used to remove marine growth in the plant's cooling water system. Other chemicals are used to control pH (for a complete list of chemicals used at HBGS, see the **Hazardous Materials** section of this SA). Added chemicals are discharged with the plant's wastewater effluent to the outfall.

WATER QUALITY

Incorrect disposal of wastewater or inadvertent chemical spills can degrade soil, surface water and groundwater. On June 30, 2000 the Santa Ana RWQCB re-issued NPDES Permit No. CA0001163, Order No. 00-5 for HBGS' ocean intake,

industrial waste discharges and stormwater discharges. This permit is based on the designed full capacity of the entire plant, not just the retooled generating units, and is valid for five years.

Under existing operation, several waste streams are directed to the facility's ocean discharge as permitted by the Santa Ana RWQCB (SARWQCB 2000). These include the boiler blowdown, condenser cooling water, metal cleaning wastes and flows from the retention basin. Waste directed to the retention basin include stormwater and low volume wastes (water softener regeneration brines, reverse osmosis/deionization unit brines, boiler condensate, drains, laboratory and sampling streams). The existing NPDES permit specifies wastewater thermal discharge is not to exceed 30 degrees F above the natural temperature of the receiving waters with allowance for the waste discharge to not exceed 125 degrees F during adjustment of the re-circulation gate (heat treatment for bio-fouling control). Thermal limits also include increases of no more than 4 degree F at the shoreline, the surface of any ocean substrate and the ocean surface beyond 1,000 feet from the discharge point maintained at least 50 percent of the duration of any complete tidal cycle. Several constituent concentration limits are established for the waste discharge to the outfall (Discharge Serial No. 001) and are contained in the NPDES permit. Residual chlorine concentrations in excess of 0.2 milligrams per liter are prohibited and measured pH levels must be within 6.0 and 9.0. Maximum wastewater flow is 516 mgd. Based on the applicant's calculations, wastewater discharge from Discharge Serial No. 001 is not expected to exceed 513.5 mgd (AES, Data Response #52, February 23, 2001).

Renewal of the HBGS' NPDES permit did not require an assessment of the potential environmental impacts on the current environment associated with the proposed increased operation. Concerns were raised by the City of Huntington Beach that increasing the water volume intake from and discharge to the ocean by HBGS may result in further surf zone water quality impairment and beach closures. Over the last two years Huntington Beaches (both state and city) have been closed because of the presence of indicator bacteria in the surrounding surf zone. Although sometimes naturally occurring, indicator bacteria can be a sign of fecal contamination. A study published in December 2000 suggests a possible link between the intake/discharge of the power plant and elevated surf zone levels of indicator bacteria (UCI et al, 2000). The report suggests that an upwelling of the bacteria by the power plant's wastewater discharge transports the bacteria to the near-shore region. Although not identified as a possible source of the bacteria, current available analysis is unclear as to the extent of this link.

Additional efforts are underway to further analyze conditions in the surf zone, the sources of the bacteria and mechanisms that may transport the indicator bacteria to the surf zone (including the power plant's outfall). AES is currently participating in a task force lead by the Orange County Sanitation District created to develop the next phase of analysis. It is not clear at this time if these studies will clarify whether or not HBGS' operation has an effect on the occurrence of the bacteria in the vicinity the beaches. Since efforts are already underway, staff believes that it is important for any analysis regarding the impacts associated with HBGS' intake/discharge be done in cooperation with and complementary to these other efforts. Therefore,

staff is recommending a condition of certification that directs the project owner, under the direction of the Energy Commission, to provide for an analysis of the influence and interaction of the HBGS ocean intake and discharge on the indicator bacteria in the surf zone of Huntington Beaches. Soils and Water 3 specifies the general concept of the analysis and the technical advisory group that will guide the development and implementation of the study.

Sanitary and minimal process wastes are currently directed to the city sewer system. An average of 0.083 mgd and a peak of 0.11 mgd of wastewater will be discharged to the City sewer system once Units 3 and 4 are operational. This represents a minimal increase over existing discharge (0.075 mgd average and 0.10 mgd peak) (AES, Data Response #52, February 23, 2001). Therefore, operation of Units 3 and 4 will not increase these discharges significantly.

SITE DRAINAGE

Most stormwater runoff from the site is collected onsite and directed to the retention basins (AES 2000, p. 3.3-1). Four offsite stormwater drainage points are identified in the Stormwater Pollution Prevention Plan (SWPPP) for HBGS (revised July 28, 1997). Two of these discharges are to neighboring wetlands west and south of the plant. At this time, staff has inadequate information to determine if offsite surface discharges from HBGS are in compliance with existing requirements. Staff is concerned that runoff directed into the adjacent wetlands may transport contaminants from HBGS into this sensitive habitat. For more discussion of potential biological issues, please see the **Biological Resources** section of this SA.

During the staff site visit to HBGS conducted on February 21, 2001, staff observed that some of the containment structures are damaged and need repair. After review of the power plant's SWPPP, it is unclear if current practices are in compliance with local requirements. Also, secondary containment will need to be designed and operated for the urea reactor tank such that it will hold 110 percent of the capacity of the largest tank plus the freeboard precipitation of a 24 hour, 25-year storm event or other specified storm event standard appropriate for this site. Under the current NPDES permit, activities at HBGS must comply with appropriate federal, state and local drainage and stormwater management requirements. Staff is recommending that the applicant submit their current SWPPP to the City of Huntington Beach for review and a determination of compliance. This is reflected in recommended condition, Soil & Water 1. In addition, staff recommends that all existing containment structures and stormwater management facilities be inspected and needed repair/maintenance be performed to ensure compliance with their NPDES permit (including local requirements), SWPPP and Spill Prevention Control and Countermeasure Plan (October 1998).

CUMULATIVE IMPACTS

Although a proposed project may not result in any direct or indirect adverse impacts, it may contribute to cumulative adverse impacts when considered with other proposed development in an area. To the extent that such an impact is probable, a developer may be required to mitigate the increment of the impact

attributable their proposed project. Staff is aware of one other development with the potential to cause a cumulative impact when considered in relationship with HBGS. Poseidon Resources Corporation (Poseidon) has submitted an application to the City of Huntington Beach to construct and operate the Seawater Desalination Project at AES' Huntington Beach Generating Station. According to a brief description supplied to staff by City of Huntington Beach representative, this project will use wastewater discharge from the power plant as its source water and return its saltwater by-product to the power plants discharge conduit. Many of the other facilities at the HBGS will be utilized for operation of the desalination facility.

HBGS' current NPDES permit does not include this desalination facility. Changes to the physical or chemical characteristics of HBGS discharge resulting from the construction and operation of the desalination facility will require the existing permit be re-evaluated and may require the existing NPDES permit be modified, revoked or re-issued. Based on information available to staff there is the potential for a cumulative impact to occur; however, inadequate information is available to determine the extent of the impact.

Impacts associated with the Poseidon desalination facility will be evaluated by the City of Huntington Beach, the Santa Ana RWQCB and other appropriate agencies as part of their permitting processes and the city's CEQA analysis of the proposal. In order to approve the desalination facility, the City will address mitigation of any direct, indirect and cumulative environmental impacts from the development of the desalination facility at the HBGS site.

FACILITY CLOSURE

A temporary or planned permanent closure of the proposed HBGS should not be a significant concern if efforts are taken to protect soil and water resource. For example, unexpected permanent closure may raise the potential for drainage and erosion problems due to a lack of maintenance of the facilities allowing contaminants to migrate off-site. In addition, HBGS will need to ensure that the intake and outfall structures associated with the cooling water system are secured or dismantled to prevent them from being a hazard to public health and safety. All hazardous materials will need to be removed from the site and disposed of at an approved site and the storage areas cleaned to prevent contamination of soil or water resources. HBGS must address these soil and water-related concerns in their closure plan.

MITIGATION

EROSION AND SEDIMENTATION

Minor earth disturbance will result from the installation of the SCR units and the urea facilities. No site grading will occur. The applicant will employ best management practices to ensure that no significant adverse impacts result from the removal of the asphalt and installation of the foundations for the structures.

WATER SUPPLY

Staff is recommending that the applicant conduct supply and reservoir studies to determine if any upgrades or modifications to the City's existing water system are necessary to serve HBGS (see Soil & Water 2).

WATER QUALITY

At this time, staff is unable to evaluate impacts to the surf zone water quality by the proposed project's water supply and discharge activities nor determine what, if any, mitigation may be required to lessen these impacts. Staff is recommending that the project owner fund the development and implementation of a study by a scientific, independent third party to determine if HBGS' ocean water intake and wastewater discharge activities have effects on surf zone water quality or contribute to levels of indicator bacteria in the Huntington Beach surf zone (Soil & Water 3). At this time, the overall cost of this study is not known, and staff is recommending that a \$1 million account be established to initiate work on the study.

Under the direction of the Energy Commission staff, an independent scientific Technical Advisory Group (TAG) consisting of three to five technical experts will be convened to develop objective study and monitoring protocol for the evaluation and assessment of the impacts of the HBGS' ocean water intake and wastewater discharges (existing and future) on surf zone water quality, including influences on the levels of indicator bacteria and beach closures. A stakeholders group composed of representatives for the Energy Commission, project owner, California Coastal Commission, Santa Ana Regional Water Quality Control Board, Orange County Health Care Agency, Orange County Sanitation District, City of Huntington Beach, and two representatives from local environmental groups will be established to oversee, approve and administer the studies. Upon approval of the study and monitoring protocol by the Stakeholders Group and the Energy Commission staff, a qualified, independent party will be selected to conduct the studies. The monitoring and study protocols will be developed by the TAG and Stakeholder Group, of which AES will be a participant. If significant adverse impacts are identified as a result of the studies, the project owner, as directed by the Energy Commission staff in consultation with the Stakeholders Group, will be required to mitigate these impacts within a defined timeline. Implementation of the studies will occur within 12 months of certification of the retooling project for Units 3 and 4.

The monitoring and study protocol will specify all details related to methods employed, monitoring practices, evaluation standards and baseline data to be relied upon. The objective of the study will be to determine if HBGS's ocean water intake and wastewater discharge (existing and future) is contributing to the degradation of surf zone water quality, increasing the occurrence of indicator bacteria observed in the surf zone, and or increasing the number of beach closures in the Huntington Beach coastal area. The studies may include, but not be limited to, tracer (dye or other) studies, computer modeling of HBGS' thermal discharge and/or the OCSD plume, and monitoring aimed at assessing the origin and flow of the bacteria through antibiotic resistance patterns, or other methods. The study will also be of sufficient rigor and duration to evaluate seasonal and tidal influences and

conditions, changes in plant operation, thermal discharge plume size and characteristics, flow and velocity influences, cumulative impacts of the Poseidon desalination project and alternatives that may lessen or avoid the interaction (if one is determined to exist).

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

Soil disturbance activities will be minor and limited to the installation of the SCR units and the urea tank. Since the proposed construction activities will not exceed five acres in cumulative size, HBGS will not be required to comply with the General NPDES Permit for Storm Water Discharge Associated with Construction Activities. A Storm Water Pollution Prevention Plan is in effect at HBGS (revised 7/28/97) as required by the Santa Ana RWQCB.

As mentioned above, the HBGS is operating under a valid NPDES permit for its ocean intake and discharge. Under the current NPDES permit, requirements for the industrial wastewater discharge are prescribed. The permit also includes provisions of the General Industrial Storm Water Permit and effluent limitations per the Clean Water Act. Existing requirements include a Monitoring and Reporting program and Federal Spill Prevention Control and Countermeasures requirements. All retooling activities will be required to comply with these requirements.

As stated above, additional study is required to determine if the proposed power facility will comply with city requirements for potable water supplies.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

At this time, three issues remain outstanding in regard to the proposed HBGS retooling of Units 3 and 4: 1) water supply-related impacts to the City water system, 2) determination of the relationship/impacts associated with the projects intake/discharge to surf zone water quality and or levels of indicator bacteria in the surf zone, and 3) identification of any cumulative related impacts associated with the development of the desalination facility and retooling Units 3 & 4. Staff expects that implementation of mitigation measures suggested by the City will fully mitigate the impacts of this project on the City's water system and ensure compliance.

