

Staff Analysis

EL SEGUNDO POWER REDEVELOPMENT PROJECT

Dry Cooling Amendment (00-AFC-14C)
Los Angeles County



**CALIFORNIA
ENERGY
COMMISSION**

**DOCKET
00-AFC-14C**

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STAFF REPORT

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CALIFORNIA ENERGY COMMISSION

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EL SEGUNDO POWER REDEVELOPMENT PROJECT (00-AFC-14C)
STAFF ANALYSIS
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EXECUTIVE SUMMARY

Prepared By Steve Munro

INTRODUCTION

The project owner, El Segundo Power II, LLC (ESP II), filed a petition with the California Energy Commission dated June 15, 2007, to amend the original Energy Commission Decision for the El Segundo Power Redevelopment Project (ESPRP) to make a number of major changes. The project was originally certified by the Energy Commission on February 2, 2005, as a 630 megawatt combined-cycle electrical generating facility. The revised project would be rated at 560 megawatts. ESP II now has a power purchase agreement with Southern California Edison and intends to begin construction of the revised project in October 2008.

The proposed project changes include:

- Replacement of once-through ocean water cooling by dry cooling technology;
- Use of Siemens Rapid Response Combined Cycle technology as opposed to the originally-proposed GE Frame 7FA turbines;
- Possible use of a temporary 250 ft. by 75 ft. stationary landing barge for a period of three to six months for equipment delivery on delivery barges;
- Possible use of a temporary 400 ft. equipment transfer ramp to be located on the beach adjacent to the project site between Dockweiler State Beach and the city of Manhattan Beach. The ramp would be connected to an also temporary, stationary barge secured to the shoreline. Elimination of a firewater pump diesel engine on site;
- Elimination of an aqueous ammonia storage tank on site;
- Replacement of an offsite laydown area for equipment staging and construction and employee parking;
- Modification of the plant's access road.
- Elimination of a wastewater stream by use of Zero Liquid Discharge technology.

The purpose of the Energy Commission's amendment review process in this Staff Analysis (SA) is to assess the direct, indirect and cumulative impacts of the amendment on the environment, public health and safety, and the electric transmission system. The SA presents the conclusions, recommendations, and new and revised conditions of certification that staff believes are necessary to mitigate or avoid potential significant adverse environmental impacts and to satisfy laws, ordinances, regulations and standards (LORS) that are applicable since the original project was certified.

The review process includes an evaluation of the consistency of the proposed changes with the Energy Commission's Decision and with current applicable LORS (Title 20, Calif. Code of Regulations, section 1769).

PROJECT LOCATION AND DESCRIPTION

The Energy Commission certified ESPRP to be built on a 33 acre site at the existing El Segundo Generating Station, which it would partially replace. The ESPRP site is at the southernmost city limit of the city of El Segundo on the coast of the Pacific Ocean between Dockweiler State Beach and the city of Manhattan Beach. The address is 301 Vista Del Mar, El Segundo, approximately two miles south of the Los Angeles International Airport. It is located less than 1/4 mile south of the Los Angeles Department of Water & Power's Scattergood power plant, and 1/2 mile south of the City of Los Angeles' Hyperion wastewater treatment plant. The Chevron El Segundo refinery is located across Vista Del Mar from ESPRP. The city of Manhattan Beach is located immediately to the south of the project site.

The proposed changes in the project include using new, lower-emission power generation technology, a dry-cooling system, which eliminates the need for ocean water once-through cooling and wastewater discharge, possible use of a temporary beach delivery ramp system which would be installed to enable off-loading oversize power plant equipment, and use of a new parking/laydown area located at 777 W. 190th Street, (Gardena mailing address, but actually within the city of Los Angeles), 13 miles from the project site, to substitute for one that is no longer available. The proposed amendment also includes numerous adjustments to the site layout such as equipment additions, subtractions, and new equipment locations.

NECESSITY FOR THE PROPOSED MODIFICATIONS

ESP II states that the proposed modifications are necessary for the following reasons:

1. To eliminate the impact on the aquatic environment, ESP II proposes replacing the once-through cooling technology that was originally proposed with new dry-cooling technology;
2. To reduce air emissions, new, low-emission combustion turbine equipment is proposed that significantly reduces air pollutants from the combustion process, and
3. To accommodate new site configuration requirements, changes in availability of temporary construction laydown areas, a new construction laydown area is proposed and an alternative equipment delivery option is proposed. This is the beach delivery option for large preassemble components of the project, described more fully in the Project Description section of the Staff Analysis.

PROJECT OWNERSHIP

ESP II is a wholly-owned subsidiary of NRG Energy Corporation.

SUMMARY OF TECHNICAL AREAS

The **EXECUTIVE SUMMARY Table 1** below shows all the technical areas contained in the SA and indicates where staff has recommended changes to the existing ESPRP

Decision and conditions of certifications. The details of the proposed condition changes can be found under their appropriate headings in this SA.

**EXECUTIVE SUMMARY Table 1
Technical Sections with New Conditions or Changes/No Changes to Conditions of Certification**

Technical Area	New Conditions or Changes to Conditions of Certification	Technical Area	New Conditions or Changes to Conditions of Certification
Air Quality	Yes	T-Line Safety & Nuisance	No
Biological Resources	Yes	Traffic and Transportation	No
Cultural Resources	No	Visual Resources	Yes
Geo/Paleo Resources	No	Waste Management	No
Hazardous Materials Management.	Yes	Worker Safety/Fire Protection	Yes
Land Use	Yes	Power Plant Efficiency	No
Noise and Vibration	No	Power Plant Reliability	No
Public Health	No	Facility Design	Yes
Soil and Water Resources	Yes	Transmission System Engineering	Yes
Socioeconomics	No		

STAFF REVIEW PROCESS

After the receipt of the Petition to Amend dated June 15, 2007, technical staff of the Energy Commission reviewed the document and submitted data requests to the project owner, ESP II. The data requests were submitted to ESP II in two mailings, designated Data Request Sets 1 and 2 on August 14, and August 29, 2007, respectively. ESP II responded to Data Request Set 1 on September 10, 2007, and Data Request Set 2 September 28, 2007. The data requests covered all technical areas except for air quality. The Air Quality Staff Analysis section was completed on April 18, 2008, after receiving the Notice of Intent to Issue Permit from the South Coast Air Quality Management District, which was issued on March 19, 2008.

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff believes that with the proposed new conditions and revisions to the existing conditions ESPRP will not result in any significant impacts, and will reduce potential impacts in many technical areas from the original approved project conditions of certification. Direct, indirect, and cumulative impacts of ESPRP on health, safety, and the environment will remain less than significant.

INTRODUCTION

Steve Munro

PURPOSE OF THIS REPORT

The Staff Analysis (SA) presents the California Energy Commission staff's independent analysis of the Dry Cooling Amendment submitted by El Segundo Power II, LLC (ESP II). This SA is a staff document.

The SA describes the following:

- The existing environmental setting;
- The proposed project changes;
- Whether the facilities can be constructed and operated safely and reliably in accordance with applicable laws, ordinances, regulations and standards (LORS);
- The environmental consequences of the project including potential public health and safety impacts;
- Cumulative analysis of the potential impacts of the project, along with potential impacts from other existing and known planned developments;
- Mitigation measures proposed by the project owner, staff, and interested agencies that may lessen or eliminate potential impacts; and
- Proposed new and revised conditions of certification under which staff recommends the project be constructed and operated.

The technical area analyses contained in this SA are based upon information from: 1) the Energy Commission Decision (Decision); 2) Petition to Amend; 3) responses to data requests; 4) supplementary information from local and state agencies and interested individuals; 5) existing documents and publications; and 6) independent field studies and research. The analyses for most technical areas include discussions of proposed changes and additions to the conditions of certification. Each proposed condition of certification is followed by a proposed means of verification. The verification is not part of the proposed condition. It is the Energy Commission staff's method of ensuring post-certification compliance with adopted requirements.

The Energy Commission staff's analyses were prepared in accordance with Public Resources Code section 25500 et seq. and Title 20, California Code of Regulations section 1701 et seq. (specifically section 1769 pertaining to amendments), and the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).

Section 1769(a)(3) authorizes the Commission's approval of the amendment petition if staff can make the following findings:

- (A) The findings specified in section 1755 (c) [whether all significant environmental impacts can be mitigated or avoided], and (d) [if all significant impacts cannot be avoided, overriding considerations justify approving the amendment], if applicable;

- (B) That the project would remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code section 25525;
- (C) The change will be beneficial to the public, project owner, or intervenors; and
- (D) There has been a substantial change in circumstances since the Commission certification justifying the change or that the change is based on information that was not available to the parties prior to Commission certification.

The technical areas included in this SA are as follows: Air Quality; Biological Resources; Cultural Resources; Hazardous Materials Management; Land Use; Noise and Vibration; Public Health; Socioeconomics; Soil and Water Resources; Traffic and Transportation; Transmission Line Safety and Nuisance; Waste Management; Worker Safety and Fire Protection; Facility Design; Geological and Paleontological Resources; Power Plant Efficiency; Power Plant Reliability; and Transmission System Engineering.

Each of the technical area analyses includes a discussion of:

- LORS;
- The regional and site-specific setting;
- Project specific and cumulative impacts;
- Mitigation measures;
- Conclusions and recommendations; and
- Conditions of certification for both construction and operation (if applicable).

Staff has added new conditions of certification and in some cases modified or deleted some of the existing conditions of certification contained in the Decision for ESPRP. Implementing the modified and existing conditions along with the mitigation measures proposed by ESPRII will ensure that the proposed equipment and site plan changes would result in no significant environmental impacts. Where conditions of certification have changed from the original Decision staff displays the revised information in underline (new text) and ~~strikeout~~ (deleted text).

ENERGY COMMISSION AMENDMENT PROCESS

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

The Energy Commission's siting regulations require staff to independently review the Petition to Amend and assess whether the list of environmental impacts it contains is complete, and whether additional or more effective mitigation measures are necessary, feasible and available (Cal. Code Regs., tit. 20, §§ 1742 and 1742.5(a)). Staff's independent review is presented in this SA (Cal. Code Regs., tit. 20, §1742.5).

In addition, staff must assess the completeness and adequacy of the health and safety standards, and the reliability of power plant operations (Cal. Code Regs., tit. 20, § 1743(b)). Staff is required to coordinate with other agencies to ensure that applicable LORS are met (Cal. Code Regs., tit. 20, § 1744(b)).

Staff conducts its environmental analysis in accordance with the requirements of CEQA. An environmental Impact Report (EIR) is not required because the Energy Commission's site certification and amendment program has been certified by the Resources Agency (Pub. Resources Code, §21080.5 and Cal. Code Regs., tit. 14, §15251 (k)). The Energy Commission is the CEQA lead agency and is subject to all other applicable portions of CEQA.

Staff uses the SA to resolve issues between the parties. During the period between publishing the SA and Addendum, staff will conduct a workshop to discuss the findings, proposed mitigation, and proposed compliance monitoring requirements. Based on the workshop and written comments, staff will refine its analyses, correct errors, and finalize conditions of certification to reflect areas where staff has reached agreement with the parties. Revised analyses, along with responses to written comments on the SA, will be published in an addendum.

Following the publishing of the Addendum, a proposed Order will be presented to the Commissioners at a regularly scheduled Energy Commission Business Meeting with staff's recommendation on whether or not to approve the proposed amendment. At that time, members of the public will again be accorded the opportunity to ask questions and provide comments regarding staff's recommendation. The full Energy Commission will consider the matter and then take a vote on whether to approve staff's recommended Order with any changes it may deem appropriate.

Energy Commission staff has made a substantial effort to notify interested parties, encourage public participation and notify property owners within 1000 feet of the ESPRP. The Energy Commission staff has:

- Mailed a Notice of Receipt on July 5, 2007, to interested agencies and individuals on the ESPRP Compliance Mailing List, and,
- Mailed a Notice of Public Workshop and Site Visit with this SA to organizations and individuals on the Energy Commission's ESPRP compliance mailing list who responded to the Notice of Receipt, and other interested parties who may wish to comment on the SA.

AGENCY COORDINATION

As noted above, Energy Commission approval is in lieu of any permit required by state, regional, local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, § 25500). However, the Commission typically seeks comments from, and works closely with, other regulatory agencies that administer LORS that may be applicable to proposed projects or would have had permitting authority except for the Energy Commission's exclusive jurisdiction to permit thermal power plants of 50 megawatts or larger. These agencies include, at the local/regional level, the city of El Segundo, the city of Manhattan Beach, the County of Los Angeles Department of Beaches and Harbors and Department of Public Works, the Los Angeles County Fire Department Lifeguard Division, the Regional Water Quality Control Board, and the South Coast Air Quality Management District. At the state level, the Energy Commission has worked with the California Department of Fish and Game, the California Air Resources Board, the Department of Toxic Substances Control, the California Coastal Commission and the State Lands Commission; and at the federal level, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service.

PROJECT DESCRIPTION

Prepared by: Steve Munro

INTRODUCTION

El Segundo Power Redevelopment Project (ESPRP) was certified by the Energy Commission on February 2, 2005. It was permitted as a nominally rated 630-megawatt (MW) combined-cycle facility located at the existing El Segundo Generating Station in El Segundo, California. El Segundo Power II, LLC (ESP II) is proposing several modifications to the previously permitted project, which requires an amendment to the permitted project design and related Conditions of Certification. The proposed new amended project design would reduce the megawatt output to 560 MW.

PROJECT LOCATION

The Energy Commission certified ESPRP to be built on a 33-acre site at the existing El Segundo Generating Station, which it would partially replace. The site is at the southernmost city limit of the city of El Segundo on the coast of the Pacific Ocean between Dockweiler State Beach and the city of Manhattan Beach, on the site of an existing facility it would partially replace (see **Project Description Figure 1**). The address is 301 Vista Del Mar, El Segundo, approximately two miles south of the Los Angeles International Airport. It is located less than a 1/4 mile south of the Los Angeles Department of Water & Power's Scattergood power plant and 1/2 mile south of the City of Los Angeles' Hyperion wastewater treatment plant. The Chevron El Segundo refinery is located across Vista Del Mar from ESPRP. The city of Manhattan Beach is immediately to the south.

PROJECT FACILITIES

The key modifications from the original Energy Commission Decision project description include the following proposed changes:

1. The modification of power delivery equipment will change the nominal plant capacity from 630 MW to 560 MW. Specification of different equipment and design will take advantage of new technology (i.e., rapid response with combined cycle) not available during the original project Application for Certification process. The new design will consist of two units with each containing a gas turbine generator (GTG), a heat recovery steam generator (HRSG), one steam turbine generator (STG) and air-cooled heat exchangers for cycle heat rejection. The air cooled design will enable closed-loop circulation of cooling water. Water/steam cycle wastewaters will be recycled back to the single-pressure reverse osmosis water storage tank where they will be diluted for reuse as evaporative cooler makeup or reprocessed by mobile demineralizers. Using a zero liquid discharge system (ZLD), in which water/steam cycle wastewaters will be recycled and reused to the extent practicable eliminating once-through cooling at the site and eliminating discharge of water/steam cycle wastewaters.