RECOMMENDATIONS

If the Commission approves this project, staff strongly recommends that the Commission do so only on a limited-term basis and require the recommended additional studies necessary to address the issues discussed above. Staff recommends that the applicant as directed by the city and in conjunction with CEC staff be required to conduct a study on the impacts associated with the increase in potable water demand and institute any mitigation determined to be necessary (Soil & Water 2). Also, an analysis (as specified) is needed to determine what effect the

HBGS ocean water intake and wastewater discharge have on surf zone water quality and or contribute to levels of indicator bacteria in the Huntington Beach area (Soil & Water 3 & 4). If impacts are identified, staff recommends that the applicant be required to fully mitigate these impacts to the surf zone water quality.

CONDITIONS OF CERTIFICATION

SOIL & WATER 1: Prior to operation of Units 3 and 4, the project owner will update and implement the HBGS Stormwater Pollution Prevention Plan, and Spill Prevention Control and Counter Measure Plan based on recommendations by the City of Huntington Beach to comply with all requirements of federal, state and local agencies as specified in NPDES No. CA0001163, Order No. 00-5, including Municipal Code Title 14 requirements for the protection of water quality. The applicant will work in cooperation with the City of Huntington Beach to determine what changes are necessary to bring the facility in compliance with local requirements. No stormwater runoff or industrial waste discharge from HBGS is to be discharge to surrounding wetlands or sensitive habitat. All recommended improvements and maintenance specified by the City of Huntington Beach will be implemented by the project owner prior to operation of Units 3 and 4 and during the units operation.

Immediately following certification by the Energy Commission, the project owner will submit the HBGS Stormwater Pollution Prevention Plan and Spill Prevention Control and Countermeasure Plan to the City of Huntington Beach for their review and determination of compliance with the City's Municipal Code Title 14. No less than 30 days after certification the project owner will submit to the CEC CPM and City of Huntington Beach a copy of the revised plans and verification from the City of Huntington Beach that the revised plans comply with all applicable local requirements and obtain CEC CPM approval for the revised plans prior to operation of Units 3 and 4.

SOIL & WATER 2: Prior to commercial operation of Units 3 and 4, the project owner shall execute a water service agreement with the City of Huntington Beach's Water Department that reflects all terms and conditions of municipal water service. As required by the City, the project owner will conduct or cause to occur supply and reservoir studies required to verify or identify if any upgrades or modifications to the existing system are necessary to serve HBGS. The project owner will fund all capital and administrative costs associated with the planning, design and building of upgrades or improvements to the City's existing system necessary to service any increased demands of HBGS, including those incurred by the City. Prior to commercial operation of Units 3 and 4, all specified upgrades or modifications identified in this study will be implemented.

The project owner will submit a copy of the water service agreement to the CEC CPM and include details of the City's recommended upgrades or modifications required, costs, schedule for the implementation of these improvements, and any

mitigation necessary to address impacts associated with these upgrades or modifications.

Within 30 days of Commission certification, the project owner will submit copies of the executed water service agreement, and the results of the approved supply and reservoir studies to the CEC CPM. Prior to commercial operation of Units 3 & 4, the project owner will submit verification from the City of Huntington Beach that all necessary upgrades or modifications have been completed as specified in the studies.

SOIL & WATER 3: The project owner will participate in the Stakeholders Group established to study HBGS' ocean water intake and wastewater discharge impacts on surf zone water quality, including effects on levels of indicator bacteria and beach closures. The project owner will fund all costs associated with the study(s) and implement solutions recommended in the studies, as determined necessary by the Energy Commission Staff. These measures will be implemented by the project owner within a schedule defined by the Energy Commission Staff, in consultation with the Stakeholders Group, no later than the HBGS NPDES permit renewal on June 30, 2005.

Within 30 days after the approval of the final monitoring and study plan by the CEC Water Resources Technical Staff and CPM, the project owner will submit a recommended schedule for the completion of all required mitigation to the CEC CPM for their review and approval. The project owner shall provide a letter of verification to the CEC CPM that the these methods have been implemented or completed within 15 days after their implementation and or completion but no later than the HBGS NPDES permit renewal on June 30, 2005.

SOIL & WATER 4: The project owner will provide a check for \$1 million to the Center for Natural Lands Management (Contact: Ms. Sherry Teresa, Executive Director, 425 E. Alvarado Street, Suite H, Fallbrook, CA 92028-2960) to establish the HBGS Water Quality Trust Account to administer and conduct the approved study specified in Soil & Water 3 above. All payments from the trust account must be authorized by the CEC CPM.

No later than 30 days prior to commercial operation of Units 3 and 4, the project owner will provide written verification from the Center for Natural Lands Management to the CEC CPM that 1) a check for \$1 million was provided to the Center and 2) the HBGS Water Quality Trust Account was established.

SOIL & WATER 5: Secondary containment will be designed and operated for the urea reactor tank to hold 110 percent of the capacity of the largest tank plus the freeboard precipitation of a 24 hour, 25-year storm event or other specified storm event standard appropriate for this site.

No more than two weeks after the installment of the urea tank reactor, the applicant will provide verification from the Santa Ana RWQCB that required secondary containment is installed and operational.

REFERENCES

AES. 2000. Application for Certification, Huntington Beach Retool Project (00-AFC-13). Submitted to the California Energy Commission, December 1, 2000.

AES. 2001a. Responses to Data Adequacy Issues. Submitted to the California Energy Commission, January 19, 2001.

AES. 2001b. Documentation Addressing the Remainder of those Data Adequacy Issues--Air Quality, Water Quality, Socioeconomics, and Visual Resources Sections. Submitted to the California Energy Commission, February 5, 2001.

CCC (California Coastal Commission). 2001. Coastal Commission Review of Proposed AES Huntington Beach Retool Project. Submitted to the California Energy Commission, February 16, 2001.

City of Huntington Beach (Matthew Lamb, P.E.). 2000. Letter to Eileen Allen regarding City of Huntington Beach Comments to AES Retool Project for Units 3 and 4 – Data Adequacy Phase. Dated December 21, 2000 and submitted to the Commission on December 26, 2000.

City of Huntington Beach. 2001a. Water Pollution Regulations. <http://www.hbsurfcity.com/clerk/mcode/title14/mc1424.htm>. Page viewed February 27, 2001.

City of Huntington Beach. 2001b. Description of Proposed Facilities, Seawater Desalination Project, Poseidon Resources Corporation. Submitted to the California Energy Commission, February 1, 2001.

SARWQCB (Santa Ana Regional Water Quality Control Board). 2000. NPDES Permit No. CA0001163, Order No. 00-5. Wastewater Discharge Requirements for Huntington Beach Generating Station, AES Huntington Beach, L.L.C. Issued June 30, 2000.

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UCI (University of California, Irvine), Moffatt and Nichol Engineers, URS, Komex Water Science. 2000. Final Report, Huntington Beach Water Quality Investigation Phase II: An Analysis of Ocean, Surf Zone, Watershed, Sediment and Groundwater Data Collected from June 1998 through September 2000. December 15, 2000.

APPENDIX A: HBGS WATER BALANCE

GEOLOGY AND PALEONTOLOGY

Testimony of Robert Anderson

INTRODUCTION

The geology and paleontology section discusses the project's potential impacts regarding geological hazards, geological and paleontological resources, and surface water hydrology. The purpose of 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 no proposed monitoring and mitigation measures with respect to geological hazards, geological, and paleontological resources, and surface water hydrology. Design for mitigation for geological hazards, and drainage and erosion control system design is covered under the **Facility Design** and the **Soils and Water Resources** Sections of the Staff Assessment.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The applicable LORS are listed in the AFC, in Sections 5.3, 5.5, 5.8, and 7.0 (AES 2000a). A brief description of the LORS for surface water hydrology, paleontological resources, and geological hazards and resources follows:

FEDERAL

There are no federal LORS for geological hazards and resources, paleontological resources, or grading for the proposed project.

STATE AND LOCAL

The California Building Code (CBC) 1998 edition is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC is a series of standards that are used in investigation, design (Chapters 16 and 18) and construction. Requirements for drainage and erosion control are presented in the **Facility Design** and **Soils and Water Resources** section of the Staff Assessment.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.

Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (SVP 1994) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

SETTING

The Huntington Beach Generating Station Retool Project (project) is located on a coastal plain between the northwestern limit of the Peninsular Range physiographic province and the Transverse Range physiographic province. The retooling project will involve existing units 3 and 4 at the Huntington Beach Generation Station (HBGS). The area involved in the retooling project covers approximately 12 acres, of which units 3 and 4 cover approximately 4 acres (AES 2000a, Page 1-2). No existing natural gas pipelines, water pipelines, or electrical transmission lines are to be rebuilt, or added to the site as a result of the retooling project. No grading is proposed during this project. It is understood that excavation for the foundation of the SCR will be limited to depth of approximately 5-7 feet below existing grade and will be contained in the on-site fill. The project is not crossed by known active faults. The Newport-Inglewood Fault Zone is the dominant fault zone within the immediate vicinity of the project. No surface water bodies are located at the project. However, the Pacific Ocean and the Huntington Beach and Talbert Flood Control Channels are located approximately 320 feet west, 500 feet northeast, and 2,600 feet east of the site respectively. The depth to ground water at the site varies between five and nine feet below existing grade (AES 2000a, Page 1-2). Site near-surface geology consists of artificial fill and alluvium. The alluvium is made up of Quaternary age sands, silts, clays, and gravel beneath existing grade. Underneath the alluvium are Tertiary age marine and continental units of sandstone, conglomerate, and clays that contain the Huntington Beach oil field.

The project site lies at an elevation of approximately 6 to 10 feet above mean sea level. Existing grade at the power plant site is less than 5%. The existing site drainage is sheet flow in nature and drains locally via on-site drainage channels into a retention basin. A 56,000 acre-feet per year seawater desalination plant has been proposed by the Poseidon Resources Corporation to be located within the fence line of the current Huntington Beach Generating Station. The desalination plant is not a part of the proposed retooling project, but rather is the subject of a separate permit application before the City of Huntington Beach. Several buildings and tanks are proposed to be constructed as a part of the desalination plant. No specific details for the desalination plant project are available. It is understood that the City

of Huntington Beach will conduct an environmental review regarding the proposed seawater desalination plant in the near future.

ANALYSIS AND IMPACTS

GEOLOGICAL HAZARDS

FAULTING AND SEISMICITY

The project is located within seismic zone 4 as delineated on Figure 16-2 of the 1998 edition of the California Building Code. Energy Commission staff reviewed the California Division of Mines and Geology publications "Geologic Map of the Santa Ana Sheet" dated 1985 (CDMG 1985) and the "Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions," dated 1994 (CDMG 1994). The existing ground surface at the site is highly disturbed. The footprint where the bulk of the retooling project will take place is covered by units 3 and 4 of the HBGS. Energy Commission staff visited the project site on February 21, 2001, and did not observe any surface faulting at the project site. No active faults are known to cross the power plant footprint. The closest active fault to the project is the North Branch of the Newport Inglewood Fault Zone. It is understood that the existing power plant was in operation during both the Sylmar moment magnitude 6.4 earthquake and Northridge moment magnitude 6.7 earthquake but was not damaged in either earthquake. The North Branch of the Newport-Inglewood Fault Zone is a type B, right lateral strike slip fault with a slip rate of approximately 1 mm/year (International Conference of Building Officials 1998, Page XV) and is located approximately 0.6 miles from the site. The South Branch of the Newport-Inglewood fault is suspected of crossing underneath the northeastern fuel oil tank at a depth of approximately 2,370 feet (Bryant 1988). This suspected fault was based upon observations of Bryant on oil well logs in the vicinity of the project (Bryant 1988). The South Branch of the Newport-Inglewood Fault Zone is not considered an active fault. The suspected fault does not manifest itself in the surface within the boundaries of the project. It is understood that the fuel oil tank has been drained and is not considered a part of the proposed project. The peak horizontal ground acceleration for the site is estimated by the applicant to be 0.6g (AES, February 22, 2001) based upon a moment magnitude 6.9 earthquake occurring approximately 0.6 miles east of the site on the Newport-Inglewood Fault Zone. Other faults near the project site include the Palos Verdes-Coronado Fault and the Elsinore Fault. Both of these faults are capable of earthquakes with a magnitude of similar size to the Newport-Inglewood Fault Zone, but the Newport-Inglewood Fault Zone is considered the fault upon which the design earthquake may occur since it is closer to the site than either the Palos Verdes-Coronado Fault or the Elsinore Fault.