2. A different optional method of delivery of oversize equipment to the plant, consisting of ocean delivery by barge over the beach could be used. Under this option, very large components will be constructed off site and transported by barge to the project site. This will significantly reduce construction activities at the site, truck deliveries, and overall construction time. The beach deliveries would occur during a three-to six-month period, generally following the sequence below.
 - Initial construction of a ramp system across the beach fronting the project site.
 - Docking and securing a non-powered “construction” barge at the near-shore zone immediately seaward of the ramp system. This barge is different from the delivery barges that will be arriving, docking and departing in that it is anchored in place for the duration of the construction activities.
 - Docking of delivery barges to the construction barge, installation of T-plates (large “T” shaped steel plates) and ramps to connect the two barges stern to stern.
 - Intermittent closure of the bike path located on the western boundary of the proposed project in accordance with prior notification to users.
 - Roll off of the equipment from the delivery barge on to the construction barge.
 - Movement of the equipment (via self propelled motorized transporters) over the beach ramp into the project site on to the finished foundations.
 - The equipment is lifted onto the foundations by cranes.
 - The construction barge and ramp system will be removed following the completion of the final barge delivery and the beach will be restored as provided for in a restoration plan.
3. Addition of one new offsite laydown area and removal of a previously considered laydown area. The new offsite laydown area at the mailing address of 777 W. 190th Street, Gardena (actually located in the city of Los Angeles), has ample space for component and equipment staging and parking for ESPRP. One laydown area (Fed Ex) will be removed; it is no longer available for staging or parking because the property has been redeveloped into a multi-level commercial building.
4. Modifications of the plant entrance road and gate area to facilitate delivery of oversize equipment to the plant during the construction phase of ESPRP and to improve future equipment deliveries into the plant.
5. Elimination of an aqueous ammonia storage tank because they have elected to use the existing tank.
6. Elimination of a backup diesel-fired fire water pump because backup firewater will be obtained directly from the city of El Segundo’s high-pressure potable water lines.

The benefits of these proposed modifications to ESPRP include the following:

1. The use of new fin-fan air cooling technology eliminates the need for once-through cooling of the project's combustion process and the associated impingement and entrainment of marine life.
2. The new rapid response – combined cycle design provides comparable start-up rates to simple cycle units with the efficiency of a combined cycle power plant; specifically, each unit can deliver 150 MWs of capacity within 10 minutes of startup;
3. The rapid start capability also complements wind and solar renewable generation by providing reliable localized generation that can quickly respond should wind or solar resources not be available during peak electrical demand periods.
4. Elimination of the discharge of industrial wastewater to the ocean and the associated reliance on the existing intake/outfall 001. There will be no discharge of industrial wastewater from the project.
5. Reduced onsite construction activity associated with ability to transport larger prefabricated modules via beach delivery and/or via the modified plant entrance road;
6. Modified plant entrance road, which will improve the safety and efficiency of the plant entrance; and
7. Significant improvement in the visual aesthetics associated with the change from the previously permitted vertical HRSGs to the low-profile horizontal proposed HRSGS. This removes the need to install an architectural screen to cover the HRSGs as required in the original approved project design. This requirement will be eliminated.
8. The new low-emission combustion turbine equipment will significantly reduce air pollutants from the combustion process.

In addition to the benefits identified above, this Petition to Amend preserves the following benefits identified in the approved project.

1. Replacement of the existing less efficient, higher emitting 1950s steam generator power plant with an advanced technology power plant with Best Available Control Technology (BACT) pollution controls that will utilize existing transmission and natural gas facilities and existing power plant labor and ancillary equipment resources.
2. Providing needed, more efficient, additional power supply in the western Southern California Edison load center, replacing aged, former baseload, Units 1 and 2 with rapid starting rapid response – combined cycle technology.

NEW PROPOSED SITE PLAN

The site plan on **Project Description Figure 2** illustrates the location and size of the proposed generating facility presented in this amendment petition. For comparison, the overall layout of the new facility will be located in the same general area of the facility as previously permitted. The primary changes to the site plan include the following:

- Two 1x1x1 (one gas turbine generator (GTG), one HRSG, and one steam turbine generator (STG)) combined cycle power blocks, 0
- to be referred to as units 5 and 7, in the South Coast Air Quality Management District's Facility Permit to Operate instead of one 2x2x1 (two combustion turbine generators (CTGs), two HRSGs, one STG) power block, previously referred to as units 5, 6, and 7;
- Addition of two air cooled heat exchangers for cycle heat rejection;
- Use of single pressure, single-pass HRSGs instead of three pressure, vertically oriented drum HRSGs;
- Movement of the northern end of the facility seawall to the west to accommodate the slightly larger footprint of the rapid response – combined cycle technology;
- Modification of the plant entrance road including widening and straightening; and,
- Location of water storage tanks on the south side of existing units 3 and 4.

The arrangement of two 1x1x1 power blocks occupies a slightly larger footprint than the previously permitted project. Since the two power blocks can operate independently and include more equipment than a 2x2x1 configuration, an access road has been added between the power blocks. Access roads around dimensions and turning radii have been reviewed with El Segundo Fire Department for compliance with local codes.

Two air-cooled heat exchangers are new to the layout and contribute to the larger site footprint. However, this equipment is significantly smaller than conventional combined cycle air-cooled condensers due to the design of the single pressure HRSGs and due to size and operation of the steam turbines.

The footprint of the HRSGs differs from the previously permitted project in that the heat surface tubes are oriented vertically, perpendicular to the horizontally oriented flue gas flow. Because of this arrangement, the HRSG stacks are located at the end of the equipment instead of near the center.

AIR QUALITY EMISSIONS

The amendment petition proposes reductions in hourly emission limits and parts per million of criteria air pollutant emissions except volatile organic compounds (VOC) emissions during normal operation from the originally-certified project. This is achieved by use of newer, more efficient technology in the proposed generation equipment. Reductions would also occur from the elimination of duct burners. The project will use Best Available Control Technology (BACT) to control oxides of nitrogen (NO_x), VOCs, sulfur dioxide (SO₂), and particulate matter (PM_{10/2.5}) emissions.

WATER SUPPLY AND WASTE WATER TREATMENT

The most significant factor is the elimination of once-through sea water cooling of the combustion equipment and replacement by an air cooled condenser that causes no water dissipation. A zero liquid discharge (ZLD) system, would be added to all wastewater discharge from the facility.

Water required for domestic uses and fire fighting would be provided by the city of El Segundo as originally proposed. The quantities of potable water used would remain nearly the same as under the original design. The quantities of wastewater produced would decrease significantly with the addition of the ZLD system.

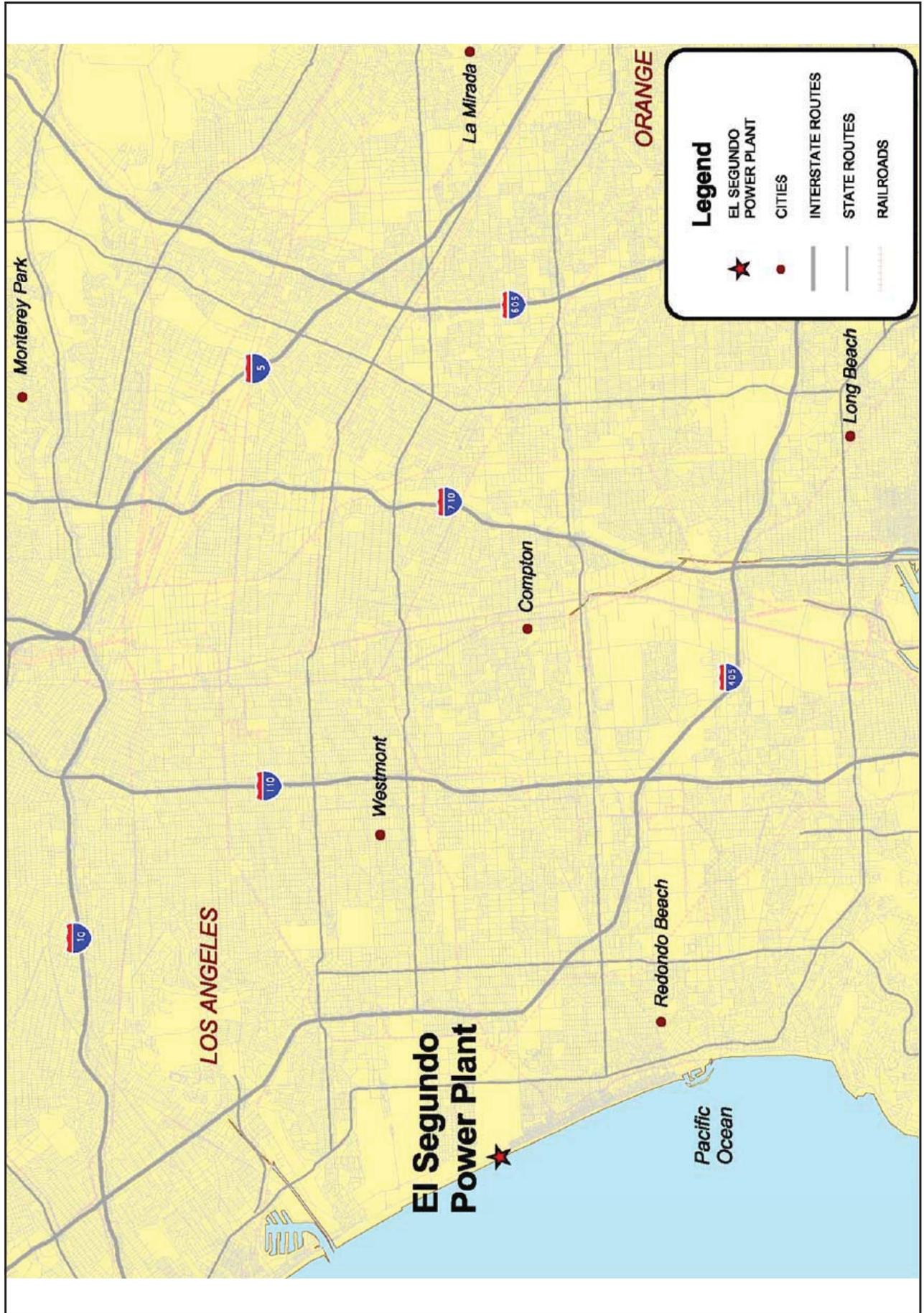
CONSTRUCTION AND OPERATION

ESP II is currently in the demolition process for the existing facility. They propose to begin construction on the access road in September 2008, to begin construction on permanent structures in September 2009, and to complete construction in May 2011. Commercial operation of ESPRP is expected to begin in June 2011. The construction work force is anticipated to peak at 337 workers in month 13 of construction; i.e., September 2010. Once the new units are on line, the operational staff required is expected to be about 25 employees. The capital cost of the project is estimated to range between approximately \$300 and \$500 million.

FACILITY CLOSURE

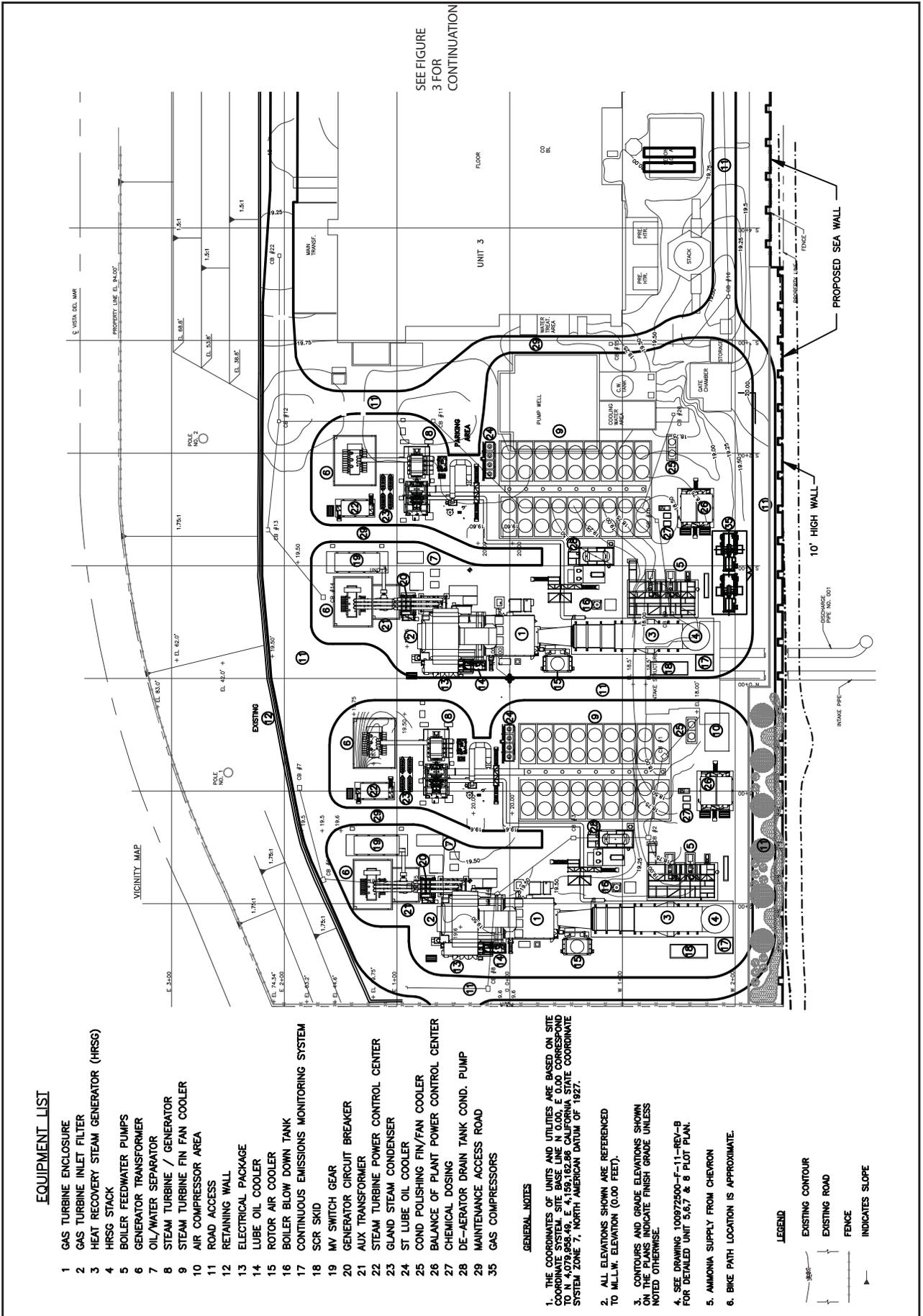
The planned life of the facility is 30 years or longer. Whenever the facility is closed, either temporally or permanently, the closure procedures would follow the described plan provided in the Commission Decision and any additional LORS in effect at that time.