LIQUEFACTION, HYDROCOMPACTION, SUBSIDENCE, AND EXPANSIVE SOILS

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. Three of the parameters used to assess the potential for liquefaction are the density, depth to groundwater, and the

peak horizontal ground acceleration estimated for the site. The depth to groundwater at the project is approximately 5 feet below existing grade. The peak horizontal ground acceleration for the design earthquake is 0.6g, which may be high enough when combined with the shallow ground water and locally loose sands to trigger liquefaction at the project site. The Applicant has acknowledged that the site is located in an area of high liquefaction potential (AES 2000a, AFC page 5.3-5). The project site is located in area mapped as liquefaction hazard zone (CDMG 1997). It is recommended by Energy Commission staff that the Applicant conduct a detailed liquefaction analysis of the project site and linear facilities prior to the completion of the final design for the project. This is one of the subjects of the proposed Condition of Certification **GEN-5** under the **Facility Design** section of the Staff Assessment.

Hydrocompaction is the process of the loss of soil volume upon the application of water. The fill at the site varies in consistency from loose to dense and is saturated below the water table. The potential for significant compaction due to hydrocompaction is considered remote since the ground water table at the site is shallow.

Subsidence of surficial and near surface soil units may be induced at the site by either strong ground shaking due to a large nearby earthquake, by consolidation of loose or soft soils due to heavy loading of the soils by large structures, or by the extraction of fluids from the subsurface. Subsidence due to fluid withdrawal (oil extraction) has been a regional problem that has been partially mitigated by the injection of water into the subsurface. The injection of water into the subsurface has also been regionally used to prevent the intrusion of sea water into local aquifers north of the project. Both subsidence stabilization and the salt water intrusion mitigation have been moderately successful.

Soils that contain a high percentage of expansive clay minerals are prone to expansion, if subjected to an increase in water content. Expansive soils are usually measured with an index test such as the expansive index potential. In order for a soil to be a candidate for testing, the soil must have a high clay content and the clay must have a high shrink-swell potential and a high plasticity index. No test results for the potential for the shrink-swell potential, expansive index potential, or the consolidation or bearing capacity of the soils have been submitted to the CEC. The Applicant has indicated in the AFC that silty-clay and clayey-silt soils above the water table may be prone to consolidation and/or the absorption of significant amounts of water. Prior to the final design of the foundation for the SCR the Applicant should have a foundation investigation report conducted and reviewed by the CBO at the time that the construction plans for the SCR are to be reviewed by the CBO per Condition of Certification **GEN-5** under the **Facility Design** section of the Staff Assessment.

LANDSLIDES

No landslides were observed on or adjacent to the proposed power plant footprint during a staff site visit on February 21, 2001. Landsliding potential at the proposed

power plant site is considered to be negligible, since the project is at the existing power plant where there is less than a five per cent slope.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The project is located in the Huntington Beach Oil Field. The project location is designated as Mineral Resources Zone-3, an area of undetermined mineral resources potential (AES 2000a, AFC Page 5.3-7). The oil within the Huntington Beach Oil Field may be obtained through the use of directional drilling and well construction as well as installation of near-by oil production wells, should the area of the oil field be redeveloped for petroleum production. There are no known paleontological resources at the proposed power plant location.

Regarding paleontological resources, Energy Commission staff has reviewed the paleontological resources technical report (AES 2001X, AFC Appendix H) and section 5.8. The project site is highly disturbed and partially covered by artificial fill. No significant paleontological resources were reported by the applicant's paleontologist during the paleontological archive and literature reviews. No paleontological resources were observed by Energy Commission staff at the project site during a site visit on February 21, 2001.

SURFACE WATER HYDROLOGY

The site is located in an area designated as "A99" on the Federal Emergency Management Agency Flood Insurance Rate Map No. 06059C0045F, revised January 3, 1997. The designation means that the site is located in an area to be protected by a federal flood protection system under construction, but has no base flood elevation determined. Minimum grade for the power plant area will be 1 per cent and all drainage will be directed away from buildings within the footprint. The design storm event is the 100-year 24-hour storm (NOAA 1973), with a precipitation amount of 7 inches. Drainage at the site is sheet flow to the west where it is collected into a general-purpose retention basin. The proposed surface water drainage system is anticipated to be able to accommodate the surface water run-off from the project site.

TSUNAMI

A tsunami is a wave of water that may be generated by an earthquake or a large underwater landslide. The estimated run-up for a tsunami was indicated by the Applicant to be approximately 5.7 feet. The epicenter of the 1933 Long Beach earthquake was located in the Pacific Ocean, approximately 3.5 miles southwest of Newport Beach (4 miles south of the project site). Wood (Wood 1933) recorded that no tsunami was observed after the March 10, 1933 Long Beach earthquake.

SITE SPECIFIC IMPACTS

Even though the project is located over the Huntington Beach Oil Field, directional drilling techniques will allow for the extraction of oil from the field. Since the Huntington Beach Oil Field has been developed, no geological resources will be impacted by the construction and operation of the project. Since there is to be no grading, Energy Commission staff consider that the probability that significant

paleontological resources will be encountered during the retooling of the power plant is nil.

CUMULATIVE IMPACTS

It is staff's opinion that the potential for a significant adverse cumulative impact on paleontological resources, geological resources, or surface water hydrology is unlikely, if the project is constructed according to the proposed conditions of certification found in the **Facility Design** and **Soils and Water Resources** section of the Staff Assessment. The construction and operation of both the retooling project and the seawater desalination project are not seen to adversely impact geological or paleontological resources or surface water hydrology since site is not known to have significant paleontological or geological resources in the near surface and an existing on-site drainage system is adequate to serve the existing facilities and that the on-site surface water flow would not be expected to be significantly increased during or after the construction of the seawater desalination plant. It is noted that the site is located in the Huntington Beach Oil Field and that directional drilling would allow for oil to be recovered from the field beneath the site.

FACILITY CLOSURE

A definition and general approach to closure is presented in the **General Conditions** section of this document. Facility closure activities are not anticipated to impact geological or paleontological resources. This is due to the fact that no paleontological or geological resources are known to exist at the power plant location. In addition, decommissioning and closure of the power plant should not negatively affect geological or paleontological resources since the majority of the ground disturbed in plant decommissioning and closure would have been disturbed in the construction of the plant. Surface water hydrology impacts will depend upon the closure activities proposed.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Energy Commission staff received one set of comments from the City of Huntington Beach via e-mail on December 21, 2000. The Energy Commission staff also received comments via a teleconference call from the public regarding seismicity, liquefaction, and flooding.

The City of Huntington Beach asked for the inclusion in the AFC of a discussion saying that the project site is located in an Alquist-Priolo Earthquake Hazard Zone and a Seismic Hazard Zone. The project is not in an Alquist-Priolo Earthquake Hazard Zone but is in a zone denoted by the California Division of Mines and Geology with a potential for liquefaction. The comments received from Mr. Richard Loy of Huntington Beach, dated January 31, 2001, were not clear regarding specific concerns for "seismic factors and liquefaction" and flooding.

MITIGATION

No mitigation for geological hazards and surface water hydrology other than the mitigation proposed under the Condition of Certification **GEN-5** for **Facility Design**, and related Conditions of Certification for **Soils and Water Resources**.

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The applicant will likely be able to comply with applicable LORS. The project should have no adverse impact with respect to geological and paleontological resources and surface water hydrology. Staff proposes to ensure compliance with applicable LORS for geological hazards and surface water hydrology with the adoption of the proposed conditions of certification listed in the conditions of certification for surface water hydrology and geological hazards located in the **Soil and Water Resources** and the **Facility Design** sections of this document.

RECOMMENDATIONS

No conditions of certification for paleontological resources are proposed since the site is not to be graded. No conditions of certification for geological resources are proposed since there are no known surficial geological resources at the site and the Huntington Beach Oil Field is accessible beneath the site via directional drilling.

PROPOSED CONDITIONS OF CERTIFICATION

Since no major grading is proposed for the project, no conditions of certification for geological hazards, geological resources or paleontological resources are proposed. A Foundation Investigation Report for the SCR will be required under CBC Section 1804. The Condition of Certification calling for the foundation investigation report is identified as **GEN-5** under the **Facility Design** section of the Staff Assessment.

REFERENCES

- AES (AES Huntington Beach LLC). 2000a. Application for Certification, Huntington Beach Generating Station Retool Project, California (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.
- AES (AES Huntington Beach LLC). 2001X. Response to CEC data request number 29, dated February 22, 2001.
- AES (AES Huntington Beach LLC). 2001X. Application for Certification, Huntington Beach Generating Station Retool Project, California (00-AFC-13). Paleontological Resources Technical Report Including Scientific Literature Review and Site Records/Specimen Survey, (Appendix H [Confidential]). Filed with the California Energy Commission February 23, 2001.

- CDMG (California Division of Mines and Geology). 1985 (Fifth Printing). Geologic Map of the Santa Ana Sheet, Scale 1:250,000.
- CDMG (California Division of Mines and Geology). 1985. Southern Newport-Inglewood Fault Zone Southern Los Angeles and Northern Orange Counties, California Fault Evaluation Report No. 172.
- CDMG (California Division of Mines and Geology). 1994. Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, Scale: 1:750,000.
- CDMG (California Division of Mines and Geology). 1997. Seismic Hazard Zone Map Newport Beach 7.5-minute Quadrangle, scale 1:24,000
- International Conference of Building Officials. 1998. Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, Page XV.
- NOAA (National Oceanic and Atmospheric Administration). 1973. Precipitation-Frequency Atlas of the Western United States, Volume XI-California, Figure 43.
- SVP (Society of Vertebrate Paleontologists). 1994. Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures. October 1994.
- Wood, H.D. 1933. Preliminary Report on the Long Beach Earthquake, in Bulletin of the Seismological Society of America No. 23, Page 55.

FACILITY DESIGN

Testimony of Bob Anderson, Steve Baker and, Al McCuen

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 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 LORS, and in a manner that protects environmental quality and 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 or environmental protection; 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 LORS and any special design requirements.

FINDINGS REQUIRED

The Warren Alquist Act requires the Energy 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:

1. Identification of the LORS applicable to facility design;
2. Evaluation of the applicant’s proposed design criteria;
3. Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable LORS; and Conditions of Certification proposed by Energy Commission staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable LORS.

SETTING

AES Huntington Beach LLC (AES) is seeking approval to retool and return to service the Huntington Beach Generating Station (HBGS) Units 3 and 4. The HBGS Retool Project will refurbish two 225 MW steam boiler power plants that AES intends to operate for five to eight years as a peaking and load following power plant. The project will use the existing connections for natural gas supply, transmission interconnection, and water supply. The project will also make use of

existing wastewater and sanitary waste systems (AES 2000a, AFC §§ 1.3.2, 1.3.4, 2.1, 3.1, 3.4.1, 3.4.3).

FACILITY LOCATION AND SITE DESCRIPTION

The site lies within the boundaries of the HBGS, which includes Units 1 and 2 (a pair of steam boiler power plant units) and Unit 5, eight gas turbine peaking power units. The project will occupy four acres of a 12-acre plot within the HBGS (AES 2000a, AFC §§ 1.3.1, 3.4.2).