PROJECT DESCRIPTION - REGIONAL PROJECT SETTING - FIGURE 1
 El Segundo Power Redevelopment Project - Amendment Petition For Dry Cooling



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, JUNE 2008
 SOURCE: Amendment Petition, Figure 2.0-1

PROJECT DESCRIPTION - SITE PLAN - FIGURE 2
 El Segundo Power Redevelopment Project - Amendment Petition For Dry Cooling



EQUIPMENT LIST

- 1 GAS TURBINE ENCLOSURE
- 2 GAS TURBINE INLET FILTER
- 3 HEAT RECOVERY STEAM GENERATOR (HRSG)
- 4 HRSG STACK
- 5 BOILER FEEDWATER PUMPS
- 6 GENERATOR TRANSFORMER
- 7 OIL/WATER SEPARATOR
- 8 STEAM TURBINE / GENERATOR
- 9 STEAM TURBINE FIN FAN COOLER
- 10 AIR COMPRESSOR AREA
- 11 ROAD ACCESS
- 12 RETAINING WALL
- 13 ELECTRICAL PACKAGE
- 14 LUBE OIL COOLER
- 15 ROTOR AIR COOLER
- 16 BOILER BLOW DOWN TANK
- 17 CONTINUOUS EMISSIONS MONITORING SYSTEM
- 18 SCR SKID
- 19 MV SWITCH GEAR
- 20 GENERATOR CIRCUIT BREAKER
- 21 AUX TRANSFORMER
- 22 STEAM TURBINE POWER CONTROL CENTER
- 23 GLAND STEAM CONDENSER
- 24 ST LUBE OIL COOLER
- 25 COND POLISHING FIN/FAN COOLER
- 26 BALANCE OF PLANT POWER CONTROL CENTER
- 27 CHEMICAL DOSING
- 28 DE-AERATOR DRAIN TANK COND. PUMP
- 29 MAINTENANCE ACCESS ROAD
- 30 GAS COMPRESSORS

GENERAL NOTES

- 1. THE COORDINATES OF UNITS AND UTILITIES ARE BASED ON SITE COORDINATE SYSTEM. SITE BASE LINE N 0.00, E 0.00 CORRESPOND TO N 4,079,999.49, E 4,195,182.86 CALIFORNIA STATE COORDINATE SYSTEM ZONE 7, NORTH AMERICAN DATUM OF 1927.
- 2. ALL ELEVATIONS SHOWN ARE REFERENCED TO M.L.L.W. ELEVATION (0.00 FEET).
- 3. CONTOURS AND GRADE ELEVATIONS SHOWN ON THE PLANS INDICATE FINISH GRADE UNLESS NOTED OTHERWISE.
- 4. SEE DRAWING 100972500-F-11-REV-B FOR DETAILED UNIT 5.6.7 & 8 PLOT PLAN.
- 5. AMMONIA SUPPLY FROM CHEVRON
- 6. BIKE PATH LOCATION IS APPROXIMATE.

LEGEND

- BISE — EXISTING CONTOUR
- — — EXISTING ROAD
- — — FENCE
- ▲ INDICATES SLOPE

ENVIRONMENTAL ANALYSIS

AIR QUALITY

Prepared by: Joseph M. Loyer

INTRODUCTION

The proposed changes in the amendment petition will have a net positive effect on air emissions during normal operation from the project with the exception of volatile organic compounds (VOC) in comparison with the project description that was approved by the Energy Commission on February 2, 2005 in the original Commission Decision. Emissions of criteria air pollutants during normal operation would be significantly reduced with the adoption of these changes.

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

ESPRP is located in the South Coast Air Quality Management District (SCAQMD or District) in the city of El Segundo, and is subject to the District rules and regulations. ESP II intends to make use of the District Priority Reserve Credits (PRC) made available to them under District Rule 1309.1. However, ESP II has agreed to be considered a new project application under the District rules and thus the most recent revisions to Rule 1309.1 would apply to the ESPRP.

The District will issue a preliminary and final determination of compliance (PDOC and FDOC respectively) for this petition. Thus the previous FDOC (issued in January 2002) is superseded by the PDOC issued on March 14, 2008. This results in a revised Best Available Control Technology (BACT) determination and a revision to some (if only minor in some instances) permit conditions.

Since the Commission Decision for ESPRP was issued on February 2, 2005, several air quality standards have changed. The California 1-hour nitrogen dioxide (NO₂) ambient air quality standard were lowered from 0.25 ppm to 0.18 ppm which will be reflected in this analysis. The federal 8-hour ozone ambient air quality standard were lowered from 0.08 ppm to 0.075 ppm, however this will not change the Commission Decision because staff previously used the more restrictive state 8-hour ozone ambient air quality standard of 0.070 ppm.

In addition new ambient air quality standards for fine particulate matter (PM_{2.5}) were established by the federal United States Environmental Protection agency and the State of California. The 24-hour federal standard is 35 µg/m³. There are two annual PM_{2.5} standards: 15 µg/m³ federal, and 12 µg/m³ California.

Other than the revised Rule 1309.1, no other laws, ordinances, regulations or standards will affect the petitioned amendment request.

ANALYSIS

This analysis will focus on those elements that are proposed to be changed. Those elements include the basic motive power of the project, the cooling equipment, the

elimination of the firewater pump, the elimination of the aqueous ammonia tank and the basic construction method. Staff will be assessing the project against the new ambient air quality standards and District rules.

PROJECT DESCRIPTION

The project that was licensed in February of 2005 consisted of a “2 on 1” gas turbine to steam turbine arrangement. That is, two gas turbines, with gas-fired (using duct burners) heat recovery steam generators (HRSGs) providing steam to one steam turbine. Cooling for the facility was to be achieved by making use of the existing once-through sea water cooling system. The original generation equipment approved by the Energy Commission was to be the General Electric (GE) Frame 7FA gas turbines. However, ESP II experienced significant delays and has determined that the originally-proposed equipment is not viable in the current market and that recent technological advancements in combustion turbines are a better fit.

ESP II is proposing to use the Siemens gas turbines with un-fired HRSGs and a different configuration: “1 on 1.” In this arrangement, each gas turbine with a HRSG (no duct burners) provides steam to a dedicated steam turbine. ESP II proposes to use two fast startup Siemens turbines and the Rapid Response Combined Cycle technology. Additionally, ESP II proposes to use dry cooling as opposed to the once-through sea-water cooling system approved in the original Decision.

CONSTRUCTION

Under the beach landing delivery option, the gas turbines, HRSGs, steam turbines and air cooled condensers (dry cooling) will be constructed off site and transported as relatively complete units by way of a barge landing at the project site. This construction plan has the advantage of significantly reducing construction activities at the project site, truck deliveries to the project site and overall construction time. The beach deliveries would occur during a three-to six-month period, generally following the sequence below.

- Initial construction of a ramp system across the beach fronting the project site.
- Docking and securing a non-powered “construction” barge at the near-shore zone immediately seaward of the ramp system. This barge is different from the delivery barges that will be arriving, docking and departing in that it is anchored in place for the duration of the construction activities.
- Docking of delivery barges to the construction barge, installation of T-plates (large “T” shaped steel plates) and ramps to connect the two barges stern to stern.
- Closure of the bike path located on the western boundary of the proposed project in accordance with prior notification to users.
- Roll off of the equipment from the delivery barge on to the construction barge.
- Movement of the equipment (via self propelled motorized transporters) over the beach ramp into the project site on to the finished foundations.
- The equipment is lifted onto the foundations by cranes.

- The construction barge and ramp system will be removed following the completion of the final barge delivery and the beach will be restored as provided for in a restoration plan.

ESP II estimates that there will be six separate equipment deliveries by barge in a three-to-six month period during construction. The construction barge and delivery barges will be transported and placed in position by tugboat (estimated to be 7,200 brake horse power). The construction barge will be pulled onto the beach at high tide with two D-6 dozers. The construction barge will then be secured to the beach by sea fastening (a specific type of anchorage cable) from the barge to the bulldozers. Once the construction barge is ballasted to a grounded position, the construction of the beach ramp system will be completed.

The beach ramp system will extend from the construction barge to the project site. The ramp will be constructed using a combination of geo-tech fiber, wood matting and sandbags filled with clean sand that are similar in nature to the native sand on the beach. A temporary access ramp will be constructed over the bike path to allow transportation of the equipment from the beach to the project site.

The construction barge and ramp system will be removed following the completion of the final equipment delivery by barge. To restore the beach to pre-project conditions, the sand bags will be opened and the sand will be left on the beach, all other materials will be removed.

This modification in construction and delivery method will affect the Commission Decision in two ways. First, the emissions associated with the ramp and construction barge may be minimal, but will extend the earth moving operations that are necessary for such power plant construction projects. Second, a significant amount of emissions associated with on-site construction activities and truck deliveries will be avoided.

The estimated total emissions for all the barge deliveries are shown in **AIR QUALITY Table 1**. The emissions are based on four tug boats per delivery and six total round trip deliveries of approximately 57.6 miles. The beach delivery support equipment includes the crawler used for off loading, support equipment, the bulldozers (which are started and made ready for use if necessary) and the ballast pumps on board the delivery and construction barges.

ESP II may decide not to employ the beach landing option, dependent upon economic considerations. If this option is not chosen, then the air quality analysis for the original overland delivery plan will remain unchanged.

AIR QUALITY Table 1
Estimated Total Emissions (lbs)
Barge Deliveries and Unloading

	NOx	CO	VOC	SOx	PM10
Tug/Barge Emissions ¹	6,235.4	1,878.6	288.3	7.9	122.5
Beach Delivery Support Equipment ²	645.1	209.1	28.9	0.8	13.7
Total	6,880.5	2,087.7	317.2	8.7	136.2
Assumptions: ¹ 4 Tug Boats (7200 BHP main engine, 150 BHP auxiliary generator) per barge (both delivery and return). 6 round trips. ² Includes off loading crawler, support equipment, dozer operation and ballast pumps.					

AIR QUALITY Table 2 shows the estimated total avoided emissions as a result of the barge deliveries. The avoided on-site construction emissions are based on the assumptions that were made during the original licensing process and include: an increase in construction emissions associated with the new lay down area (staging and parking), a reduction of construction equipment needed, a reduction of work force needed (approximately 103 workers) and the elimination of rail deliveries. The avoided truck emissions assume that the six barge deliveries will eliminate a total of 400 truck deliveries.

AIR QUALITY Table 2
Estimated Total Avoided Emissions (lbs)

	NOx	CO	VOC	SOx	PM10
Avoided On-Site Construction ¹	1,723	2,741	326	80	66
Avoided Truck Deliveries ²	2,933	1,834	308	2.75	150
Total	4,656	4,575	634	83	216
Assumptions: ¹ Includes reduced construction equipment, reduced worker travel, reduced construction work force, and the removal of rail deliveries. ² 400 deliveries, 165.6 miles average round trips, and approximately 66,240 vehicle miles.					

Comparing Air Quality Tables 1 and 2, shows that ESP II expects there to be an increase in NOx emissions for the barge deliveries of approximately 2,225 lbs and that all other emissions are being reduced. However, this comparison does not fully address the further benefits of a shortened reduced construction time on ambient air quality. Constructing the major mechanical components of the power plant off site means that their construction can be started prior to the foundation being completed. So, by compressing the overall construction schedule, major construction equipment and personal (and their associated emissions) will leave the project site sooner, thus reducing the overall emissions (and impacts) from the construction of the project.

Furthermore, the air quality impacts from the construction emissions are significantly altered. In the original licensing case, all the construction emissions were occurring on the project construction site. With the barge deliveries, the majority of the construction emissions are emitted by the tug boats, which are off shore. With this added distance, the pollutants have more time to disperse and thus cause a significantly lower impact on the ambient air quality on shore (see **AIR QUALITY Table 3**). ESP II provided this modeling analysis, showing the top 100 (rank) highest ambient air quality impacts (total [project impact plus background] 1-hr NO₂ impacts). For simplicity, staff presents the

highest (Rank 1) and 100th (Rank 100) modeling results to show the overall range of results.

AIR QUALITY Table 3
Estimated Impacts from Barge Deliveries

Rank	Modeled 1-hr NO ₂ Impact (ug/m ³)	1-hr average NO ₂ Background (ug/m ³)	Total 1-hr NO ₂ Impact (ug/m ³)	State 1-hr NO ₂ Standard (ug/m ³)	Percent of Standard
1	296.4	18.8	315.2	338	93%
100	168.8	16.9	185.7	338	55%

The modeling results in **AIR QUALITY Table 3** assume that the transportation barge and the four tug boats that accompany it are using the EPA Tier II marine diesel engines (**AQ-C6**). The analysis is slightly less conservative than what staff routinely requires, however, staff is convinced that the modeling is accurate and reasonably represents a conservative estimate of the likely ambient air quality impacts of the proposed barge deliveries.

The modeling is less conservative because it compares the hour by hour NO₂ impact predictions (from the modeling results) to the corresponding hour of measured NO₂ in the ambient air. ESP II chose to model a single year (2004) that represented the most recent and highest measurements of NO₂ concentrations (measured at the West Los Angeles VA Hospital) in the ambient air, in combination with available meteorological data and ozone monitoring data for that same year. Comparing the hour by hour NO₂ modeling results with the corresponding background measurements is reasonably representative because the same meteorological events that precipitated the ambient NO₂ and ozone measurements will also lead to predict the NO₂ modeling results. Given that the model (AERMOD) tends to over-estimate emission impacts and that these are moving sources that will not emit NO₂ at a constant rate (as the model must assume), staff is reasonably convinced that the modeling performed by ESP II is a reasonably conservative representation of the likely emission impacts from the barge deliveries.

MINOR CONSTRUCTION CHANGES

The minor construction changes include the following elements:

- The addition of offsite laydown areas for equipment staging and construction employee parking.
- Modification to the plant's access road configuration.

These elements are subject to the construction conditions (**AQ-C1** through **AQ-C4**) and thus are not expected to cause or contribute to exceedances of the ambient air quality standards. Therefore, staff is reasonably certain that any impacts that may occur from these elements will not be significant under the California Environmental Quality Act.

COMMISSIONING

The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale on the market. Normal operating emission limits usually do not apply during initial commissioning procedures. ESP II will go through several tests during initial commissioning. During

the first set of tests, post-combustion controls will not be operational (i.e., the SCR and oxidation catalyst).

These tests start with a Full Speed-No Load test. This test runs the turbine at approximately 20 percent of its maximum heat input rate. Components tested include the ignition system, synchronization with the electric generator and the turbine-overspeed safety system. Part Load testing runs the turbines to approximately 60 percent of the maximum heat input rating. During this test the turbine and HRSG will be tuned and the HRSG steam lines will be checked. Full Load testing runs the turbines to their maximum heat input rate. This testing entails further tuning of the turbine and HRSG as well as the steam lines. Full Load Partial Selective Catalytic Reduction (SCR) testing runs the turbines at 100 percent of their maximum heat input rate and operates the SCR ammonia injection grid for the first time at a reduced ammonia injection rate. Finally, Full Load Full SCR testing runs the turbines at their maximum heat input rate and operates the SCR ammonia inject grid at its full capacity to minimize NOx emissions. It is during this test that the SCR system will be completely tuned and operating at design levels (i.e., NOx control at 2.0 ppm).

ESP II has stated that the manufacturer suggests that 415 hours over two months is sufficient to complete each turbine train commissioning. Daily operation of the turbines during the commissioning period is typically limited to several hours a day. ESP II has estimated that the approximate total emissions during commissioning are as shown in **AIR QUALITY Table 4**. This table also compares the commissioning emissions from the Siemens turbines to the original project's use of the GE turbines.