Topography

The site is generally flat with a slope of less than five percent. Elevation ranges from +6 to +10 feet above sea level (AES 2000a, AFC § 1.3.1).

The site lies in seismic zone 4, as denoted in Table 16-2 of the 1997 edition of the Uniform Building Code. For more information on the site and related project description, please see **Project Description**.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The applicable LORS for each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (AES 2000a, AFC §§ 7.3.2, 7.3.3, 7.3.4, 7.4.4; Table 7.4-3). In addition, the City of Huntington Beach Building Code applies to the project.

ANALYSIS

The basis of this analysis is the applicant's proposed analysis and construction methods and list of LORS and design criteria set forth in the AFC.

FACILITY CIVIL/STRUCTURAL FEATURES

POWER GENERATION EQUIPMENT

The existing HBGS Units 3 and 4 are two 225 MW Rankine Cycle steam boiler power plants, originally constructed in the late 1950s and removed from service in 1995. The Retool Project will refurbish the units; upgrade materials; install new flue gas recirculation fans, burners and burner management system; add a new selective catalytic reduction (SCR) system to control air emissions; and return the units to service by the summer of 2001 (AES 2000a, AFC §§ 1.1, 1.2, 1.3.2, 2.3, 3.4.1, 3.4.3).

STACKS

The existing single stack, 214 feet tall, will continue to serve the two units of the Retool Project.

BUILDINGS

No new buildings will be erected for the Retool Project. The only completely new structure will be the SCR unit. The SCR will be erected on a foundation that will

rest upon a fill prism. No penetration of the existing prism into the underlying soil is anticipated.

SITE PREPARATION AND DEVELOPMENT

SITE PREPARATION

Site preparation will consist of excavation and removal of the existing pavement section, excavation of onsite earth materials to desired foundation grades, and, where required, over-excavation and replacement of any loose, compressible foundation soils under the new SCR unit. As proposed, no new area fill is expected to be placed to raise the existing grade within the Retool Project area.

Foundation Excavation

Excavations up to 4 to 6 feet may be required for the pile caps supporting the facilities. Excavation of the onsite fill will be accomplished with conventional equipment. The stability of the excavation will depend on the fill characteristics, groundwater control, and the duration of excavation. The need for stabilizing the excavation bottom will be evaluated at the time of construction.

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.

The project shall be designed and constructed to the 1998 edition of the California Building Code (CBC), the City of Huntington Beach Building Code, and other applicable codes and standards in effect at the time design and construction of the project actually commence. Under the CBC, initial designs must be submitted to the Chief Building Official (CBO)¹ for review and approval before construction may commence.

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.

¹The CBO is the CEC's duly appointed representative, who may be the City or County Chief Building Official, or other appointed representative.

MECHANICAL LORS AND DESIGN CRITERIA

The application lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts (AES 2000a, AFC § 7.3.3). Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure that the project's mechanical systems are designed to the appropriate codes and standards. Staff has proposed conditions of certification (**MECH-1** through **MECH-4**, below) to monitor compliance with this requirement.

ELECTRICAL LORS AND DESIGN CRITERIA

The application lists and describes the electrical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts (AES 2000a, AFC § 7.3.4). Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure that the project's electrical systems are designed to the appropriate codes and standards. Staff has proposed conditions of certification (**ELEC-1** and **ELEC-2**, below) to monitor compliance with this requirement.

NATURAL GAS PIPELINES

The existing natural gas supply pipelines will continue to serve the HBGS, including the Retool Project. No new pipeline construction will be required.

ANCILLARY FACILITIES

Transmission System

The existing electrical transmission lines will continue to serve the HBGS, including the Retool Project. No new transmission line construction will be required.

Raw Water Supply

The existing water supply systems will continue to serve the HBGS, including the Retool Project. No new water supply facilities will be required.

Effluent Water Discharge Line

The existing water discharge system will continue to serve the HBGS, including the Retool Project. No new effluent pipeline will be required for the project.

PROJECT QUALITY PROCEDURES

DESIGN CRITERIA AND STANDARDS

Each construction contractor will be required to develop a Quality Assurance/Quality Control (QA/QC) plan acceptable to the project owner prior to the start of project construction. In addition to the QA/QC plan, all equipment suppliers will be required

to demonstrate that they meet applicable codes for the fabrication of the equipment (AES 2000a, AFC §§ 4.3.6, 4.3.6.1, 4.3.6.2).

Any QA/QC program will be developed to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed, and tested in accordance with the technical codes and standards appropriate for a powerplant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of the QA/QC program will ensure that the project is designed, procured, fabricated and installed in accordance with all the applicable LORS.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the chief 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 chief 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. Compliance with all facility design Conditions of Certification will ensure this conformance. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegate agents typically include the local chief building official and independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff will invite the City of Huntington Beach to act as CBO for the project. Energy Commission staff will complete a Memorandum of Understanding (MOU) with the City (or with an independent third party contractor, if the City is unwilling or unable to act as CBO) that outlines its roles and responsibilities and those of its subcontractors and delegate agents.

Energy Commission staff has developed proposed Conditions of Certification to monitor compliance with the CBC. 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 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, which 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 expected useful life of the Retool Project is five to eight years. At the end of that time, the project may be decommissioned. To ensure that the facility closure will be completed in a manner that both protects public health and safety, the project owner shall submit a decommissioning plan to the CEC and the City of Huntington Beach, twelve months prior to its planned closure. The decommissioning plan shall include the following as a minimum:

1. Identification and discussion of the proposed decommissioning activities and schedule for the power plant and appurtenant facilities constructed as part of the project;
2. Identification of applicable laws, ordinances, regulations, and standards (LORS) in effect at the time;
3. Discussion of how the proposed decommissioning activities will comply with the identified LORS;
4. An analysis of decommissioning alternatives considered; and,
5. A discussion of the reasons for selecting the preferred decommissioning plans.

Energy Commission staff has proposed conditions (see **General Conditions**) to ensure that these measures are included in the Facility Closure Plan.

Response to Public and Agency Comments. The City of Huntington Beach has submitted comments on the AFC in the form of a Report in Response to AFC (Huntington Beach 2001). The Report recommends the following actions relating to **Facility Design**:

1. The City of Huntington Beach should be appointed as the Energy Commission delegate CBO.

Response: Energy Commission staff will invite a qualified entity to perform the duties of CBO. At this time, Energy Commission staff intends to invite the City of Huntington Beach to act as CBO.

2. AES shall be required to perform structural and foundation modifications to bring the HBGS Units 3 and 4 into compliance with the 1997 Uniform Building Code.

Response: All new construction will be performed to current LORS, including the 1998 CBC. See proposed Condition of Certification **GEN-1** below. Existing structures that are not modified need not be reengineered or rebuilt.

3. The City Planning Director shall be allowed to review and approve any changes in the project.

Response: For subjects covered under **Facility Design**, the CBO will perform all necessary reviews and approvals.

4. AES shall apply for and receive applicable demolition permits.

Response: All physical work performed as part of the project is subject to the applicable engineering LORS. See proposed Condition of Certification **GEN-1** below. If LORS require demolition permits, the CBO will be the issuer.

5. AES shall design the project to the proper ground surface acceleration, as determined by an engineering geologist's report.

Response: This is required under the CBC, and ensured by proposed Conditions of Certification **GEN-5** and **STRUC-1**, below.

6. AES shall demonstrate that the project complies with the standards of the FP2 Flood Overlay District.

Response: The Santa Ana River flood control project, currently being pursued by the US Army Corps of Engineers, along with existing site drainage systems, will ensure flood safety during a 100-year event.

7. AES shall bring the project site into compliance with flood control measures required under the A-99 flood plain designation at the site.

Response: The Santa Ana River flood control project, currently being pursued by the US Army Corps of Engineers, along with existing site drainage systems, will ensure flood safety during a 100-year event.

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. 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, constructed, operated, and eventually closed in accordance with applicable LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the local CBO or other commission delegate agent. Energy Commission staff will audit the CBO to ensure satisfactory performance.
4. The Energy Commission design review and construction inspection process will be in place for the project and will allow construction to start as scheduled if the project is certified. The process will provide the necessary reviews to ensure compliance with applicable facility design LORS and conditions of certification.
5. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan required by **GEN-9**, prior to the commencement of decommissioning, the decommissioning procedure is likely to result in satisfactory decommissioning performance.

RECOMMENDATIONS

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)² and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

² The Sections, Chapters, Appendices and Tables mentioned in these conditions of certification, unless otherwise stated, refer to the Sections, Chapters, Appendices and Tables of the 1998 California Building Code (CBC). The CBC in effect is that edition, which has been adopted by the California Building Standards Commission and published at least 180 days previously.

Protocol: In the event that the project design is submitted to the Chief Building Official (CBO)³ 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.

Within 30 days⁴ after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 – Certificate of Occupancy].

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

At least fifteen days 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 project owner shall provide schedule updates in the Monthly Compliance Report.

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

The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

³The CBO is the CEC's duly appointed representative, who may be the City or County Chief Building Official, or other appointed representative.

⁴ For all times specified in this chapter, except where specifically precluded, the project owner and CBO may mutually agree to a lesser or greater number of days.

GEN-4 Prior to the start of construction, 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 TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

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

The RE shall:

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

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

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.

At least fifteen days prior to the start of construction, the project owner shall submit to the CBO for review and approval, the name, qualifications and registration number of the RE and any other delegated engineers assigned to the project. The

project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

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

GEN-5 Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of powerplant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736, require 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 TSE-1, TSE-2 and TSE-3 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, powerplant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

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

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

Protocol: A: The civil engineer shall:

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

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

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

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

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

Protocol: C: The design engineer shall:

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

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

Protocol: E: The electrical engineer shall:

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

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

At least fifteen days prior to the start of construction, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, a 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 TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

Protocol: The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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

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

the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

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

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

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

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" 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].

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

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

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

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

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

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

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, Section 108, Inspections; and Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection.

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

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

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

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 plans, and

that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for:

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

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

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record].

At least fifteen days prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and

calculations conform with all of the requirements set forth in the Energy Commission's Decision.

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

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

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

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

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

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

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

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

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

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (excluding domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping in accordance with the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests].

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

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

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
- Specific City/County code.
- The CBO may require the project owner to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation [1998 CBC, Section 104.2.2, Deputies].

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

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

The project owner shall:

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

At least fifteen days prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO design approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

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

At least fifteen days prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, with a copy of the transmittal letter to the CPM.

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

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

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

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

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

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

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

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

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

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

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

ELEC-2 The project owner shall submit to the CBO the required number of copies of items A and B for review and approval and one copy of item C [CBC 1998, Section 106.3.2, Submittal documents.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

Protocol: A. Final plant design plans to include:

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

Protocol: B. Final plant calculations to establish:

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

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

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

REFERENCES

AES Huntington Beach LLC (AES). 2000a. Application for Certification, AES Huntington Beach Generating Station Retool Project (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.

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POWER PLANT RELIABILITY

Testimony of Steve Baker

INTRODUCTION

In this analysis, Energy Commission 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 AES Huntington Beach LLC (AES) has predicted a level of reliability for the power plant (see below), Energy Commission staff believes AES should not be held responsible for achieving this goal, so long as the plant's reliability matches or exceeds that of similar plants.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). Energy Commission staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system (see 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 restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California Independent System Operator (Cal-ISO), which is responsible for dispatching electric power throughout the state. Protocols are being employed 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:

1. filing periodic reports on plant reliability;
2. reporting all outages and their causes; and
3. scheduling all planned maintenance outages with the Cal-ISO (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. There has been cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures would act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It was seen as 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 would prove invalid, with potentially disappointing results. Recent energy shortages, exacerbated by an unexpectedly high level of power plant forced outages, have pointed to power plant reliability as a vital factor in system operation. Until the restructured competitive electric power system has undergone an adequate shakeout period, and the effects of varying power plant reliability are understood and compensated for, Energy Commission 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.