AIR QUALITY Table 4
Maximum Expected Total Emissions from Commissioning
(Units in Pounds)

	NOx Emissions	CO Emissions	VOC Emissions	PM10 Emissions
Commissioning Emissions Per Turbine Train	12,478	130,337	6,952	3,911
Total for two Turbine Trains	24,956	260,674	13,904	7,822
Original Licensing Case	34,535	111,463	1,803	7,128

ESP II did not estimate the expected sulfur oxides (SOx) emissions during commissioning. However, the SOx emissions were estimated in the original licensing case and were reported as 664 lbs of SOx for the commissioning of both combustion trains. Both SOx and respirable particulate matter (PM10) emissions are a function of the amount of fuel burned because there is no post-combustion pollution control equipment for either pollutant (such as SCR for NOx or the oxidation catalyst for carbon monoxide (CO) and volatile organic compounds [VOC]). ESP II is estimating an increase in the commissioning emissions of PM10 by 10 percent over the original licensing case (i.e., from **AIR QUALITY Table 4**: 7,822 compared to 7,128 shows a 10 percent increase). ESPRP is burning the same fuel as was originally proposed; therefore staff finds it reasonable to estimate the SOx commissioning emission for the proposed amendment as approximately 10 percent of the original licensing case. That is 730.4 (1.10 times 664) lbs SOx for the commissioning of both turbine trains.

Given that the proposed combustion turbines have not been on the market long, it is not surprising that there may be insufficient data to warrant lower emission guarantees from the manufacturer. Estimating the emissions during commissioning relies almost solely on the manufacturer's research and guarantees.

However, the emissions of CO and VOC are estimated to be significantly higher than the original licensing case; in the case of VOC, more than seven times higher. Based on the modeling provided, staff believes that it is unlikely that the CO emissions will cause or contribute to an exceedance of the state or federal ambient air quality standards even at their proposed emission levels. However, a contribution to the ongoing ozone violations in the SCAQMD is possible from the increased VOC emissions since VOC emissions are a known precursor emission to ozone formation. Therefore, staff recommends that ESP II consider reducing and thus mitigating the VOC commissioning emissions by installing the oxidation catalyst early in the commissioning process and, if necessary, replacing the oxidation catalyst prior to initial performance testing which follows commissioning (**AQ-C7**). This mitigation was proposed and successfully implemented by the city of Vernon for the Malburg Generating Station (01-AFC-25) for smaller capacity combustion turbines (GTS 100).

ESP II modeled the expected air quality impacts from the commissioning activities outlined above. The results are shown in **AIR QUALITY Table 5** and demonstrate that the emissions from commissioning will not cause or contribute to an exceedance of the ambient air quality standards.

AIR QUALITY Table 5
Commissioning Air Quality Impacts

Pollutant	Averaging Time	Predicted Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Ambient Air Quality Standard (µg/m³)	Percent of Standard
NOx	1-hour	118.0	162	280	338	83%
CO	1-hour	2,248.09	4,600	6,848	23,000	30%
	8-hour	1,028.13	2,645	3,673	10,000	37%

OPERATION

ESP II proposes to operate the Siemens turbines differently than was originally licensed for the GE turbines. The GE turbines were licensed to operate at a 100 percent capacity factor, whereas ESP II is proposing to operate the Siemens turbines at a maximum capacity factor of 60 percent. The Siemens turbines also have a slightly different emission profile than the GE turbines. Thus, ESP II proposes to modify the project emission limits as shown in **AIR QUALITY Table 6**. These modifications have been accepted by the SCAQMD in their Preliminary Determination of Compliance (PDOC). Staff also has several recommendations for additional emission limits (hourly emission limits), not found in the PDOC, that staff feels make the proposed modifications consistent with the original intentions of the Commission Decision.

The petition will lower all emissions with the exception of VOC, even though the VOC emission rate during operation will decrease and the number of hours of operation of the facility will significantly decrease. However the VOC emissions during startup and shutdown will increase. This is a characteristic difference between the Siemens Rapid

Response Combined Cycle technology as opposed to the GE Frame 7FA turbines. The VOC startup and shutdown emission estimate for the GE turbines was 2.56 lbs/hour, while the startup for the Siemens turbine is 17.30 lbs/hr and shutdown is 9.74 lbs/hour. That is an emissions increase of 528 percent.

**AIR QUALITY Table 6
Modifications to Emissions Limits**

	Current Permitted Limit	ESP II Proposed Limit	Staff Proposed additional Limit	Units
NOx	2.0	2.0		ppm @ 15% O ₂ average over an hour
	18.27	none proposed	15.44	lbs/hr
	109	16.55		lbs/mmSCF during commissioning at loads at to below 60 percent.
	33.9	16.55		lbs/mmSCF during commissioning at loads above 60 percent.
	33.9	8.66		lbs/mmSCF for the Combustion Turbines, during the interim period between turbine commissioning and CEMS verification.
	80	112		lbs/hr during turbine start up.
	102	NA no duct burners		lbs/mmSCF for the Duct Burner, during the interim period between turbine commissioning and CEMS verification.
	297,651 total	90,953 each (181,910 total)		lbs/year all mode of operation.
CO	4	2		ppm @ 15% O ₂ average over an hour.
	11.12	none proposed	9.40	lbs/hr
	20,566 total	none proposed		lbs/month
	501	none proposed		lbs/mmSCF during commissioning at loads at to below 60 percent.
	14	none proposed		lbs/mmSCF during commissioning at loads above 60 percent.
	100	none proposed		lbs/hr during turbine start up.
	4.55	none proposed		lbs/mmSCF for the Duct Burner, during the interim period between turbine commissioning and CEMS verification.
VOC	none	2		ppm @ 15% O ₂ average over an hour.
	6.37	none proposed	5.37	lbs/hr
	7,588 total	4,930 each (9,860 total)		lbs/month
	2.39	2.93		lbs/mmSCF for verification of monthly emission limit.
	15.0	none proposed	9.49	lbs/hr

	Current Permitted Limit	ESP II Proposed Limit	Staff Proposed additional Limit	Units
PM10	20,336 total	6,935 each (13,870 total)		lbs/month
	6.26	4.66		lbs/mmSCF for verification of monthly emission limit.
	1.76	none proposed	1.47	lbs/hr
SOx	2,342 total	1,065 each (2,130 total)		lbs/month
	0.72	0.72		lbs/mmSCF for verification of monthly emission limit.
	NA	0.25		grains per 100scf fuel sulfur content limit annual average of monthly measurements

Ambient Air Quality Impacts

The proposed emission limits shown in **AIR QUALITY Table 6** were modeled by ESP II, with the results shown in **AIR QUALITY Table 7**. The background ambient air quality monitoring (shown in the Background column) are the highest values recorded at the monitoring stations (West Los Angeles VA Hospital and North Long Beach monitoring stations) during the years of 2004 through 2006. **AIR QUALITY Table 7** shows that only the ESPRP PM10/PM2.5 emissions have the potential to contribute to an on-going violation of the ambient air quality standards.

AIR QUALITY Table 7
Modeled Maximum Impacts for Units 8 and 9

Pollutant	Averaging Time	Predicted Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Ambient Air Quality Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NOx	1-hour	53.72 ^a	162	215.72	338	64%
	Annual	0.29 ^b	38	38.29	56	68%
SOx	1-hour	1.40 ^b	110	111.4	650	17%
	3-hour	1.25 ^b	87	88.25	1300	7%
	24-hour	0.30 ^b	31	31.3	109	29%
	Annual	0.025 ^b	13	13.25	80	16%
CO	1-hour	485.44 ^a	4,600	5,085.44	23,000	22%
	8-hour	222.01 ^a	2,645	2,867.01	10,000	29%
PM10	24-hour	1.25 ^b	78	79.25	50	159%
	Annual	0.17 ^b	33	33.17	20	166%
PM2.5	24-hour	1.25 ^b	46	47.25	35	135%
	Annual	0.17 ^b	18	18.17	15	121%

Notes: All impacts include both combustion turbine trains units 8 and 9.
^a Startup/shutdown emission impacts
^b Normal operation emission impacts

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

ESP II used the SCREEN 3 model, which is an EPA approved model, for the calculation of fumigation impacts. **AIR QUALITY Table 8** shows the modeled fumigation results and impacts on the short-term NO₂, CO, SO₂, PM₁₀ and PM_{2.5} standards. Since fumigation impacts will not typically occur much beyond a 1-hour period, only impacts on the short term standards were addressed. **AIR QUALITY Table 8** shows that only the ESPRP PM₁₀/PM_{2.5} emissions have the potential to contribute to an on-going violation of the ambient air quality standards

AIR QUALITY Table 8
Modeled Fumigation Shoreline Impacts for Units 8 and 9

Pollutant	Averaging Time	Predicted Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Ambient Air Quality Standard (µg/m³)	Percent of Standard
NOx	1-hour	10.73	162	172.73	338	51%
SOx	1-hour	3.04	110	113.04	650	17%
	3-hour	1.59	87	88.59	1,300	7%
	24-hour	0.26	31	31.26	109	29%
CO	1-hour	9.80	4,600	4,609.8	23,000	20%
	8-hour	2.18	2,645	2,647.18	10,000	26%
PM10	24-hour	1.09	78	79.09	50	158%
PM2.5	24-hour	1.09	46	47.09	35	135%

ESP II provided staff with a modeling analysis, using the AERMOD model to quantify the potential impacts of the project for both turbines, during normal steady state operation and during start-up conditions. This modeling analysis consisted of a screening level and a refined level analysis. The screening level analysis tested basic operating conditions, which combined various load levels with several ambient air temperatures. The refined modeling was developed from these screening level runs. The refined modeling impacts are shown in **AIR QUALITY Table 9**.

In modeling the project operational emission impacts, ESP II has chosen to include emissions from the base load operation of the existing boiler units 3 and 4, even though these emissions would normally be considered part of the background concentrations. This conservative approach will over estimate the project's potential ambient air quality impacts. ESP II has modeled the startup emissions and steady state operational emissions of the CTG systems alone as well. **AIR QUALITY Table 9** shows that only the ESPRP PM10/PM2.5 emissions have the potential to contribute to an on-going violation of the ambient air quality standards.

AIR QUALITY Table 9
Modeled Maximum Impacts for the Entire El Segundo Facility

Pollutant	Averaging Time	Predicted Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Ambient Air Quality Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NOx	1-hour	152.71 ^a	162	314.71	338	93%
	Annual	1.43 ^b	38	39.43	56	70%
SOx	1-hour	5.10 ^c	110	115.1	650	18%
	3-hour	3.24 ^c	87	90.24	1,300	7%
	24-hour	0.93 ^b	31	31.93	109	29%
	Annual	0.092 ^b	13	13.092	80	16%
CO	1-hour	2536.21 ^a	4,600	7,136.21	23,000	31%
	8-hour	1203.28 ^a	2,645	3,848.28	10,000	38%
PM10	24-hour	8.26 ^b	78	86.26	50	173%
	Annual	1.03 ^b	33	34.03	20	171%
PM2.5	24-hour	8.26 ^b	46	54.26	35	155%
	Annual	1.03 ^b	18	19.03	15	127%

Notes: All impacts include combustion turbine trains units 8 and 9 and boiler units 3 and 4. All boiler emission assumed under normal base load operation activities.

^a Turbine emission impacts from commissioning activities

^b Turbine emissions impacts from normal operation

^c Turbine emission impacts from fumigation impact analysis

MITIGATION

The ESPRP qualifies under SCAQMD Rule 1304(b)(2) for an exemption of the New Source Review (NSR) offsetting requirements in Rule 1303 because the project replaces boiler units with combustion turbine units. This means that ESP II is responsible for only a portion of the project emissions and SCAQMD is responsible for the remainder, for which SCAQMD will draw upon the District Account (Rule 1315) of emission reduction credits (ERCs). This is the same account from which the Priority Reserve Credits are drawn (Rule 1309.1) for which ESPRP is also eligible. **AIR QUALITY Table 6** shows the California Environmental Quality Act (CEQA) mitigation that is provided for the ESPRP emission impacts which is based on the new source review (NSR) offsets identified in the SCAQMD PDOC.

The CEQA mitigation differs from the NSR offset requirements by taking into consideration the accounting allowances of Rule 1315. This difference is only evident for PM10. Rule 1315 allows the Executive Officer of the SCAQMD to redirect 20% of the PM10 ERCs, 1304 Exemption PM10 Credits and Priority Reserve PM10 Credits back into the District Account, which the SCAQMD intends to do. The credits in the District Account are then available to offset other emission increases through the SCAQMD NSR program. Thus staff does not believe that this 20 percent is considered mitigation for the ESPRP since thus reductions could be used elsewhere. Thus the credits for PM10 in **AIR QUALITY Table 10** are reduced by 20 percent from those reported in the SCAQMD PDOC.

AIR QUALITY Table 10
CEQA Mitigation (30-day average lbs/day)

	NOx (lbs/year)	VOC	SOx	PM10¹
Short term Credits	0	24	0	0
Emission Reduction Credits or RECLAIM Trading Credits	181,910	146	34	20
1304 Exemption Credits	0	222	44	282
Priority Reserve Credits	0	0	0	160
Total ² Credits	181,910	368	78	462
¹ Note that the PM10 credits are reduced from those values reported in the SCAQMD Engineering Analysis/Evaluation; discounting the 20% of the credits redirected to the District Account by the Executive Officer via Rule 1315. ² Total does not include short term ERCs as they are intended only for the first year of operation.				

The PDOC also states that for the first year of operation ESPRP will require an additional 24 lbs/day of VOC credits. ESP II has agreed to purchase short term credits (STCs). However, STCs cannot be purchased prior to the actual year in which they would be used. Thus, staff will have no opportunity to comment on the efficacy of the actual STC that is procured by ESP II. These STCs will only be needed for the first year of operation and are not needed thereafter.

There are three distinct types of STCs permitted in the SCAQMD rules and regulations: short-term emission reduction credits (STERCs), mobile source emission reduction credits (MSERCs) and area source emission reduction credits (ASERCs). STERCs are created from existing ERCs which are divided, in part or in whole, for a period of no more than seven years (there after they become permanently divided). MSERCs are governed by SCAQMD Regulation XVI, and include sources such as the voluntary repair of on-road heavy polluting vehicles, vehicle scraping, clean vehicle programs, truck stop electrification, clean lawn and garden equipment programs and clean diesel marine vessel programs. ASERCs are governed by SCAQMD Rule 2506 (restricted to NOx and SOx credits only) and consist of the turnover of non-mobile emitting sources within the SCAQMD which are not subject to local or state permitting or registration.

All three types of STCs must go through a rigorous assessment of actual emissions and emission reductions achieved. Thus staff is reasonably certain that the STCs are real, quantifiable, permanent, federally enforceable and will exceed the best available control technology (BACT) requirements for each individual emission source and thus will constitute mitigation under CEQA.

EMISSION REDUCTION CREDITS

ESP II has modified the original ERC holdings whose total is shown in **AIR QUALITY Table 6**. Since ESPRP is located in a coastal area (zone 1) all the ERCs must originate from a coastal area via SCAQMD rules and regulations. The total amount of ERCs for each pollutant has been increased slightly with the exception of PM10. The increased ERCs were necessary because ESP II's obligation increased. Though ESPRP qualifies under Rule 1304 for an exemption from the NSR offset requirements (Rule 1303), that exemption is only partial and is based on the increased rated capacity for the project. The proposed ERCs are shown in **AIR QUALITY Table 11**.

**AIR QUALITY Table 11
Emission Reduction Credits.**

Pollutant	Certificate Number	Date of Purchase	Origin/Zone	Seller	Amount (lbs/day)
SOx	AQ003333	12/2/00	Lockheed Adv Dev Co/ 1	ARCO Products	17
	AQ003336	12/2/00	Union Pacific / 1	ARCO Products	19
	AQ006561	3/29/07	Monsanto Co / 1	Monsanto Co.	9
	SOx Total				45
VOC	AQ006559	3/28/07	Kimball Harpers /1	Kimball Harpers	6
	AQ004648	9/25/02	Kimball Harpers /1	National Offsets	25
	AQ004580	7/31/02	Allied Honeywell /1	Allied Honeywell	20
	AQ003722	5/19/01	Allied Honeywell /1	Allied Honeywell	95
VOC Total				146	
PM10	AQ003352	12/21/00	Aerochem / 1	Aerochem	6
	AQ003462	2/7/01	Friction Materials / 1	Multifuels	2
	AQ003550	3/21/01	Paramount Perlite / 1	Multifuels	2
	AQ003568	4/3/01	Ball Incon Glass / 1	Multifuels	3
	AQ004145	8/14/01	American National / 1	American National	1
	AQ004322	12/27/01	Henkel Emery Grp / 1	Intergen N Am Dev	5
	AQ004323	12/27/01	City of Southgate / 1	Intergen N Am Dev	3
	AQ004326	12/27/01	LA Export Term / 1	Intergen N Am Dev	2
PM10 Total				24	

CUMULATIVE ASSESSMENT

The petition proposes to decrease all criteria pollutant emissions with the exception of VOC emissions. Thus, if left unmitigated, the increase in VOC emissions is presumed to contribute to the ongoing violations of the ozone ambient air quality standards. **AIR QUALITY Table 12** shows the balance of ESPRP emissions (**AIR QUALITY Table 6**) to the offered mitigation (**AIR QUALITY Table 10**), demonstrating that the petition to amend the ESPRP is fully mitigated. Therefore, staff concludes that the potential ESPRP emission air quality impacts are not cumulatively considerable.

The ESPRP emissions shown in **AIR QUALITY Table 12** are calculated from the monthly emissions shown in **AIR QUALITY Table 6**, divided by 30 to produce the 30-day average lbs/day values (with the exception of NOx which is pounds per year). Staff has found it appropriate to use the 30-day average lbs/day value for characterizing the project emission profile in the SCAQMD. That is due to the fact that the SCAQMD calculates ERCs on a 30-day lb/day average value as described below.

The project emissions 30-day average is calculated by totaling the worst case month that the project is expected to have and dividing that total by 30 to create an lbs/day 30-day average. The ERCs are calculated by taking the total emission for the year and dividing that number by 365 to create the lbs/day annual average. An annual average is always going to be lower than a 30-day average from the same emitting source. Any emitting source will always have a month where they operate more than any other month, but in an annual average this peak month is washed out over the year. Thus the lbs/day ERC calculation is more conservative than the lbs/day project emission calculation. Therefore, for projects located in the SCAQMD, staff uses the 30-day

average lbs/day value to characterize the project emission profile when comparing it to the ERCs being offered.

AIR QUALITY Table 12
Balance of Project Emissions and Mitigation
(30-day average lbs/day)

	NO_x	SO_x	VOC	PM₁₀
ESPRP Emissions (AIR QUALITY Table 5)	181,910 (lbs/year)	72	328	462
ESPRP Mitigation (AIR QUALITY Table 6)	181,910 (lbs/year)	78	368	462
Further Mitigation Needed	None	None	None	None

SCAQMD MODIFICATION TO THE DETERMINATION OF COMPLIANCE

ESPRP is proposing to gain access to the SCAQMD Priority Reserve PM₁₀ credits by complying with Rule 1309.1. To ensure compliance with all the requirements of 1309.1, the SCAQMD has added several conditions to the Determination of Compliance. They include the following elements:

- Source testing to ensure that ESPRP meets the following emission limits at full load and ISO conditions;
 - 0.060 lbs/MW-hr PM₁₀; and
 - 0.080 lbs/MW-hr NO_x;
- ESPRP shall be full operational within three years of the issuance of the Permit to Construct.

SCAQMD Rule 1309.1 has two other requirements for access to the priority reserve that must demonstrate compliance after the Commission Decision has been adopted; a long term (1 year) contract to supply 50 percent of the power generated to the California grid and that ESPRP be of the first 2,700 MW to be issued priority reserve credits. Therefore, staff is including a condition of certification **AQ-C8**, which requires ESP II to demonstrate compliance with the SCAQMD Rule 1309.1 prior to breaking ground on ESPRP construction.

The SCAQMD has also added explicit measurement requirements for the ammonia slip limiting conditions (**AQ-26**). Staff has determined that the monitoring requirements for ammonia proposed by the SCAQMD are not consistent with the monitoring requirements that other air districts use in California. Staff has added language to the ammonia compliance requirement so that it is consistent with other enforcement practices elsewhere in California.

Additionally there are other minor modifications that SCAQMD has made to the Determination of Compliance. These minor changes are in response to the Environmental Protection Agency comments on recent power plant projects in SCAQMD jurisdiction. The changes generally clarify emissions source testing procedures.

AQUEOUS AMMONIA STORAGE TANK AND FIREWATER PUMP

ESP II has proposed to use the existing aqueous ammonia storage tank and firewater pump on the property site. Therefore staff will remove Conditions of Certification **AQ-28** and **AQ-29**.

CONCLUSION

Staff has analyzed the proposed changes and concludes that there are no new or additional significant impacts associated with approval of the petition. Staff concludes that the proposed changes are based on information that was not available during the original licensing process. Staff concludes that the proposed language retains the intent of the original Commission Decision and conditions of certification. Staff recommends the deletion of Conditions of Certification **AQ-10**, **-13**, **-21**, **-28**, and **-29**, the following modifications to Conditions of Certification **AQ-C5**, **-2**, **-3**, **-4**, **-5**, **-6**, **-7**, **-9**, **-11**, **-12**, **-16**, **-17**, **-18**, **-19**, **-20**, **-22**, **-24**, **-25**, **-26**, and **-27**, and the addition of Conditions of Certification **AQ-C6**, **AQ-C7**, **AQ-C8** and **AQ-30** through **AQ-38**.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed modification to the Air Quality Conditions of Certification as shown below. (Note: deleted text is in ~~strikethrough~~, new text is **bold and underlined**)

AQ-C5 The project owner shall commit specific emission reduction credits certificates for the ESPRP to offset the project emissions as provided for in **Table AQ-C5-1**. The project owner shall not use of any ERCs to be surrendered in the **Table AQ-C5-1** for purposes other than offsetting the ESPRP.

TABLE AQ-C5-1 – Emission Offset Requirements

Certificate Number	Amount (lbs/day)	Pollutant
AQ003331	47	SO2
AQ003332	13	SO2
AQ003333	17	SO2
AQ003334	75	SO2
AQ003336	19	SO2
AQ003463	4	SO2
AQ003464	4	SO2
AQ004450	10	SO2
AQ004498	10	SO2
<u>AQ006561</u>	<u>9</u>	<u>SO2</u>
Total of Certificates Identified	193 <u>45</u>	SO2
Total to be surrendered	43 <u>34</u>	SO2
District Exempted Emission Offsets	29 <u>44</u>	SO2
Total surrendered & exempted emissions	72 <u>78</u>	SO2

AQ003327	70	VOC
AQ004580	20	VOC
AQ003722	95	VOC
AQ006559	6	VOC
AQ004686	25	VOC
Total of Certificates Identified	146 185	VOC
Total to be surrendered	146 140	VOC
<u>District Exempted Emission Offsets</u>	<u>222</u>	<u>VOC</u>
Total surrendered <u>& exempted</u> emissions	368 <u>140</u>	<u>VOC</u>
AQ003352	6	PM10
AQ003462	2	<u>PM10</u>
AQ003550	2	<u>PM10</u>
AQ003568	3	<u>PM10</u>
AQ004145	1	PM10
AQ004322	5	PM10
AQ004323	3	PM10
AQ004326	2	PM10
Total of Certificates Identified	24	PM10
Total to be surrendered	24	PM10
1304 Exempted Emission Offsets	282 173	PM10
Priority Reserve Purchased	192 291	PM10
Priority Reserve from District	58	PM10
Total surrendered & exempted emissions (less 20% redirected)	462 <u>546</u>	<u>PM10</u>

The project owner shall request from the District a report of the NSR Ledger Account for the ESPRP after the District has granting the ESPRP a Permit to Construct. Such report to specifically identify the ERCs, Priority Reserve Credits and Rule 1304 Exempted Emissions used to offset the project emissions. The project owner shall submit this report to the CPM prior to turbine first fire.

Verification: No more than 15 days following the issuance of the District's Permit to Construct, the project owner shall request from the District the report of the NSR Ledger Account for the ESPRP. The project shall submit the report of the NSR Ledger Account for the ESPRP to the CPM no less than 30 days prior to turbine first fire.

AQ-C6 The owner/operator shall employ tug boats and self-propelled motorized transporters (SPMT) for all barge delivery operations that are equipped with EPA Tier II diesel engines or better.

As a contract element for the employment of any and all SPMT and tug boats for the purpose of barge delivery operations, the project owner shall

include a provision to certify that the SPMT or tug boat primary source of power is based on an EPA Tier II diesel engine.

Verification: No less than 5 days prior to a SPMT or tug boat being used for any type of barge delivery operation, the owner/operator shall submit the certification to the CPM for approval.

AQ-C7 The owner/operator shall install and make operational an oxidation catalyst at the earliest point practical during the initial commissioning phase of each combustion turbine train. The installation must seek to maximize the reduction of VOC emissions and must not compromise safety in any way.

Verification: The owner/operator shall submit to the CPM for approval a letter stating that the installation of the oxidation catalyst is complete and operational and include the estimated effectiveness in terms of percent of VOC emission reduction achieved. This letter shall be signed and stamped by a California Registered Professional Engineer.

AQ-SC8 The project owner/operator shall perform the following requirements prior to construction ground disturbance.

Demonstrate Compliance with Rule 1309.1 Section d(12) by either:

1. Providing a letter from the Executive Officer of the South Coast Air Quality Management District stating that the project capacity is within the first 2,700 MW of capacity requested pursuant to Rule 1309.1 Section d (12).
- Or
2. Providing a letter from the Governing Board of the South Coast Air Quality Management District granting a specific waiver to the AQMD Rule 1309.1 section d(12). This letter must be on the Governing Board letter head and signed by all members of the Governing Board.

Demonstrate Compliance with Rule 1309.1 Section d(14) by either

1. Providing non-confidential evidence that the project owner/operator has entered into a long term power production agreement contract as required by AQMD Rule 1309.1 with Southern California Edison Company, San Diego Gas and Electric Company or the State of California.
- Or
2. Providing a letter from the Governing Board of the South Coast Air Quality Management District granting a specific waiver to the long term contract requirement of AQMD Rule 1309.1 section d(14). This letter must be on the Governing Board letter head and signed by all members of the Governing Board.

Verification: All evidence submitted in compliance with Condition AQ-SC8 must be submitted 30 days prior to construction ground disturbance.

Conditions of Certification AQ-1 through AQ-27, below, pertain to the following equipment:

~~1,896 MMBTU/HR Gas Turbine (ID No. D46) (A/N 378766) No. 5 GE Model 7241FA with Dry Low NOx combustors and steam injection for power augmentation connected directly to a 179 MW (nominal) Electric Generator (ID No. B47) and a Heat Recovery Steam Generator (ID No. B49) with 600 MMBTU/HR Duct Burners (ID No. D48) connected in common with Gas Turbine No. 7 to a 288 MW (nominal) steam turbine (ID No. B50). Selective Catalytic Reduction (ID No. C52) (A/N 378771) with 4379 cubic feet of total volume 3 feet height, 44 feet long, 41 feet wide with an ammonia injection grid (ID No. B53) and a CO oxidation catalyst (ID No. C51) with 1000 cubic feet of total volume connected to an exhaust stack (ID No. S54) (A/N 378771) No 5.~~

~~1,896 MMBTU/HR Gas Turbine (ID No. D55) (A/N 378767) No. 7 GE Model 7241FA with Dry Low NOx combustors and steam injection for power augmentation connected directly to a 179 MW (nominal) Electric Generator (ID No. B56) and a Heat Recovery Steam Generator (ID No. B58) with 600 MMBTU/HR Duct Burners (ID No. D57) connected in common with Gas Turbine No. 5 to a 288 MW (nominal) steam turbine (ID No. B59). Selective Catalytic Reduction (ID No. C61) (A/N 378773) with 4379 cubic feet of total volume 3 feet height, 44 feet long, 41 feet wide with an ammonia injection grid (ID No. B62) and a CO oxidation catalyst (ID No. C60) with 1000 cubic feet of total volume connected to an exhaust stack (ID No. S63) (A/N 378773) No 7.~~

AQ-2 The operator shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃) to the SCR in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

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

AQ-3 The operator shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor in combined cycle turbines ~~8~~ 5 and ~~9~~ 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

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

AQ-4 The operator shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column in combine cycle turbines ~~8~~ 5 and ~~9~~ 7. The operator shall also install and maintain

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

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

AQ-5 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutants to be Tested	Test Method	Averaging Time	Test Location
NH3 Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR serving this equipment

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

If the equipment is not operated in any given quarter, the operator may elect to defer the required testing to a quarter in which the equipment is operated.

Verification: The project owner shall submit the proposed protocol for the source tests 60 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the District and CPM.

AQ-6 The operator shall conduct source test(s) for the pollutant(s) identified below on combined-cycle turbine units **8 5** and **9 7**.

Pollutants To be Tested	Required Test Method	Averaging Time	Test Location
NOx Emissions	District Method 100.1	1 hour	Outlet of SCR serving this equipment
CO Emissions	District Method 100.1	1 hour	Outlet of SCR serving this equipment
SOx Emissions	Approved District & CPM Method AQMD Laboratory Method 301-91	1 hour NA	Outlet of SCR serving this equipment Fuel Sample
ROG Emissions	Approved District Method 25.3	1 hour	Outlet of SCR serving this equipment
PM 10 Emissions	Approved District & CPM Method 5	1 hour 4 hours	Outlet of SCR serving this equipment
NH3 Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR serving this equipment

The test shall be conducted after District and CPM approval of the source test protocol, but no later than 180 days after initial start-up.