AES proposes to retool and return to service the existing Huntington Beach Units 3 and 4 power plants to generate load following and peaking power and provide ancillary services (AES 2000a, AFC §§ 2.2, 3.4.1, 3.9.2.1.1). The Huntington Beach Generation Station Retool Project (Retool Project) will involve refurbishing and upgrading the boilers and steam turbines, adding selective catalytic reduction (SCR) to control air emissions, and returning the units to service by the summer of 2001 (AES 2000a, AFC §§ 1.1, 1.2, 1.3.2, 3.4.1, 3.4.2, 3.4.3, 3.4.5). Although AES proposes to operate the units for only five to eight years, until sufficient numbers of new, more efficient plants come on-line, and only for 2,500 hours per year, the Retool Project may see baseload service (seven days per week, 24 hours per day) for some periods (AES 2000a, AFC §§ 1.3.2, 2.1, 3.4.1, 3.9.1, 3.9.2.1.1, 3.9.2.6).

ANALYSIS

A reliable power plant is one that is available when called upon to operate. Throughout its intended life, the Retool Project will be expected to perform reliably in peaking and load following duty. Peaking power plant systems must be able to operate for only a few hours per day without shutting down for maintenance or repairs. The plant will typically be shut down every night, on weekends, and in the fall and spring, allowing time for maintenance and repairs. Achieving acceptable reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability, fuel and water availability, and resistance to natural hazards. A load following plant may be called on to operate continuously for longer periods. Acceptable reliability can be accomplished by, in addition, providing adequate

redundancy of critical components. Energy Commission staff examines these factors for the project and compares them to industry norms. If they compare favorably, Energy Commission staff can conclude that the Retool Project 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, by providing adequate redundancy of critical components, and by providing for adequate maintenance and repair of the equipment and systems (discussed below).

QA/QC PROGRAM

The applicant describes a QA/QC program (AES 2000a, AFC §§ 4.3.6, 4.3.6.2) typical of the power industry. Design will be performed by qualified engineers, licensed in California. Equipment will be purchased from qualified suppliers that employ an approved QC program. Designs will be checked and equipment will be inspected on receipt; installation will be inspected and systems tested. Energy Commission staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, Energy Commission staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

EQUIPMENT REDUNDANCY

A power plant called on to operate in baseload or load following 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.

AES plans to provide adequate redundancy for the Retool Project (AES 2000a, AFC §§ 3.4.12.4, 3.9.2.5, 3.9.2.6.1, 4.3.2.1, 4.3.2.2). Energy Commission staff regards this as adequate assurance that reliable plant operation will not be jeopardized by inadequate redundancy of critical components.

MAINTENANCE PROGRAM

AES proposes to establish and implement a plant maintenance program typical of the industry (AES 2000a, AFC §§ 3.9.2.1.2, 3.9.2.6, 3.9.2.6.1, 3.9.2.6.2, 4.3.1.1, 4.3.5.1, 4.3.5.3). AES's maintenance organization, experienced in the maintenance of such facilities (HBGS Units 1 and 2), will perform maintenance on the plant consistent with typical industry standards. The maintenance procedures will include preventive, predictive and corrective maintenance. In light of these plans, Energy Commission 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 process water 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 Retool Project will burn natural gas from the Southern California Gas Company (SoCalGas) system. Gas will be supplied to the plant from the existing 18-inch diameter pipeline that supplies the HBGS from an existing 30-inch diameter SoCalGas pipeline (AES 2000a, AFC §§ 1.3.3, 3.4.6, 3.7.1, 3.9.2.6.3). This natural gas system, which provides access to gas from California, the Rocky Mountains, Canada and the Southwest, represents a resource of considerable capacity. This system offers access to far more gas than the plant would require. Energy Commission 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 Retool Project will obtain water for steam cycle makeup, potable water and other plant uses from the existing City of Huntington Beach system via an existing main (AES 2000a, AFC §§ 1.3.4, 3.4.1, 3.4.7.1, 3.4.7.1.2, 3.7.2, 3.9.2.6.4, 4.3.4). Demineralized water for steam cycle makeup will be produced on-site from City water by an existing demineralizer. Condenser cooling, the greatest water consumer in a plant such as this, will be via the existing seawater cooling system (AES 2000a, AFC §§ 1.3.2, 1.3.4, 3.4.4, 3.4.7.1, 3.4.7.1.1, 3.9.2.6.4, 3.11.2.3, 4.3.4). Energy Commission 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 **Water Resources**.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds and seiches (waves in inland bodies of water) will not likely represent a hazard for this project, but seismic shaking (earthquake), flooding and tsunamis (tidal waves) 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; see that portion of this document entitled **Geology and Paleontology**. The new portions of the project (chiefly the SCR system) will be designed and constructed to the current engineering and seismic design LORS. Compliance with these current LORS 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, any new features of this project will

likely perform at least as well as, and perhaps better than, existing plants in the electric power system.

The preexisting portions of the project define the historic performance of such older plants, and can thus be expected to perform to norms. In light of the historical performance of California power plants and the electrical system in seismic events, Energy Commission staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events. Energy Commission staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**.

FLOODING

The project site lies within a 100-year flood plain (AES 2000a, AFC §§ 3.3.3.1, 4.1.1.2). As described in the portion of this document entitled **Geology and Paleontology**, the site elevation, the surrounding earth berms, and the on-site water retention basin are expected to adequately protect the Retool Project from flooding.

TSUNAMI

Due to its location adjacent to the Pacific Ocean, and to its low altitude (six to ten feet above mean sea level), the project could conceivably be impacted by a tsunami (AES 2000a, AFC §§ 1.3.1, 4.1.1.2,). As discussed in the portion of this document entitled **Geology and Paleontology**, estimated tsunami run-up would be only 5.7 feet. This, combined with the site's distance from the ocean of 320 feet lends confidence that the project will not be endangered by tsunami.

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 Steam Boiler units (200 - 299 MW)
Availability Factor = 85.33 percent

AES's prediction of an annual availability factor of 90 to 95 percent, based on operating 2,500 hours per year (AES 2000a, AFC §§ 1.3.2, 2.1, 3.4.1, 3.9.1, 3.9.2.6) appears reasonable compared to this NERC figure for similar plants throughout North America (see above) for three reasons.

First, since the plant will be utilized chiefly for peaking, it will be shut down many nights and weekends. Necessary maintenance, and noncritical repairs, can be performed when the plant is not dispatched, thus not affecting availability.

Second, the plant will be utilized chiefly for seasonal peaking, operating mainly in the summer or winter months. Any extensive scheduled maintenance can be performed during the off season (fall or spring), thus not affecting plant availability.

Third, the Retool Project will refurbish and renew much of the plant, returning its equipment to like-new condition. AES will refurbish systems, upgrade the materials in critical components and systems, install new flue gas recirculation fans, and install new burners and burner management systems (AES 2000a, AFC §§ 1.3.2, 3.4.1, 3.4.5, 3.9.2.2). This factor should allow the project to outperform those making up the NERC statistics, plants that operate with aging equipment.

The applicant's estimate of plant availability therefore appears realistic. The stated procedures for assuring design, procurement and refurbishment of a reliable power plant appear to be in keeping with industry norms, and Energy Commission staff believes they are likely to yield an adequately reliable plant.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, cannot impact project reliability. Reliability impacts on the electric system from facility closure, should there be any, are dealt with in that portion of this document entitled **Transmission System Engineering**.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The applicant predicts an equivalent availability factor in the range of 90 to 95 percent, which Energy Commission staff believes is achievable in light of the industry norm of 85 percent for similar plants operated year-round, the proposed renewal and refurbishment of plant equipment and systems, the applicant's proposed maintenance program, and the seasonal nature of the project's operation. Based on a review of the proposal, Energy Commission 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.

RECOMMENDATIONS

No Conditions of Certification are proposed.

REFERENCES

AES (AES Huntington Beach LLC). 2000a. Application for Certification, AES Huntington Beach Generating Station Retool Project (00-AFC-13). Submitted to the California Energy Commission, December 1, 2000.

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POWER PLANT EFFICIENCY

Testimony of Steve Baker

INTRODUCTION

The Energy Commission makes findings as to whether energy use by the Huntington Beach Generating Station Retool Project (Retool Project) 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 Retool Project'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

AES Huntington Beach LLC (AES) proposes to retool and return to service the existing Huntington Beach Units 3 and 4 power plants to generate load following and peaking power and provide ancillary services, selling directly to customers via contract and on the spot market (AES 2000a, AFC §§ 2.2, 3.4.1, 3.9.2.1, 3.9.2.1.1, 3.9.2.1.2, 3.9.2.6). (Note that the project's nominal rating of 450 MW, or 225 MW per unit, is based upon past experience operating these units. The project's actual maximum generating capacity may differ from this figure.) The Retool Project will involve refurbishing and upgrading the boilers and steam turbines, adding selective catalytic reduction (SCR) to control air emissions, and returning the units to service by the summer of 2001 (AES 2000a, AFC §§ 1.1, 1.2, 1.3.2, 3.4.1, 3.4.2, 3.4.3, 3.4.5).

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 Retool Project will burn natural gas at a nominal rate up to 6.3 billion Btu per year⁵ HHV⁶ (AES 2000a, AFC § 3.4.1). 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 36 to 37 percent HHV (AES 2000a, AFC §§ 1.3.2, 3.4.1; Appendix A). This compares favorably to the average fuel efficiency of many typical, older California utility company steam power plants, commonly used today for peaking power, at approximately 32 percent HHV.

ADVERSE EFFECTS ON ENERGY SUPPLIES AND RESOURCES

The applicant has described its sources of supply of natural gas for the Retool Project (AES 2000a, AFC §§ 1.3.3, 3.4.6, 3.7.1, 3.9.2.6.3, 3.9.4, 3.11.5, 4.3.3). The project will burn natural gas from the existing Southern California Gas Company

⁵ Based on 2,500 operating hours per year.

⁶ Higher heating value.

(SoCalGas) pipeline that has served (and continues to serve) the existing HBGS. The SoCalGas gas supply infrastructure is extensive, offering access to vast reserves of gas from California, the Rocky Mountains, Canada and the Southwest. This source represents far more gas than would be required for a project of 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 Retool 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 by the existing 18-inch diameter pipeline that supplies the HBGS from an existing 30-inch diameter SoCalGas pipeline (AES 2000a, AFC §§ 1.3.3, 3.4.6, 3.7.1, 3.9.2.6.3). This line has proven to be of sufficient size to serve the HBGS, and should provide adequate access to natural gas fuel. There is no real likelihood that the Retool Project will require the development of additional energy supply capacity.

COMPLIANCE WITH ENERGY STANDARDS

No standards apply to the efficiency of the Retool Project or other non-cogeneration projects.

ALTERNATIVES TO REDUCE WASTEFUL, INEFFICIENT AND UNNECESSARY ENERGY CONSUMPTION

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 chiefly by the configuration of the power producing system.

PROJECT CONFIGURATION

The Retool Project is a pair of Rankine cycle steam boiler plants built in the late 1950s (AES 2000a, AFC §§ 1.2, 1.3.2, 3.1, 3.4.1, 3.4.3, 3.5.1, 4.3.2.1). In a Rankine cycle power plant, fuel burned in a boiler creates steam that drives a steam turbine generator. This configuration was state of the art technology when first constructed, representing the most efficient technology then available.

EFFICIENCY OF ALTERNATIVES TO THE PROJECT

The project objectives are; 1) to generate load following and peaking power for 2,500 hours per year or more, 2) to provide ancillary services as a function of its proximity to large load centers, and 3) to be online by summer 2001. Power will be sold on the spot market or via bilateral contracts (AES 2000a, AFC §§ 1.1, 1.2, 2.2, 2.3, 3.4.1, 3.4.3, 3.9.2.1.1, 3.9.2.1.2, 3.9.2.6). The retooled units are expected to see service for the next five to eight years, until other newer, more fuel-efficient power plants replace them (AES 2000a, AFC §§ 2.1, 3.9.1).