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

The test shall be conducted in accordance with a District and CPM approved source test protocol. The protocol shall be approved by the District and CEC before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of District Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted with and without duct firing, when this equipment is operating at **maximum, average and minimum load**. ~~loads of 100, 75, and 50 percent of maximum load.~~

Verification: The project owner shall submit the proposed protocol for the initial source tests 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-7 The operator shall conduct source test(s) for the pollutant(s) identified below on combine cycle turbine units ~~8 5~~ and ~~9 7~~.

Pollutants to be Tested	Required Test Method	Averaging Time	Test Location
SOx Emissions	Approved District & CPM Method AQMD Laboratory Method 301-91	1 hour NA	Outlet of SCR serving this equipment Fuel Sample
VOC ROG Emissions	Approved District Method 25.3	1 hour	Outlet of SCR serving this equipment
PM Emissions	Approved District & CPM Method 5	4 hours	Outlet of SCR serving this equipment

The tests shall be conducted at least once every three years for SOx and PM10, and annually for VOC.

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

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer for approval before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets

the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at 100 percent load.

For the purpose of this condition, alternative test methods may be allowed for each of the above pollutants upon concurrence of AQMD, EPA and CPM.

Verification: The project owner shall submit the proposed protocol for the source tests ~~45~~ 60 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the District and CPM.

AQ-9 The project owner shall submit to the Commission, Quarterly Operational Reports that include the fuel use associated with each gas turbine train (both gas turbine and duct burner), in addition to the CO and NOx CEMS recorded data for each gas turbine exhaust stack on an hourly basis in order to verify the following emissions limits.

Except during startup, shutdown and initial commissioning, emissions from each gas turbine exhaust stack shall not exceed the following limits:

NOx (measured as NO ₂):	2.0 ppm at 15% oxygen on a dry basis averaged over one hour and 15.44 18.27 lbs/hour.
CO:	2 4 ppm at 15% oxygen on a dry basis averaged over 1 hour and 9.40 11.12 lbs/hr.
SOx (measured as SO ₂):	1.47 4.76 lbs/hr
VOC:	5.37 6.37 lbs/hr
PM ₁₀ :	9.49 15.0 lbs/hr
Ammonia:	5 ppm at 15% oxygen on a dry basis.

Verification: The project owner shall submit the Quarterly Operational Reports as specified herein to the CPM no later than 30 days following the end of each calendar quarter.

~~**AQ-10** The operator shall vent the combined cycle turbine units 5 and 7, as well as their associated duct burners to the CO oxidation and SCR control whenever this equipment is in operation.~~

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

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

Contaminant	Emissions Limit
CO	20,566 LBS IN ANY 1 MONTH
PM10	6,935 20,336 LBS IN ANY 1 MONTH
VOC	4,930 7,588 LBS IN ANY 1 MONTH
SOx	1,065 2,342 LBS IN ANY 1 MONTH

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10 **4.66** 6.26 lbs/MMscf, VOC **2.93** 2.39 lbs/MMscf, and SOx 0.72 lbs/mmscf. Written records of startups shall be maintained and made available to the District.

~~The operator shall calculate the emission limit(s) for CO, during the commissioning period using fuel use data and the following emissions factors: 501 lbs/MMscf during the full speed no load tests and the part load tests when the turbine is operating at or below 60 percent load, and 14 lbs/MMscf during the full load tests when the turbine is operating above 60 per cent load.~~

~~The operator shall calculate the emission limit(s) for CO, after the commissioning period and prior to the CO CEMS certification, using fuel use data and the following emission factors: 100 lbs per startup and 4.55 lbs/MMscf for all other operations.~~

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

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from combined cycle gas turbine No. **8** 5 and No. **9** 7.

Verification: The project owner shall submit the monthly fuel use data and emission calculations to the CPM in the Quarterly Operation Reports (**AQ-9**).

AQ-12 ~~The operator shall keep records, in a manner approved by the District, for natural gas fuel use during the commissioning period.~~ **The owner/operator shall install and maintain a flow meter to accurately indicate the fuel usage of the turbines. The owner/operator shall also install and maintain a device to continuously record the parameter being measured.**

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

AQ-13. ~~The operator may, at his discretion, choose not to use ammonia injection if the following requirement is met:~~

- ~~• The inlet exhaust temperature to the SCR is 450 degrees F or less, not to exceed 3 hours during a cold startup, 2 hours during a warm startup, and 1 hour during a hot startup.~~

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

AQ-16 The 2.0 PPM NO_x emission limit(s) shall not apply during turbine commissioning, **shutdown** and startup periods. **The commissioning period shall not exceed 415 hours. Startup time shall not exceed 3 hours per day 60 minutes for each startup. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 startups per year.** ~~The commissioning period shall not exceed 33 operating days from the date of initial start up. The operator shall provide the AQMD with written notification of the start up date. No more than one turbine shall be in start up mode at any one time. Written records of commissioning, **shutdowns** and start-ups shall be maintained and made available upon request from AQMD.~~

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

AQ-17 The ~~2~~ **4**-PPM CO emission limit(s) shall not apply during turbine commissioning, **shutdown** and startup periods. **The commissioning period shall not exceed 415 hours. Startup time shall not exceed 3 hours per day 60 minutes for each startup. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 startups per year.** ~~The commissioning period shall not exceed 33 operating days from the date of initial start up. The operator shall provide the AQMD with written notification of the start up date. No more than one turbine shall be in start up mode at any one time. Written records of commissioning, **shutdowns** and start-ups shall be maintained and made available upon request from AQMD.~~

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

AQ-18 The **16.55** ~~409~~ LBS/MMCF NO_x emission limit(s) shall only apply during the turbine commissioning period ~~during the full speed no load tests and the part load tests when the turbine is operating at or below 60% load to report RECLAIM emissions.~~ The commissioning period shall not exceed 12 months from the point of entry into RECLAIM.

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

States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-19 The ~~8.66~~ 33.9 LBS/MMCF NO_x emission limit(s) shall only apply during the turbine commissioning period ~~during the full load tests when the turbine is operating above 60% load to report RECLAIM emissions.~~ This emission limit shall also apply during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from the initial startup date **the point of entry into RECLAIM.**

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

AQ-20 The 80 lbs/hour NO_x emission limit(s) shall only apply during turbine startups. Only one turbine shall be in startup mode at any one time. Startups shall not exceed 3 hours per day per turbine. **The owner/operator shall comply at all times with the 2.0 ppm 1-hour BACT limit for NO_x, except as defined in condition AQ-16 and with the following additional restriction on startup.**

NO_x emissions shall not exceed 112 lbs total per startup per turbine. Each turbine shall be limited to 200 startups per year with each startup not to exceed 60 minutes in duration.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9.**

AQ-21 The 102 LBS/MMCF NO_x emission limit(s) shall only apply to report RECLAIM emissions ~~during the interim period for the duct burner.~~ The interim reporting period shall not exceed 12 months from the initial start-up date.

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

AQ-22 For the purpose of the following condition numbers, the phrase “continuously record” shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

Condition no. **AQ-2**
Condition no. **AQ-3**
Condition no. ~~AQ-24~~

Verification: See verifications for **AQ-2, and -3, and -24.**

AQ-24 The 2.0 PPMV NO_x emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-25 The 2 –4 PPMV CO emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-26 The 5 PPMV NH₃ emissions limit(s) are averaged over 60 minutes at 3 percent O₂, dry.

District Requirement

$$\text{NH}_3 \text{ (ppmv)} = [a-b*(c*1.2)/1E6]*1E6/b$$

Where:

a = NH₃ injection rate (lb/hr) / 17(lb/lbmol),

b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),

c = change in measured NO_x across the SCR (ppmvd at 15% O₂)

The above described ammonia slip calculation procedure shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia for the District.

Energy Commission Requirement

$$\text{NH}_3 \text{ (ppmv @ 15\% O}_2\text{)} = ((a-b*(c/1E6))*1E6/b)*d,$$

Where:

a = NH₃ injection rate(lb/hr)/17(lb/lbmol),

b = dry exhaust gas flow rate (lb/hr)/(29(lb/lbmol), or

b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),

c = change in measured NO_x concentration ppmv corrected to 15% O₂ across catalyst, and

d = correction factor.

The correction factor shall be derived through compliance testing by comparing the measured and calculated ammonia slip. The correction factor shall be reviewed and approved by the CPM on at least an annual basis. The correction factor may rely on previous compliance source test results or other comparable analysis as the CPM finds the situation warrants. The above described ammonia slip calculation procedure shall be used for Energy Commission compliance determination for the ammonia slip limit as prescribed in Condition of Certification AQ-9 and reported to the CPM on a quarterly basis as prescribed in Condition of Certification AQ-9.

An exceedance of the ammonia slip limit as demonstrated by the above Energy Commission formula shall not in and of itself constitute a violation of the limit. An exceedance of the ammonia slip limit shall not exceed 6 hours in duration. In the event of an exceedance of the ammonia slip limit exceeding 6 hours duration, the project owner shall notify the CPM within

72 hours of the occurrence. This notification must include, but is not limited to: the date and time of the exceedance, duration of the exceedance, estimated emissions as a result of the exceedance, the suspected cause of the exceedance and the corrective action taken or planned. Exceedances of the ammonia limit that are less than or equal to 6 hours in duration shall be noted in a specific section within the Quarterly Report (AQ-9). This section shall include, but is not limited to: the date and time of the exceedance, duration of the exceedance, and the estimated emissions as a result of the exceedance. Exceedances shall be deemed chronic if they total more than 10% of the operation for any single HRSG exhaust stack. Chronic exceedances must be investigated and redressed in a timely manner and in conjunction with the CPM through the cooperative development of a compliance plan. The compliance plan shall be developed to bring the project back into compliance first and foremost and shall secondly endeavor to do so in a feasible and timely manner, but shall not be limited in scope.

The owner/operator shall maintain compliance with the ammonia slip limit, redress exceedances of the ammonia slip limit in a timely manner, and avoid chronic exceedances of the ammonia slip limit. Exceedances shall be deemed a violation of the ammonia slip limit if they are not properly redressed as prescribed herein.

The owner/operator shall install a NOx analyzer to measure the SCR inlet NOx ppm accurate to within +/- 5 percent calibrated at least once every 12 months.

Verification: The project owner shall include ammonia slip concentrations averaged on an hourly basis calculated via both protocols provided as part of the Quarterly Operational Report required in Condition of Certification AQ-9. The project owner shall submit all calibration results performed to the CPM within 60 days of the calibration date. The project owner shall submit to the CPM for approval a proposed correction factor to be used in the Energy Commission formula at least once a year but not to exceed 180 days following the completion of the annual ammonia compliance source test. Exceedances of the ammonia limit shall be reported as prescribed herein. Chronic exceedances of the ammonia slip limit shall be identified by the project owner and confirmed by the CPM within 60 days of the fourth quarter Quarterly Operational Report (AQ-9) being submitted to the CPM. If a chronic exceedance is identified and confirmed, the project owner shall work in conjunction with the CPM to develop a reasonable compliance plan to investigate and redress the chronic exceedance of the ammonia slip limit within 60 days of the above confirmation.

Verification: The project owner shall submit CEMS records and all calculations demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-27 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In

addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase. **The project owner shall submit all such information to the CPM for approval.**

To comply with this condition, the project owner shall hold for each turbine train a minimum of 104,864 lbs/year of NOx RTCs for the first year of operation and 90,953 lbs/year there after.

Verification: The project owner shall submit to the CPM copies of all RECLAIM reports filed with the District in each Quarterly Operational Report (see **AQ-9**).

~~Condition of Certification AQ 28, below, pertains to the following equipment:~~

~~Internal combustion engine, emergency fire pump, diesel Clarke, Model JDFP 06WA, turbocharged, aftercooled, 265 BHP A/N 378769 (ID. No. D45).~~

~~**AQ-28** The operator shall limit the operating time to no more than 199 hours in any one year.~~

- ~~• To comply with this condition, the operator shall install and maintain a non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.~~
- ~~• The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition.~~
- ~~• The records shall include, date of operation, the elapsed time in hours, and the reason for operation. Records shall be kept and maintained on file for a minimum of 5 years and made available to AQMD upon request.~~

~~**Verification:** The project owner shall submit the recorded data specified in this condition on an annual basis as part of the fourth Quarter Operational Report (see **AQ-8**). Deleted~~

~~**Conditions of Certification AQ 29, below, pertain to the following equipment:**~~

~~**Underground Aqueous Ammonia Storage Tank, TK-001, carbon steel, double walled with three transfer pumps and a PVR set at 50 PSIG, 20000 gallons capacity. A/N 379904 (ID. No. D30)**~~

~~**AQ-29** The operator shall install and maintain a pressure relief valve set at 50 psig.~~

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

AQ-30 The 2.0 PPM ROG emission limit(s) shall not apply during turbine commissioning, shutdown and startup periods. The commissioning period shall not exceed 415 hours. Startup time shall not exceed 60 minutes for each startup. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200

startups per year. Written records of commissioning, shutdowns and start-ups shall be maintained and made available upon request from AQMD.

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

AQ-31 The 2.0 ppmv VOC emission limit is average over 60 minutes at 15 percent O₂, dry basis.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in AQ-9.

AQ-32 The project owner may at no time purposefully exceed either the mass or concentration emission limits except set forth in Conditions of Certification AQ-9, -11, -16, -17, -24, -25, -30, or -31.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification AQ-9.

AQ-33 The project owner/operator shall not use natural gas containing H₂S greater than 0.25 grains per 100scf. This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. The gaseous fuel samples shall be tested using AQMD Method 307-91 for total sulfur calculated as H₂S.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification AQ-9.

AQ-34 The owner/operator shall limit the fuel usage for each turbine to no more than 1,500 million cubic feet in any one month.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification AQ-9.

AQ-35 The project owner shall conduct one source test over the lifetime of the project for NO_x and PM₁₀ on each gas turbine exhaust stack in accordance with the following requirements:

- **The project owner shall submit a source test protocol to the AQMD and the CPM 45 days prior to the proposed source test date for approval. The protocol shall include the proposed operating conditions of the gas turbine, the correction and degradation factors and documentation of their validity, the identity of the testing lab, a statement from the lab certifying that it meets the criteria of AQMD**

Rule 304, and a description of all sampling and analytical procedures.