Alternative Generating Technologies

The applicant addresses alternative generating technologies in its application (AES 2000a, AFC §§ 3.11.2.1, 3.11.2.3, 3.11.5). Geothermal, hydroelectric, biomass,

solar and windpower were all considered, as was fuel oil. The project's primary objective is to commence operation as a peaking and load following plant in time for the summer 2001 peaking season (AES 2000a, AFC §§ 1.1, 1.2, 2.2, 2.3, 3.9.2.1.1, 3.9.2.1.2, 3.9.2.6). Given the project objectives, location and air pollution control requirements, staff agrees with the applicant that only natural gas-burning technologies are feasible.

The only real alternative, a simple cycle gas turbine peaking power plant composed of multiple machines,⁷ could likely not be brought on-line in the required time frame. The fuel efficiency of such machines ranges from 33.2 percent HHV (General Electric LM2500) to 37.3 percent HHV (GE LM6000 Sprint) (GTW 1999), no improvement over the 36 to 37 percent efficiency of Units 3 and 4 (AES 2000a, AFC §§ 1.3.2, 3.4.1; Appendix A). A combined cycle power plant, composed of gas turbine generators, heat recovery steam generators and steam turbine generators, while more efficient (49 to 52 percent HHV efficiency are typical figures), would require at least 20 months to construct; this would not meet the required time frame. Therefore, there are no alternatives that could significantly reduce energy consumption and be available for service within the required time frame.

CUMULATIVE IMPACTS

Nearby power plant projects include the Nueva Azalea Project in South Gate (00-AFC-3), the planned Long Beach District Energy Facility, a planned expansion or modernization of the Redondo Beach Generating Station, and the El Segundo Power Redevelopment Project (00-AFC-14). The applicant also refers to other non-power plant projects in the Los Angeles basin (AES 2000a, AFC § 5.18.2). The applicants of these power plant projects will be required to address fuel supply impacts when those projects are presented to the Energy Commission. None of the non-power plant projects are known to pose any threats of impacts on the electric system or the natural gas supply system..

Staff believes that construction and operation of the Retool Project will not bring about cumulative impacts, in the form of additional fuel consumption, that would not have occurred but for the Retool Project. Any peaking power brought on-line by the summer of 2001 would not be more efficient. Thus, no indirect impacts are likely.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, will not have an effect on the project's 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 market mechanism to set prices and ensure the efficient management of the system, all lend assurance that closure of this facility will not produce significant adverse impacts on overall power system efficiency.

⁷ Ten or more gas turbine generators would be required.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Retool Project, if constructed and operated as proposed, would generate approximately 450 MW of electric power at an overall project fuel efficiency between 36 and 37 percent. 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 Retool 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.

RECOMMENDATION

No Conditions of Certification are proposed.

REFERENCES

- AES Huntington Beach LLC (AES). 2000 a. Application for Certification, AES Huntington Beach Generating Station Retool Project (00-AFC-13). Submitted to the California Energy Commission, December 1, 2000.
- GTW (Gas Turbine World). 1999. *Gas Turbine World 1999-2001 Performance Specs*, volume 19. December 1999.

TRANSMISSION SYSTEM ENGINEERING

Testimony of Ajoy Guha and Al McCuen

INTRODUCTION

The Transmission System Engineering (TSE) analysis provides the basis for the findings in the Energy Commission's decision. This staff assessment indicates whether or not the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations and standards (LORS)⁸ required for safe and reliable electric power transmission.

The AES Huntington Beach, LLC, the applicant, proposes to connect their project, the Huntington Beach Generating Station Retool Project (HBGSRP), to the Southern California Edison (SCE) transmission system. The California Independent System Operator (Cal-ISO) is responsible for ensuring electric system reliability for all participating transmission owning utilities and determines both the standards necessary to achieve reliability and whether a proposed project conforms with those standards. The Energy Commission will rely on the Cal-ISO's determinations to make its finding related to applicable reliability standards, the need for additional transmission facilities, and environmental review of the whole of the project. In this case, staff is primarily a facilitator, coordinating the Cal-ISO's process and results with the certification process and the Energy Commission decision. The Cal-ISO will provide testimony at the Energy Commission's hearings.

Staff's analysis also evaluates the power plant switchyard, outlet line and termination facilities identified by the applicant and provides proposed conditions of certification to ensure that the project complies with applicable LORS during the design review, refurbishing, operation and potential closure of the project.

PROJECT DESCRIPTION

The HBGSRP will consist of two out of service 225 megawatt (MW) nominal output units (units 3 & 4) for a total nominal output of 450 MW. At present each unit is connected to an existing, 246 MVA, 13.8 kV to 230 kV step-up transformer bank (consisting of three single phase, 82 MVA, 7.97/230 kV transformers). The high voltage terminals of the transformer bank are connected to the existing Huntington Beach (HB) 230 kV switchyard of SCE located within the boundary of the Huntington Beach Generating Station (HBGS) by overhead conductors and through a 1200 ampere motor operated disconnect switch (AESHB 2000a, AFC page 3.4-5). The SCE HB 230 kV switchyard consists of double bus construction (north & south), each bus sectionalized by a circuit breaker and connected to two gang disconnect switches into A & B sections with each section normally carrying a generating unit

⁸ The applicable LORS include the California Public Utilities Commission (CPUC) General Order 95 (GO-95), CPUC Rule 21, Western Systems Coordinating Council (WSCC) Reliability Criteria, North American Electric Reliability Council (NERC) Planning Standards, Cal-ISO Reliability Criteria, Cal-ISO Scheduling Protocols and Dispatch Protocols, Cal-ISO Participating Generator Agreement.

and two outgoing 230 kV transmission lines to SCE's 230 kV Ellis substation. The disconnect switch for Unit 3 transformer terminals is connected to section B of the north bus and the disconnect switch for Unit 4 transformer terminals is connected to section B of the south bus (AESHB 2000a, AFC page 3.6-1). This configuration for the interconnection and switchyard is in accordance with good utility practices and is acceptable.

SYSTEM RELIABILITY

An Operational Interconnection Study (AESHB 2001a, AFC supplemental I, Appendix H, pages i-iii & 1-9) was performed by SCE to identify the system impacts of reconnecting the HBGS Units 3 & 4 to the existing electric grid in the summer of 2001 with no system upgrades and to identify any system upgrades when needed before or after the summer of 2001. The study was performed for two system conditions: (a) 2001 heavy summer load forecast and (b) 2001 light spring load forecast. Under both conditions, the generation in the basin area including all other proposed generation projects in queue up to AES HBGS units 3 & 4 is maximized to identify any potential congestion in the transmission system. The study which included Load Flow study, Transient Stability study, Post-transient Voltage study and Short Circuit study, focused on thermal overloads, voltage deviations, system stability and short circuit duties (with 230 kV buses at the SCE HB switchyard operated in parallel or as split) by applying the applicable reliability criteria.

The findings of the study were:

- (a) Load Flow study: No overloading or voltage violations were found in the base cases indicating no generation congestion during normal condition of the network for either 2001 summer or 2001 spring. For single and double contingencies in the 2001 summer case, no criteria violations were reported by SCE. However, the contingency list for 2001 summer case and the results with load flow diagrams were not submitted with the study report.⁹ For single and double contingencies in the 2001 spring case, a thermal violation calls for upgrading the Berry-Lewis 230 kV line in spring, 2002 and 10 other thermal violations call for mitigation by congestion management if the proposed generation queue projects before HBGS units 3 & 4 come on line.
- (b) Transient Stability study: For spring 2001, some critical contingency cases were found stable. For summer 2001, no criteria violations were reported by SCE. However, the contingency list and the results for 2001 summer case and the results with stability plots were not submitted with the study report.
- (c) Post-transient Voltage study: For spring 2001, no voltage deviations were found in the critical contingency cases. For summer 2001, no violations have been

⁹ The staff has asked for more information and data in their data requests to the project owner regarding the 2001 summer Load Flow study, Transient Stability study and Post-transient Voltage study so that the staff can assure conformance with the reliability criteria and mitigation measures.

reported by SCE. However, the contingency list and the results for the 2001 summer case with stability plots were not submitted with the study report.

- (d) Short Circuit study: The study indicates that with the parallel operation of the SCE 230 kV HB switchyard buses, addition of HB Units 3 & 4 generation will increase short circuit duties and will require a total of 19 breaker replacements in 3 substations namely, 10 breakers in the HB 230 kV switchyard, 4 breakers in the Hinson 230 kV substation and 5 breakers in the Villa Park 230 kV substation.
- (e) Conclusions: The study report concludes that
1. Returning AES HBGS units 3 & 4 to service can be accommodated in 2001 without the need for congestion management provided the proposed queue generations before units 3 & 4 do not come on line prior to energizing units 3 & 4.
 2. SCE will allow AES HBGS units 3 & 4 to interconnect by May 1, 2001, to their system provided the project owner pays for all 19 breakers with appropriate cost sharing and all engineering requirements made to temporarily operate the units in a split bus configuration of the 230 kV HB switchyard until the breakers can be replaced **or** installation of TRV capacitors in all ten breakers of HB 230 kV switchyard is made prior to energizing Units 3 & 4. The fault Duty on the breakers at the Hinson and Villa Park 230 kV substations will be allowed to be violated only on a temporary basis until the breakers can be replaced as soon as practicable, the reason being marginal overload risk during maximum generation conditions.

The Operational Interconnection Study for the HBGSRP in conjunction with the Cal-ISO's preliminary approval letter indicate there will be no significant transmission facilities, beyond those previously described in the HBGSRP AFC, which are within the existing fence lines of the HB 230 kV switchyard, Hinson and Villa Park 230 kV substations. This preliminary conclusion is expected to be verified by responses to staff's TSE data requests.

CUMULATIVE IMPACTS

The HBGSRP is located in a major load center, the Huntington Beach basin area, which will minimize potential cumulative impacts.

FACILITY CLOSURE

All participating generators must sign a Participating Generator Agreement (Cal-ISO 1998a, Cal-ISO 1998b). The Participating Generator Agreement includes procedures for planned, unexpected temporary closure and unexpected permanent closure that must be developed or verified to facilitate effective communication and coordination between the generating station owner, the PTO and the Cal-ISO to ensure safety and system reliability.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. Staff's preliminary findings indicate that no significant additional new facilities will be required for interconnection of the HBGSRP to meet NERC, WSCC, and Cal-ISO reliability criteria.
2. The Cal-ISO will confirm staff's conclusion upon issuance of the final interconnection approval.
3. The power plant switchyard, outlet lines, and termination are acceptable and will comply with LORS assuming the recommended conditions of certification are implemented.
4. The Cal-ISO will provide testimony on the preliminary or final approval letter at the Commission's hearings.
5. The issuance of the Cal-ISO's final interconnection approval will assure conformance with NERC, WSCC and Cal-ISO reliability criteria. A condition of certification **TSE-1h** provides for Energy Commission review of the Cal-ISO final interconnection approval letter and the project owner Generator Special Facility Agreement (GSFA).

RECOMMENDATIONS

Staff proposes the following conditions of certification to insure system reliability and conformance with LORS.

CONDITIONS OF CERTIFICATION

- TSE-1** The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements listed below. The substitution of Compliance Project Manager (CPM) approved "equivalent" equipment and equivalent switchyard configurations is acceptable.
- a. The power plant switchyard, outlet line and termination shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95, CPUC Rule 21, Title 8, CCR, 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 (i.e. SCE's existing 230 kV Huntington Beach switchyard) and other switchyards/substations, where applicable, shall be sized to comply with the SCE short circuit study.
 - c. The existing Huntington Beach 230 kV switchyard has a double sectionalized bus which shall be operated initially as a split bus until all ten 230 kV breakers in the switchyard will be replaced.

- d. The outlet line will use conductors sufficient to carry full load currents of the generator.
- e. Termination facilities at the interconnection shall comply with applicable Cal-ISO and SCE interconnection standards (SCE Interconnection Handbook and CPUC Rule 21).
- f. 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.
- g. The project owner shall provide a Detailed Facilities Study including a description of remedial action scheme sequencing and timing and an executed Generator Special Facilities Agreement (GSFA) for the transmission interconnection with SCE. The Detailed Facilities Study and GSFA shall be coordinated with and approved by the Cal-ISO.

Verification: At least 30 days prior to start of construction of transmission facilities, the project owner shall submit for approval to the CPM or CBO:

- a. Design drawings, specifications and calculations conforming with CPUC General Order 95 and related industry standards, where applicable, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.
- b. For each element of the transmission facilities as identified above, the submittal package to the CPM or CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions" and a statement by the registered engineer in responsible charge (signed and sealed) that the transmission element(s) will conform with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", the NEC, SCE Interconnection Handbook, CPUC Rule 21 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 a through h above. The Detailed Facilities Study and GSFA shall concurrently be provided. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval..

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

Verification: At least 15 days prior to construction of transmission facilities, the project owner shall inform the CPM and CBO of any impending changes which may

not conform to requirements of TSE-1 and request approval to implement such changes.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction and any subsequent CPM approved changes thereto, to ensure conformance with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, “High Voltage Electric Safety Orders”, the NEC, SCE Interconnection Handbook, CPUC Rule 21 and related industry standards. In case of non-conformance, the project owner shall inform the CPM in writing within 10 days of discovering such non-conformance and describe the corrective actions to be taken

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

- a. “As built” engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, “High Voltage Electric Safety Orders”, the NEC, SCE Interconnection Handbook, CPUC Rule 21 and related industry standards, and these conditions shall be concurrently provided.
- b. An “as built” engineering description focused on safety provisions of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge.
- 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) 2000a. Cal-ISO Preliminary Approval Letter for PEF, submitted to the California Energy Commission on August 29, 2000.
- NERC (North American Electric Reliability Council). 1998. NERC Planning Standards, September 1997.
- WSCC (Western Systems Coordinating Council) 1997. Reliability Criteria, August 1998.
- AESHB (AES Huntington Beach, LLC).2000a. Application for Certification, AES Huntington Beach Retool Project, Huntington Beach, California (00-AFC-13). Filed with the California Energy Commission, December 1, 2000.
- AESHB (AES Huntington Beach, LLC).2001a. Application for Certification, Supplemental I, AES Huntington Beach Retool Project, Huntington Beach, California (00-AFC-13). Filed with the California Energy Commission, January 19, 2000.

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) which carries the current. |
| Congestion Management | Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports), will not violate criteria. |
| Emergency Overload | See Single Contingency. This is also called an L-1. |
| Kcmil or kcm | Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained. |
| Kilovolt (kV) | A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground. |
| Loop | An electrical cul de sac. A transmission configuration which 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.

TRV Transient Recovery Voltage.

TSE Transmission System Engineering.

Undercrossing
A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

Underbuild
A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

Figure 1

APPENDIX A

ALTERNATIVES

Testimony of Jack Caswell, Tom Murphy and Tom Buford

INTRODUCTION

The purpose of staff's alternatives analysis is to provide the Energy Commission with a reasonable range of feasible alternative sites 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 the potential significant impacts of the proposed project and analyzes alternatives that may reduce or avoid significant impacts. Alternatives were developed in response to information provided by Energy Commission staff and staffs of other agencies.

ALTERNATIVE ANALYSIS CRITERIA

The "Guidelines for Implementation of the California Environmental Quality Act" (CEQA), 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" that requires consideration of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not require consideration of an alternative that the effect of which cannot be reasonably ascertained, nor does it require consideration of alternatives as to which the implementation is remote and speculative. (Cal. Code Regs., tit. 14, §15125(d)(5).)

To prepare the alternatives analysis, staff used the following methodology:

- Identify the basic objectives of the project.
- Identify and evaluate alternatives to the project. The principle alternatives, which 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).
- Identify and evaluate alternative locations or sites.
- Evaluate the impacts of not constructing the project (the "no project" alternative).

DETERMINING THE SCOPE OF THE ALTERNATIVES ANALYSIS

The purpose of staff's alternatives analysis is to provide the Energy Commission with a reasonable range of feasible alternatives that could substantially reduce or

avoid any potentially significant adverse impacts of the proposed project. To accomplish this, staff must determine the appropriate scope of analysis. Staff has evaluated the proposed project, and determined that because the existing Huntington Beach Power Plant is an existing facility with all the infrastructure needed to accomplish the project objectives, the depth of the alternatives analysis has been limited to the proposed project.

BASIC OBJECTIVES OF THE PROJECT

Energy Commission staff has determined that the purpose of the Retool Project is to return existing natural gas boilers at the Huntington Beach Generating Station (HBGS) to operation, and that the project objectives are as follows:

- Utilize existing infrastructure at the HBGS, including gas supply, transmission facilities, water supply, cooling water intake and discharge outfall;
- Minimize environmental and socioeconomic impacts of the project;
- Utilize proven technology, while incorporating high-efficiency pollution control technology; and
- Complete the project on schedule to meet the Summer 2001 peak load demands.

PROJECT DESCRIPTION AND SETTING

A more complete description of the project and its setting is in the **PROJECT DESCRIPTION** section of this Staff Assessment (SA).

POWER PLANT

The AES Huntington Beach Retool Project would retool and place in operation Units 3 and 4 at an existing power plant site. See **PROJECT DESCRIPTION Figures 1 and 2** for a map of the location of the proposed project site and site plan of the plant facilities.

RELATED FACILITIES

NATURAL GAS SUPPLY

An existing 30-inch diameter natural gas transmission line supplies natural gas from Southern California Gas Company. No additional pipeline capacity is required, and no changes would be made in the pipeline as part of the project.

TRANSMISSION INTERCONNECTION

No additional electrical transmission lines would be needed as a result of the retooling of Units 3 and 4. The existing transmission lines and adjacent switchyard would be used.

WATER SUPPLY

Water for potable and process requirements for Units 3 and 4 will be supplied by the City of Huntington Beach. The city has identified existing water supply-related impacts to the existing system as they relate to adequate capacity. The applicant plans improve the system and add a new polishing system for Units 3 and 4. Water for cooling would be drawn from the Pacific Ocean via an existing intake. See the **WATER RESOURCES** section of this SA for detailed information regarding uses of water by the project.

WASTEWATER DISPOSAL

The primary non-sanitary wastewater stream generated by the project would be the circulating cooling water. Other wastewater streams include equipment washwater, floor drains, and sanitary waste. Wastewater would be discharged to the existing wastewater treatment system, consisting of either the existing outfall or the existing connection to the City's sewer system. See the **WATER RESOURCES** section of this SA for detailed information regarding wastewater generation and disposal by the project.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

Staff has evaluated the proposed project, and determined that one area has potential significant impacts. Staff has determined that with the mitigation measures and conditions proposed by the applicant and Energy Commission staff and the South Coast Air Quality Management District, all other sections are not likely to result in significant impacts to the environment. Staff's current assessment of the expected environmental consequences of the proposed project is summarized below for technical areas where potential or significant impacts have been identified. Staff's assessment is presented in more detail in the individual sections of this document.

AIR QUALITY

The Applicant does not currently have a complete offset package that satisfies South Coast Air Quality Management District (SCAQMD) and United States Environmental Protection Agency permitting requirements. The SCAQMD cannot complete their Final Determination of Compliance (FDOC) until the Applicant provides a complete offset package. Further, since a complete offset package is not available, there are currently unmitigated significant impacts from the Units 3 and 4 PM10 and SO2 emissions. If Units 3 and 4 are allowed to operate, the operation of Unit 5 would lead to significant cumulative impacts from NOx emissions. As conditioned and with a District permit, the project is not expected to have any significant air quality impacts.

BIOLOGICAL RESOURCES

Staff concludes that impingement and entrainment impacts from the cooling water system are considered to be potentially significant at both the project-specific and cumulative levels. It is anticipated that with sufficient mitigation/compensation and

the reduction of fish impingement those impacts can be mitigated to a less than significant level.

WATER RESOURCES

One issue remains potentially significant in regard to the proposed HBGS determination relationship/impacts associated with the project intake/discharge and the presence of indicator bacteria in the surf zone. Staff recommends an additional study for at least one year and no more than three years. This will ensure that the study is are completed within the timeframe of the current National Pollutant Discharge Elimination System permit for the facilities and provide an accurate understanding of possible plant operational impacts. Other conditions of certification are recommended to address remaining issues or impacts.

ALTERNATIVES TO THE PROJECT

TECHNOLOGY ALTERNATIVES

DEMAND SIDE MANAGEMENT

One alternative to a power generation project could be programs to reduce energy consumption. These programs are typically called “energy efficiency,” “conservation,” or “demand side management” programs. One goal of these programs is to reduce overall electricity use; some programs also attempt to shift such energy use to off-peak periods.

The Energy Commission is responsible for several such programs, the most notable of which are energy efficiency standards for new buildings and for major appliances. The California Public Utilities Commission supervises various energy efficiency programs administered by the investor-owned utilities, and many municipal electric utilities have their own demand side management programs. The combination of these programs constitutes the most ambitious overall approach to reducing electricity demand administered by any state in the nation.

The Energy Commission is also responsible for determining what the state’s energy needs are in the future, using 5 and 12 year forecasts of both energy supply and demand. The Commission calculates the energy use reduction measures discussed above into these forecasts when determining what future electricity needs are, and how much additional generation will be necessary to satisfy the state’s needs.

Having considered all of the demand side management that is “reasonably expected to occur” in its forecasts, the agency then determines how much electricity is needed. The most recent estimation of electricity needs is found in the 1996 Electricity Report.

The Warren-Alquist Act prohibits the agency, in its alternatives analysis, from considering such conservation programs to be alternatives to a proposed

generation project (Pub. Resources Code, Section 25305(c)). This is because the approximate effect of such programs has already been accounted for in the agency's "integrated assessment of need," and the programs would not in themselves be sufficient to substitute for the additional generation calculated to be needed. The Warren-Alquist Act was amended in 1999 to delete the necessity of a Commission finding of "need" in power plant licensing cases. Nevertheless, the Commission's most recent need determination, adopted in 1997, makes it abundantly clear that conservation programs alone cannot displace the need for power generation for California's growing economy.

GENERATION TECHNOLOGY ALTERNATIVES

Staff compared various alternative technologies with the proposed project, scaled to meet the project's objectives and time frame. 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.

Solar and wind resources require large land areas in order to generate 50 megawatts 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 the proposed 450 megawatt retooling project would require a minimum of 1,800 acres, or more than 35 times the amount of space occupied by the 53-acre parcel, of which the project is a part. Wind generation "farms" generally require about 17 acres per megawatt, and 450 megawatts would require in excess of 7,600 acres, more than 150 times the amount of space occupied by the 53-acre parcel (CEC 1996, pp. B.16.1).

Solar and wind technologies have the potential for significant land use impacts due to the large land areas required. Limited land is available for immediate solar or wind energy development along the southern California coast. Nor has it been demonstrated that solar or wind generation capacity would be feasible in the project vicinity. Such projects involve land use issues, moreover, that could limit the size and feasibility of such alternative generation sources, and could affect the timing of such facilities becoming available if they were proposed. In addition, a key objective of this project is to supply electricity during the Summer 2001 peak demand period. Development of solar or wind facilities would not be feasible within such a short time period. Therefore, such facilities do not provide an alternative to the proposed project.

Geothermal resources are available in limited areas of California, including the Geysers area northern California (CEC 2000). No significant geothermal resources are available in the Huntington Beach area. While development of additional geothermal resources in California is possible, geothermal power is not a feasible alternative to the proposed project.

SITING AND RELATED FACILITIES ALTERNATIVES

POWER PLANT SITING ALTERNATIVES

One of the project objectives is to complete the project on schedule to meet Summer 2001 peak load demands. The process of identifying an alternative site, preparing and processing an application, and construction of a facility would involve substantial time periods that would preclude the applicant from satisfying this objective. Nor would the development of an undeveloped site satisfy another objective, which is to utilize existing infrastructure in terms of gas supply, electrical transmission, water supply and wastewater streams.