- **The initial source test shall be conducted no later than 180 days following the date of first fire.**
- **The AQMD and CPM shall be notified at least 10 days prior to the date and time of the source test.**
- **The source test shall be conducted with the gas turbine operating under maximum load.**
- **The test shall be conducted in accordance with AQMD approved test protocol. The source test shall be conducted for the pollutants listed using the methods, averaging times, and test locations indicated and as approved by the CPM:**

<u>Pollutant</u>	<u>Method</u>	<u>Averaging Time</u>	<u>Test Location</u>
<u>NOx</u>	<u>AQMD Method 100.1</u>	<u>1 hour</u>	<u>Outlet of SCR serving this equipment</u>
<u>PM10</u>	<u>District Method 5</u>	<u>4 hours</u>	<u>Outlet of SCR serving this equipment</u>

- **The source test results shall be submitted to the AQMD and the CPM no later than 60 days after the source test was conducted.**
- **The test results shall demonstrate compliance with the following emission limits as required by AQMD Rule 1309.1:**
- **PM10 emission rates shall not exceed 0.060 lb/MW-hr.**
- **NOx emission rates shall not exceed 0.080 lb/MW-hr.**
- **If the actual measurement is within the accuracy of the devices used for electrical power measurement, the result will be acceptable.**
- **The lb/MW-hr emission rate of each electrical generating unit for each pollutant (NOx and PM10) shall be determined by dividing (a) the lb/hr emission rate measured at the location and in accordance with the test method specified above, by (b) the adjusted gross electrical output of each electrical generating unit.**
- **The adjusted gross electrical output of each electrical generating unit shall be determined by making the following adjustments to the measured gross electrical output:**
- **Apply the manufacturer's standard correction factors to calculate gross electrical output at ISO conditions.**
- **For the purpose of this condition, alternative test methods may be allowed for each of the above pollutants upon concurrence of the AQMD, CPM and EPA.**

Verification: The project owner shall submit the proposed protocol for the initial source tests at least 45 days prior to the proposed source test date to both the AQMD and CPM for approval. The project owner shall submit source test results no later than 60 days following the source test date to both the AQMD and CPM. The project owner shall notify the AQMD and CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-36 For the purpose of the following condition, continuous record shall be defined as measuring at least once every month and shall be calculated base upon the average of the continuous monitoring for that month.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification AQ-9.

AQ-37 The owner/operator shall upon completion of construction, operate and maintain this equipment according to the following specifications. Each turbine shall be fully and legally operational within three (3) years of the issuance of the Permit to Construct.

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

AQ-38 The owner/operator shall keep records, in a manner approved by the District, for the following parameter or items:

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

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification AQ-9.

REFERENCES

ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.

CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.

SCAQMD (South Coast Air Quality Management District). 2008. Preliminary Determination of Compliance (Notice of Intent to Issue Permit) for the El Segundo Power Redevelopment Project. March 19, 2008.

BIOLOGICAL RESOURCES

Prepared by: Marc Sazaki

INTRODUCTION

The Energy Commission decision on the original ESPRP determined that the once-through cooling system has the potential to impact aquatic organisms through impingement, entrainment, and thermal effects (CEC 2005). Based on this, five Conditions of Certification were adopted in the Commission's final decision which were considered sufficient to mitigate these marine impacts to acceptable levels.

The petition to amend the ESPRP decision proposes to make major project changes that will considerably alter potential effects on biological resources in Santa Monica Bay and the immediate vicinity making the original Conditions of Certification no longer necessary, but requiring new Conditions for the amended project.

Marine impacts related to the new design are now associated with the beach delivery system for which impact identification and appropriate mitigation are localized in comparison to the original project. In addition, project effects on terrestrial biota warrant re-examination for the new parking/laydown area.

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

Since the project was certified, there are no new or changed biological resource LORS that relate to the proposed changes in the Petition to Amend.

ANALYSIS

The petition was reviewed by staff to identify potential environmental effects and consistency with applicable LORS. This analysis is based, in part, on information provided in the original Application for Certification (ESPRP 2000), the Energy Commission Final Staff Assessment (CEC 2002), the project owner's Petition to Amend (ESPRP 2005a), the project owner's data responses (ESPRP 2007b), and staff's site visit on September 25, 2007. Based on this review, staff presents the following analysis with proposed new Conditions of Certification to address and mitigate project effects on biological resources.

The replacement of the once-through cooling system with an air-cooled system will eliminate impingement and entrainment mortalities of marine organisms. Notwithstanding this significant impact reduction, proposed construction of a temporary ramp system for barge delivery of oversized plant equipment will create different impacts that require consideration and adequate mitigation. These problems are associated with temporary disturbance of beach habitat, inter-tidal and sub-tidal benthic environments, as well as the open marine waters in the vicinity. In addition, a new laydown/parking area is proposed to replace one that was identified in the original project, but is no longer available.

SETTING

The regional setting for the new project has not changed from the original project because the new project will be located at the same site on the shoreline of Santa Monica Bay.

The local setting will remain the same as described in the Final Staff Assessment for the original project, namely, the existing El Segundo Generating Station property at 301 Vista Del Mar. This site is approximately 2.5 miles southwest of the Los Angeles International Airport and west of the San Diego Freeway (I-405), on the shore of Santa Monica Bay. The site is bordered by Vista Del Mar and the Chevron refinery to the east, 45th Street in the City of Manhattan Beach on the south, Santa Monica Bay on the west and the Chevron Marine Terminal on the north.

Important habitat for biological resources near the beach delivery system include designated critical habitat for the federal threatened western snowy plover (*Charadrius alexandrius nivosus*) on the south end of Dockweiler Beach State Park. This area, and potential beach spawning areas for the California grunion (*Leuresthes tenuis*) are respectively subject to temporary impacts related to disturbance from construction activities and spawning habitat displacement.

PROJECT MODIFICATIONS WITH POTENTIAL TO AFFECT BIOLOGICAL RESOURCES

There are new project features that will have potential impacts on biological resources. These include modifications to the power plant site, utilizing a new parking/laydown area, and bringing heavy prefabricated structures and equipment ashore through the use of a beach delivery system. All of these activities have the potential to affect flora and fauna primarily during construction.

POWER PLANT SITE AND NEW PARKING/LAYDOWN AREA

Results of recent biology surveys conducted on the power plant site and new parking/laydown area (the 777 190th Street locale) show vegetation consists primarily of non-native plants in landscaped areas and along fenced property boundaries. Common birds including house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchus*), house sparrow (*Passer domesticus*), and rock pigeon (*Columba livia*) were observed (ESPRP 2007a). The occurrence of these species is not unusual in a heavily developed urban setting. No listed species or species of special concern were observed or expected to occur based on the nature of the available habitat in these areas. Consequently, project construction impacts on biological resources at the power plant site and proposed laydown/parking area are not expected to be significant.

BEACH DELIVERY SYSTEM

The beach delivery system will consist of a built-up ramp comprised of geo-tech fiber, wood matting, and sandbags. The ramp will be positioned next to an existing rock groin and secured with cables attached to two D-6 bulldozers situated on the beach. One stationary barge will be connected to the ramp, while delivery barges will be moved via a tug boat to the stationary barge for heavy equipment off-loading. The system will be in place approximately eight months (ESPRP 2007b).

With respect to beach habitat and biota that could be affected by the beach delivery system, the potential for direct impacts is not likely to be great. Survey results show the intertidal and subtidal sediments are comprised mainly (96-99%) fine to medium sand. No gravel or coarse sand was found. Thus, the distribution of organisms over the sand dominated area within the impact zone is probably fairly uniform. The intertidal and subtidal infauna were found in benthic samples to be predominantly annelids (segmented worms) and arthropods (small crustaceans). These organisms provide forage for various shore bird species. The rocky intertidal zone was surveyed mainly along the rock groin and found to be populated with common organisms such as barnacles, mussels, limpets, chitons, anemones, and rock crabs.

Unlike the ramp portion of the delivery system, the stationary barge and transport barges will not rest directly on the beach sand, intertidal rocky habitat, or rock groin. Direct effects of the barges on organisms inhabiting these zones are not expected to occur.

A few special status species identified in the AFC and considered in the Final Staff Assessment require additional attention due to the deployment of the beach delivery system. Agency contacts by ESP II's consultants and the Energy Commission staff's independent discussions with California Department of Fish and Game biologists Bill Paznokas (CDFG 2007a) and Matt Chirdon (CDFG 2007b) and Ken Corey (USFWS 2007) of the US Fish and Wildlife Service support this conclusion. The following protected species would most likely be affected by the installation and use of the beach delivery system if suitable habitat occurred on or close to the ramp and barges: the state endangered Belding's Savannah sparrow (*Passerculus beldingi*), the federal endangered and California species of concern Pacific pocket mouse (*Perognathus longimembris pacificus*), the state and federal endangered California brown pelican (*Pelecanus californicus*), the state and federal endangered California least tern (*Sternula antillarum brownii*), and the federal threatened western snowy plover (*Charadrius alexandrius nivosus*).

Typical habitat preferred by the Pacific pocket mouse including coastal strand, coastal dunes, and coastal sage scrub does not exist in the area where the beach delivery system will be situated. The closest known population exists at the Dana Point Headlands approximately 50 miles to the southeast (USFWS 1994). Also, in terms of optimal habitat, the presence of iceplant (*Caprobrotus chilensis*) is an undesirable and common component of the existing beach vegetation complex. This contributes to the probable absence of the Pacific pocket mouse on the delivery site. As such, this species will not be affected by project construction and operation. Similarly, coastal salt marsh habitat, preferred by Belding's Savannah sparrows, will not be affected by the project, resulting in no impacts to this species from the beach delivery system installation and operation.

Brown pelicans and California least terns forage for fish and other food items in nearshore waters in Santa Monica Bay. The stationary barge offers a structure for both species to land and rest on during fly-bys. Activities taking place during beach deliveries could conflict with marine bird foraging or use of the barge, but such conflicts can be minimized through implementation of measures specified in the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). The BRMIMP is developed by the project owner and is reviewed and approved by the CEC Compliance

Project Manager in consultation with appropriate agencies. It provides implementation details for required mitigation and includes monitoring to determine the success of the mitigation measures undertaken. The USFWS can provide recommendations on bird discouraging measures for incorporation into the BRMIMP (USFWS 2007). In addition, marine mammal encroachment onto the barges can be handled utilizing designated biologist contact procedures established in the BRMIMP.

Responses to staff's biological resources data request indicate the beach delivery system will be installed in late-winter of 2009 with up to six separate deliveries made until the system is removed in early summer (ESPRP 2007a). This timing could conflict with snowy plover foraging at the delivery site, but would probably not be significant due to the relatively small area affected. Critical habitat approximately fifty yards up the beach from the Chevron rock groin will not be directly affected.

California grunion (*Leuresthes tenuis*) spawn in sand where waves break, usually during high tides from March through August. There is a recreational fishery with an established season. Direct impacts on California grunion spawning activities would involve eliminating spawning habitat during deployment of the beach delivery system. It is not known if this particular beach area is utilized by these fish. The temporary loss of this area will not likely affect grunion production.

ESP II has proposed doing surveys just prior to and after the beach delivery system is deployed to verify the status of snowy plover and grunion near the site. The survey methodology and timing will be incorporated into the BRMIMP. This will allow resource agencies to determine if any particular action should be taken to protect either of these species.

The US Army Corps of Engineers (USACE) is expected to issue a permit for the beach delivery system. ESP II indicates this permit will be a Nationwide 33 governing temporary structures necessary for construction activities. As such, either a formal or informal consultation with the USFWS pertaining to endangered and threatened species requirements will likely be necessary. Also, the USACE is expected to consult with the National Marine Fisheries Service regarding the need to implement measures to protect essential fish habitat as required under the Magnuson-Stevens Act. Aaron Allen from the USACE confirmed this course of action in a phone conversation (USACE 2007) with the Energy Commission staff. He also stated that a Section 401 certification from the Los Angeles Regional Water Quality Control Board would be necessary. Any terms and conditions required under permits issued as a result of these consultations will be incorporated into the BRMIMP for monitoring purposes.

Although the federal endangered El Segundo blue butterfly (*Euphilotes battoides allyni*) will not be directly impacted by the project, it can possibly benefit from vegetation restoration efforts planned by the ESPRP. The benefit would accrue if the native seacliff buckwheat (*Eriogonum parviflorum*) is included amongst the plants to be established. The butterfly is dependent on this plant and if made available, it is possible butterflies inhabiting the El Segundo Blue Butterfly Preserve approximately 1.75 miles northwest of the power plant would take advantage of this new food source and expand their distribution. Visual Resources Condition of Certification **VIS-1**, requires landscaping with a preference for vegetation that are native species and/or species requiring little or no irrigation. The seacliff buckwheat meets these criteria and should

be included in the landscaping plan. To help native plant species succeed where efforts are made to establish them, the non-native and aggressive iceplant should be removed to prevent it from out-competing native dune vegetation due to its dense character and vigorous growth.

CONCLUSIONS AND RECOMMENDATIONS

It is staff's position that project related effects and potential impacts on biological resources will not result in unmitigated significant adverse impacts if the proposed Conditions of Certification are adopted and implemented. If unanticipated circumstances arise, they can be adequately dealt with under the guidance and specifications of the required Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). Although the California Department of Fish and Game indicated a Section 2081 "take authorization" for state listed species would not likely be necessary for the proposed project (CDFG 2007c), terms and conditions in US Fish and Wildlife Service and/or National Marine Fisheries Service permits, should they be required, will be incorporated into the BRMIMP. As such, compliance with applicable laws, ordinances, regulations, and standards (LORS) concerning biological resources is expected to occur.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

The once-through cooling system proposed for the original project is not included in the petition to amend. As such, conditions **BIO-1** through **BIO-5** are not necessary. Based on other project changes, new Conditions are added. Staff has proposed modifications to the Biological Resources Conditions of Certification as shown below. (**Note:** Deleted text is in ~~strikethrough~~, new text is **bold and underlined**)

~~**BIO-1:** The project owner shall place \$5,000,000 in trust for the Santa Monica Bay Restoration Commission (SMBRC) to assess the ecological condition of the Santa Monica Bay and to develop and implement actions to improve the ecological health of the Bay. At least \$250,000 shall be provided within 30 days after this Decision becomes final, and an additional sum of at least \$250,000 shall be provided every 90 days thereafter until \$1 million has been provided. At that time, the SMBRC in consultation with the project owner, shall propose a schedule for the payment of the remaining funds; within 30 days after submittal of the proposed schedule to the CPM, the CPM shall approve a schedule, which may be the SMBRC's schedule or a modification thereof. The project owner shall comply with the approved schedule. The funds shall be spent as directed by the SMBRC, after consultation with the CPM and the Los Angeles Regional Water Quality Control Board, for the purposes of assessing the ecological condition of the Santa Monica Bay and developing and implementing actions to improve the ecological health of the Bay. To the maximum extent feasible in keeping with those purposes, the studies conducted shall be designed to assist the LARWQCB in carrying out its responsibilities under section 316(b) of the Clean Water Act, for this project and other activities affecting Santa Monica Bay. If any funds remain unspent upon beginning of commercial operation, the project owner may petition the Energy Commission for return of those unspent funds to the project owner.~~

Verification: ~~The project owner shall submit to the CPM a copy of the receipt transferring funds as required by this Condition. The project owner shall provide to the CPM a copy of any studies carried out under this Condition.~~

BIO-2: ~~In consultation with the LARWQCB, the project owner shall conduct a study to determine the feasibility of constructing, deploying, and operating an aquatic filter barrier at intake #1 at ESGS. The feasibility study shall also determine expected benefits and potential impacts of the aquatic filter barrier if deployed and operated at intake #1. The feasibility study shall be submitted to the LARWQCB for possible use in implementing regulations under 316(b) of the Clean Water Act. If the LARWQCB finds that it is feasible to construct and operate an aquatic filter barrier and that the ESGS intake #1 site is suitable for a demonstration and orders the project owner to install an aquatic filter barrier on intake #1 in compliance with applicable 316(b) regulations, the project owner shall construct and operate the aquatic filter barrier.~~

Verification: ~~The project owner shall submit to CPM and the LARWQCB a complete analysis and all results of the feasibility study as part of the evaluation involved in implementing applicable 316(b) regulations.~~