This analysis of alternatives is governed by the “rule of reason” as stated in the CEQA Guidelines, which requires that project alternatives satisfy most of the basic objectives of the project. Identification of new undeveloped sites as alternatives to the HBGS site could not feasibly accomplish this result. No project identified as an alternative site, and not already planned, could feasibly be licensed and constructed to be on-line in the summer of 2001.

Staff has, therefore, not identified alternative sites for the proposed project.

ALTERNATIVE FUELS

The project would retool Units 3 and 4 and return them to service. The units would be fueled exclusively with natural gas. Selective catalytic reduction (SCR) would be installed as part of the project.

Other fuels could be considered for generation of electrical power at the existing site. Use of such alternative fuels does not, however, appear to be feasible. Neither geothermal nor hydroelectric resources exist in the project vicinity. Biomass fuels (such as wood waste) are not locally available in sufficient quantities to make them a feasible source of fuel.

Air quality impacts from the use of oil or coal, which might otherwise be considered as fuel sources, make these fuels unacceptable.

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.

If the proposed project is not licensed, new air emissions from the project will be avoided.

The 450 megawatts of capacity would not be added to the area’s generation capacity, and regional electrical grid reliability would be lower. The possibility of load shedding, power interruption, and even regional blackouts would be higher.

Load interruption has its own environmental consequences, including higher air emissions from small-scale backup generators, which are normally diesel-fired. Load shedding and blackouts lead to public health and public safety hazards that can increase both accidents and overall mortality.

The project also offers economic and electric benefits. Project construction and operation would have a small 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. The project would also provide additional electrical generation capacity at times of peak demand beginning in Summer 2001.

For these reasons, staff prefers the proposed project to the "no project" alternative.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

Staff has determined that the proposed site is preferred to the "no project" alternative. Staff does not believe that energy efficiency measures and alternative technologies (geothermal, solar, wind, and hydroelectric) present feasible alternatives to the proposed project.

RECOMMENDATION

Staff recommends that if the Conditions of Certification and mitigation measures suggested by staff are adopted and implemented to ensure compliance with all applicable laws, ordinances, regulations and standards the potential for significant impacts will be minimal.

REFERENCES

California Energy Commission (CEC). 1996. Energy Aware: Planning Guide for Energy Facilities. California Energy Commission, Sacramento, California. P700-96-006.

California Energy Commission (CEC). 2000. Map of Geothermal Resources in California, http://www.energy.ca.gov/maps/geothermal_map.html, accessed August 18, 2000.

AES. 2000. Huntington Beach Generating Station Retool Project, Application for Certification. Submitted to the California Energy Commission.

AES. 2001. Huntington Beach Generating Station Retool Project Data Request Response.

GENERAL CONDITIONS INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN

Testimony of Donna Stone

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 conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of the following elements:

General conditions 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; and
- establish requirements for facility closure plans.

Specific conditions of certification:

Specific conditions of certification that follow each technical area contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of verifying that the condition has been satisfied.

GENERAL CONDITIONS OF CERTIFICATION

This certification is granted by the Energy Commission for a limited period and shall on the earlier of the expiration of the project's contract with the Department of Water Resources to provide electricity (including any renewals or extensions thereto) or September 30, 2006. Upon the expiration of this certification, Units 3 and 4 shall

not be operated unless and until a new certification or extension of this certification is approved and appropriate environmental and other reviews are conducted.

Consistency with Analyses: Construction and operation of Units 3 and 4 and any associated improvements shall be conducted in accordance with all information submitted with the application (and supplements thereof), the analyses under which this permit is issued, and the other conditions of approval.

Conflicts Between Conditions: In the event that any condition of certification is determined to be in conflict with any other condition, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety, as determined by the CPM, shall prevail to the extent feasible.

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 utilities, installing 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:

The installation of environmental monitoring equipment.

A soil or geological investigation.

A topographical survey.

Any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility.

Any work to provide access to the site for any of the purposes specified in a., b., c., or d.

START OF COMMERCIAL OPERATION:

The start of commercial operation is signified by one or more of the following events:

- The project startup team has completed work.
- Expenses for the project are switched from construction to operation.
- The facility has reached steady state with reliability at the rated capacity.
- Financing accounting switches from construction (capital costs) to operations (Income-producing expenses) financing – this is the most definitive indicator.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

- ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission Decision;
- resolving complaints;
- processing post-certification changes to the conditions of certification, project
- documenting and tracking compliance filings; and,
- ensuring that the compliance files are maintained and accessible.

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

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

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

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

The CPM may schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements and milestones contained in the Energy Commission's conditions of certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence

and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

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

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

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

ACCESS

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

COMPLIANCE RECORD

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

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

COMPLIANCE VERIFICATIONS

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification

compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary by the CPM, and in most cases without full Energy Commission approval.

Verification of compliance with the conditions of certification can be accomplished by:

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

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

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

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

All submittals shall be addressed as follows:

**Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814**

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

COMPLIANCE REPORTING

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and

conditions of the Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

COMPLIANCE MATRIX

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

1. the technical area,
2. the condition number,
3. a brief description of the verification action or submittal required by the condition,
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),
5. the expected or actual submittal date,
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable,
7. the compliance status for each condition (e.g., “not started”, “in progress” or “completed date”), and
8. the project’s preconstruction and construction milestones, including dates and status.

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

PRE-CONSTRUCTION MATRIX

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

TASKS PRIOR TO START OF CONSTRUCTION

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

project owner understand that pre-construction activities that are initiated prior to certification are performed at the owner's own risk. Failure to allow specified lead-time may cause delays in start of construction.

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

MONTHLY COMPLIANCE REPORT

The first Monthly Compliance Report is due the month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five 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 and milestones 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 preconstruction and construction milestones (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions 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; a listing of any filings with, or permits issued by, other governmental agencies during the month;
7. 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;
8. a listing of the month's additions to the on-site compliance file; and
9. any requests to dispose of items that are required to be maintained in the project owner's compliance file.

10. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

ANNUAL COMPLIANCE REPORT

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file, and
9. an evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].
10. a listing of complaints, notices of violation, official warnings, and citations received during the year; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

CONFIDENTIAL INFORMATION

Any information, which the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information, which is determined to be confidential, shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

DEPARTMENT OF FISH AND GAME FILING FEE

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars (\$850). The payment instrument shall be provided to the Commission's Project Manager at the time of project certification and shall be made payable to the California Department

of Fish and Game. The Commission's Project Manager will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering, with date and time stamp recording. The telephone number shall be posted at the project site and easily visible to passersby during construction and operation.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form on the following page.

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME:
AFC Number:

COMPLAINT LOG NUMBER _____
Complainant's name and address:

Phone number:

Date and time complaint received:
Indicate if by telephone or in writing (attach copy if written):
Date of first occurrence:

Description of complaint (including dates, frequency, and duration):

Findings of investigation by plant personnel:

Indicate if complaint relates to violation of a CEC requirement:
Date complainant contacted to discuss findings:

Description of corrective measures taken or other complaint resolution:

Indicate if complainant agrees with proposed resolution:
If not, explain:

Other relevant information:

If corrective action necessary, date completed:
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct.
Plant Manager's Signature: _____ Date: _____

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

CONSTRUCTION MILESTONES

The following is the procedure for establishing and enforcing milestones, which include milestone dates for pre-construction and construction phases of the project.

Milestones, and method of verification must be established and agreed upon by the project owner and the Compliance Project Manager (CPM) no later than 30 days after project approval, the date of docketing. If this deadline is not met, the CPM will establish the milestones.

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.

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 is changed 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 is missed due to unforeseen natural disasters or acts of God which prevent timely completion of the milestones.

If a milestone date cannot be met, the CPM will make a determination whether the project owner has demonstrated good cause for failure to meet the milestone. If the determination is that good cause exists, the CPM will negotiate revised milestones.

If the project owner fails to meet one or more of the established milestones, and the CPM determines that good cause does not exist, the CPM will make a recommendation to the Executive Director. Upon receiving such recommendation, the Executive Director will take one of the following actions.

Conclude that good cause exists and direct that revised milestones be established; or issue a reprimand, impose a fine, or take other appropriate remedial action and direct that revised milestones be established; or

Recommend, after consulting with the Energy Facility Siting and Environmental Committee, that the Commission issue a finding that the project owner has forfeited the project's certification.

The project owner has the right to appeal a finding of no good cause, or any recommended remedial action, to the Energy Facility Siting and Environmental Committee, and to the full Commission.

FACILITY CLOSURE

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

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

PLANNED CLOSURE

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

UNEXPECTED TEMPORARY CLOSURE

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

UNEXPECTED PERMANENT CLOSURE

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

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission. The plan shall:

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

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

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

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

UNEXPECTED TEMPORARY CLOSURE

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

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

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

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

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

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

plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

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

UNEXPECTED PERMANENT CLOSURE

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

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

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

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

DELEGATE AGENCIES

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

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

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

ENFORCEMENT

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

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

NONCOMPLIANCE COMPLAINT PROCEDURES

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

INFORMAL DISPUTE RESOLUTION PROCEDURE

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

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

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

REQUEST FOR INFORMAL INVESTIGATION

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

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

REQUEST FOR INFORMAL MEETING

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

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

the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et. seq.

FORMAL DISPUTE RESOLUTION PROCEDURE- COMPLAINTS AND INVESTIGATIONS

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

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

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209. The criteria that determine which type of change process applies are explained below.

AMENDMENT

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

INSIGNIFICANT PROJECT CHANGE

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

VERIFICATION CHANGE

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

KEY EVENT LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION

DATE

| | |
|-----------------------------------------------------|-------------|
| Certification Date | |
| Online Date | |
| POWER PLANT SITE ACTIVITIES | |
| Start Site Mobilization | |
| Start Ground Disturbance | |
| Start Rough Grading | |
| Start Construction | |
| First Combustion of Gas Turbine | |
| Start Commercial Operation | |
| Complete All Construction | |
| TRANSMISSION LINE ACTIVITIES | |
| Start T/L Construction | |
| Chapter 429 Synchronization with Grid | |
| Chapter 430 Complete T/L Construction | |
| FUEL SUPPLY LINE ACTIVITIES | |
| Start Fuel Supply Line Construction | |
| Chapter 431 Complete Fuel Supply Line Construction | |
| WATER SUPPLY LINE ACTIVITIES | |
| Chapter 432 Start Water Supply Line Construction | Chapter 433 |
| Chapter 434 Complete Water Supply Line Construction | Chapter 435 |

Chapter 436

PREPARATION TEAM

| | |
|---------------------------------------------|------------------------------------------|
| Executive Summary..... | Jack Caswell |
| Introduction..... | Jack Caswell |
| Project Description | Jack Caswell |
| Air Quality | ...W. Walters, N. Behmanesh/Keith Golden |
| Public Health | Obed Odoemelum |
| Worker Safety and Fire Protection..... | Rick Tyler |
| Transmission Line Safety and Nuisance | Obed Odoemelum |
| Hazardous Materials..... | Rashed Sundarewaran |
| Waste Management | Mike Ringer |
| Land Use | Tom Buford |
| Traffic and Transportation | Mark Hamblin |
| Noise | Jim Buntin |
| Visual Resources..... | Eric Knight/William Kanemoto |
| Cultural Resources | Dorothy Torres |
| Socioeconomics | Jim Adams |
| Biology..... | Rick York |
| Water and Soils | Lorraine White |
| Paleontological Resources | Robert Anderson |
| Facility Design | Steve Baker/Al McCuen |
| Reliability | Steve Baker |
| Efficiency | Steve Baker |
| Transmission System Engineering | Ajoy Guha |
| Alternatives..... | Jim Buntin |

Compliance Monitoring Plan and General Conditions..... Donna Stone
Project Secretary..... Pat Owen
Support Staff Luz Manriquez-Uresti