BIO-3: ~~Upon the commencement of commercial operations of Units 5, 6, and 7, water flows for intakes #1 and #2 combined shall not exceed 126.78 billion gallons per year and shall also be subject to monthly flow volumes not to exceed 7.964 billion gallons in February, 8.313 billion gallons in March, and 8.524 billion gallons in April of any year.~~

Verification: ~~Project owner shall send to the CPM copies of the project's quarterly reports to the LARWQCB, including: (1) daily cooling water flows calculated from the measured capacity of each pump; (2) each pump's daily hours of operation; (3) each pump's annual average volume; and (4) average hourly effluent temperature data. The data shall be presented graphically to illustrate the daily pump volume totals over time.~~

BIO-4: ~~Project owner shall provide information demonstrating that a valid NPDES permit has been issued prior to operation of the project. The valid NPDES permit and its terms and conditions shall be incorporated into this Decision, except for flow cap provisions, unless those in the NPDES permit are stricter than the flow caps required under **BIO-3**.~~

Verification: ~~Project owner shall report to the CPM all communication efforts with the LARWQCB regarding NPDES permit renewal or compliance. Project owner shall provide to the CPM all data and analysis supporting any 316(b) study performed. Project owner shall consult with the LARWQCB, the Coastal Commission, Energy Commission staff, Santa Monica Bay Restoration Commission, and the Santa Monica Bay Keepers to develop the appropriate design for any 316(b) study.~~

BIO-5: ~~Prior to commencement of operation, the project owner shall achieve compliance with section 316(b) of the Clean Water Act and regulations thereunder as directed and required by the LARWQCB. If the LARWQCB requires that a study be conducted under section 316(b), then the project owner shall consult, with the facilitation of the CPM, with the National Marine Fisheries~~

~~Service, the California Coastal Commission, the California Department of Fish and Game, and the Santa Monica Bay Restoration Commission in the development and implementation of the 316(b) study design, subject to all applicable authority of the LARWQCB.~~

~~**Verification:** Project owner shall submit to the CPM copies of all correspondence and submittals to the LARWQCB related to the implementation of section 316(b) regulations. Project owner shall inform the CPM of all 316(b) related decisions by the LARWQCB and steps taken by the project owner pursuant to LARWQCB direction.~~

DESIGNATED BIOLOGIST

BIO-6 The project owner shall submit the resume, including contact information, of the proposed Designated Biologist to the CPM for approval.

Verification: The project owner shall submit the specified information at least 60 days prior to the start of any site mobilization related to the beach front or the beach delivery system. These site and related facility activities shall not commence until an approved Designated Biologist is available to be on site.

The Designated Biologist must meet the following minimum qualifications:

Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;

Three years of experience in field biology or current certification of a of a nationally recognized biological society, such as The Ecological society of America or The Wildlife Society; and

At least one year of field experience with biological resources found in or near the project area.

If a Designated Biologist needs to be replaced, then the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist.

DESIGNATED BIOLOGIST DUTIES

BIO-7 The Designated Biologist shall perform the following during any beach front or the beach delivery system site mobilization, ground disturbance, grading, construction, operation, and closure activities:

- 1. Advise the project owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;**
- 2. Be available to supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special status species or their habitat;**
- 3. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;**

4. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification; and
5. Respond directly to inquiries of the CPM regarding biological resource issues.

Verification: The Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports.

As necessary during project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

DESIGNATED BIOLOGIST AUTHORITY

BIO-8 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist, the project owner's Construction/Operation Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be adverse impact to biological resources if the activities continued;
2. Inform the project owner and the Construction/Operation Manager when to resume activities; and
3. Notify the CPM if there is a halt of any activities due to conflicts with biological resources, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the halt.

Verification: The Designated Biologist must notify the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-9 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and

Monitoring Plan (BRMIMP) and, once approved, shall implement the measures identified in the plan.

The BRMIMP shall include:

1. All new Biological Resource conditions included in the Energy Commission's Final Decision as amended;
2. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
3. A list and a map of locations of all sensitive biological resources to be impacted, avoided, or mitigated by project construction and operation;
4. A list of all terms and conditions set forth by USACE permits and necessary state LARWQCB certifications, should these become necessary throughout the life of the project;
5. Detailed descriptions of all measures that will be implemented to avoid and/or minimize impacts to sensitive species and reduce habitat disturbance;
6. All locations, on a map of suitable scale, of areas requiring temporary protection and avoidance during construction;
7. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
8. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
9. All performance standards and remedial measures to be implemented if performance standards are not met;
10. A discussion of biological resource-related facility closure measures;
11. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval;
12. A copy of any State or USFWS Biological Opinion or NMFS consultation, and incorporation of all terms and conditions into the final BRMIMP, should a biological opinion become necessary any time throughout the life of the project;
13. Protocols for dealing with wildlife that gain access the barges, beach delivery ramp, and other project features whereby their well being could be at risk; and
14. Vegetation restoration that provides for planting seacliff buckwheat (*Eriogonum parviflorum*), eradication of ice plant (*Caprobrotus chilensis*), and is coordinated with Visual Resources landscaping requirements.

Verification: At least 30 days prior to start of any site mobilization activities related to the beach front or the beach delivery system, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plans acceptability. The project owner shall notify the

CPM five (5) working days before implementing any CPM approved modifications to the BRMIMP.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-10 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about sensitive biological resources associated with the project. The training may be presented on electronic media in the form of a video recording.

The Worker Environmental Awareness Program must:

1. Be developed by the Designated Biologist and consist of an on-site or training center presentation in which supporting written material may be made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and/or permanent habitat protection measures; and
5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist. Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: No less than 30 days prior to the start of any site mobilization activities related to the beach front or the beach delivery system, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and keep record of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six months after the start of commercial operation. During project operation, signed

statements for active project operational personnel shall be kept on file for the duration of their employment and for six months after their termination.

U. S. ARMY CORPS OF ENGINEERS PERMIT

BIO-11 The project owner shall acquire any USACE permit required and incorporate its terms and conditions into the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).

Verification: No less than 30 days prior to the start of any site mobilization activities related to the beach front or the beach delivery system, the project owner shall submit to the CPM a copy of the USACE permit required to construct any project related features. Permit terms and conditions will be incorporated into the BRMIMP.

USFWS BIOLOGICAL OPINION

BIO-12 If formal or informal consultation between the USFWS and USACE occurs, the project owner shall incorporate into the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) any resulting biological resources recommendations.

Verification: No less than 30 days prior to the start of any site mobilization activities related to the beach front or the beach delivery system, the project owner must provide the CPM with a copy of the USFWS recommendations. All terms and conditions resulting from the consultation will be incorporated into the BRMIMP.

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD CERTIFICATION

BIO-13 The project owner will acquire and implement the terms and conditions of a Los Angeles Regional Water Quality Control Board Section 401 State Clean Water Act certification pertaining to the project.

Verification: No less than 30 days prior to the start of any site mobilization activities related to the beach front or the beach delivery system, the project owner will provide the CPM with a copy of the final Regional Water Quality Control Board certification. The terms and conditions of the certification will be incorporated into the project's Biological Resources Mitigation Implementation and Monitoring Plan.

FACILITY CLOSURE

BIO-14 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. The biological resource facility closure measures will also be incorporated into the project Biological Resources Mitigation Implementation and Monitoring Plan.

Verification: At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological

Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

REFERENCES

- CDFG (California Department of Fish and Game). 2007a. Telephone conversation between Bill Paznokas, CDFG biologist and Marc Sazaki, CEC biologist. September 11, 2007.
- CDFG (California Department of Fish and Game). 2007b. Telephone conversation between Matt Chirdon, CDFG biologist and Marc Sazaki, CEC biologist. September 27, 2007.
- CDFG (California Department of Fish and Game). 2007c. Telephone conversation between Matt Chirdon, CDFG biologist and Marc Sazaki, CEC biologist. November 16, 2007.
- CEC (California Energy Commission). 2002. Final Staff Assessment for the El Segundo Power Redevelopment Project. September 2002.
- CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.
- ESPRP (El Segundo Power Redevelopment Project). 2000. Application for Certification. Submitted to the California Energy Commission on December 18, 2000.
- ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.
- ESPRP (El Segundo Power Redevelopment Project). 2007b. ESPRP Responses to CEC Data Requests Set 1. Biological Resources. September 10, 2007.
- USACE (United States Army Corps of Engineers). 2007. Telephone conversation between Aaron Allen, USACE Regulatory Division and Marc Sazaki, CEC biologist. October 11, 2007.
- USFWS (United States Fish and Wildlife Service). 1994. United States Fish and Wildlife Service. Final Rule: Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Pacific Pocket Mouse / RIN 1018-AC39. Federal Register 59 FR 49752 09/29/94; citing Brylski 1993.
- USFWS (United States Fish and Wildlife Service). 2007. Telephone conversation between Ken Cory, USFWS biologist and Marc Sazaki, CEC biologist. October 4, 2007.

CULTURAL RESOURCES

Prepared by: Dorothy Torres

INTRODUCTION

Proposed changes to the El Segundo Power Redevelopment Project may disturb native soil or have the potential to impact underwater cultural resources. Although much of the area is disturbed, grading, excavation, or equipment barges near the shore may impact unknown cultural resources.

BACKGROUND

The project owner has proposed to use Rapid Response - Combined Cycle technology and modern dry-cooling technology that would eliminate the use of ocean water once-through cooling by this project. Equipment changes, delivery method and route, and a new laydown area are proposed to facilitate the construction of the project.

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

There are no new or changed cultural resources LORS that would affect this project.

SUMMARY OF ANALYSIS

Some of the changes proposed for the El Segundo Power Redevelopment Project may disturb native soil or have the potential to impact underwater cultural resources such as boats, ships, ferryboats, submarines, and airliners (Response 2007). Although much of the area is disturbed, grading, excavation, or equipment barges near the shore may impact unknown cultural resources (Petition 2007, p. 3-45).

The equipment necessary for the proposed project may be delivered via barges to be temporarily located on the beach. Some grading and excavation would be necessary to facilitate the use of this type of equipment delivery. Consequently, there is a potential for impacts to previously undiscovered resources (Petition 2007, p. 3-46). Beach delivery would involve construction of a ramp on the beach in front of the existing El Segundo power plant site. A non-powered barge would be secured at the nearshore zone immediately seaward of the ramp system. Equipment would be transferred from the delivery barges to the construction barge (Petition 2007, p. 2-13).

Each beach delivery would involve a construction barge and a delivery barge. The State Lands Commission Shipwreck Database has identified 156 underwater objects off the coast of Los Angeles, and shipwrecks and other man made underwater objects may be considered cultural resources. ESP II examined a rectangular area one-mile north and south of the project site and one mile out to sea. No underwater resources were identified within the search area (Responses 2007). So, no known underwater cultural resources would be affected by the project.

In addition to the changes proposed to facilitate beach delivery, there are several project changes that have the potential to impact previously undiscovered resources. A new seawall location would position the seawall closer to the facility property line on the west (Petition 2007, p. 2-4). The plant entrance road location would be straightened and widened. Native soils may be disturbed during these project features and ESP II has recommended monitoring (Petition 2007, p. 3-47). There is potential for these project improvements to intrude into native soil. Staff recommends monitoring at the locations where this ground disturbance will occur.

A new truck route is proposed to avoid a low bridge. The new route would use a portion of the previously permitted route and would extend west from El Segundo, north on Main Street, then west on Grand Avenue then returning to the original route at Vista Del Mar (Petition 2007, p. 2-17). It does not appear that this truck route change would impact significant cultural resources.

The proposed new laydown area would be located on a lot that is covered almost entirely with asphalt, used as a truck storage yard, and would not require ground disturbance. The project proposes to use the laydown area for parking, staging, and material storage. There is a small office structure on the property that was constructed in approximately 1955; however, there would be no demolition or alteration of the office structure.

A literature search was conducted at the California Historical Information System (CHRIS) and included consideration of all previously recorded historic and prehistoric archaeological resources within 0.5 mile of the proposed laydown area. The search also included a review of the City of Los Angeles Historic-Cultural Monuments list. Historic maps of the study area were reviewed. Two previously recorded cultural resources were identified. Fire Station 79, at 18030 Vermont Avenue, Gardena, California, was built in 1941. It is located approximately 0.5 miles north/northwest from the project area. Additionally, a prehistoric site was previously recorded in 1939, within 0.5 mile of the laydown area location, but no one has reaffirmed the presence of the prehistoric archaeological site (Response 2007).

A field survey of the proposed laydown area was conducted on June 2, 2007, by consultants to ESP II who meet Secretary of the Interior's Standards for Professional Qualifications in the field of archaeology. No cultural resources were identified (Response 2007).

On October 4, 2007, staff sent letters to Native American individuals and groups identified by the Native American Heritage Commission as potentially having heritage concerns in the project vicinity. Robert Dorame, representing Gabilino/Tongva cultural resources concerns, contacted staff via telephone on October 18, 2007. Mr. Dorame expressed concerns regarding the proposed project amendment. Staff added Mr. Dorame to the web e-mail server so that he would receive updated information regarding the project via e-mail, and provided him with the Energy Commission web site information. On October 24, 2007, staff sent Mr. Dorame an e-mail and explained that any comments received prior to November 15, 2007 could be included in the cultural resources analysis for the amendment. Staff has not received any additional comments from Mr. Dorame.

The petition was reviewed by staff for potential environmental effects, and consistency with applicable LORS. Based on this review, staff determined that there would be no impacts to known cultural resources and implementing the Cultural Resources Conditions of Certification **CUL-1** through **CUL-8** would mitigate impacts to any newly discovered, significant cultural resources.

CONCLUSIONS AND RECOMMENDATIONS

The project would not result in unmitigated significant adverse impacts to either known cultural resources or cultural resources that have not yet been discovered. With the implementation of the Conditions of Certification, **CUL-1** through **CUL-8**, there would be no impacts to newly discovered archaeological resources and the project would comply with all applicable LORS.

PREVIOUSLY ADOPTED CONDITIONS OF CERTIFICATION

The proposed project changes will not impact known cultural resources. Therefore, changes, additions, or modifications to the Cultural Resources Conditions of Certification are not necessary. Implementation of the previously adopted Cultural Resources Conditions of Certification **CUL-1** through **CUL-8** would serve to mitigate any impacts to newly discovered significant cultural resources.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No changes are proposed to existing conditions of certification.

REFERENCES

Petition 2007- Petition to Amend Final Commission Decision. Dated: June 18, 2007. Posted June 29, 2007

Responses 2007- Responses to CEC Data Requests Set One. Dated: September 10, 2007. Posted September 13, 2007

HAZARDOUS MATERIALS MANAGEMENT

Prepared by: Alvin Greenberg, Ph.D.

INTRODUCTION

The proposed amendment (Shaw 2007) has less than significant impacts on hazardous material management. No additional Conditions of Certification are proposed

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There is one new Federal LORS affecting this project in the area of hazardous materials management. On April 9, 2007, the U.S Department of Homeland Security (DHS) published in the Federal Register (6 CFR Part 27) an Interim Final Rule requiring that facilities that use or store certain hazardous materials conduct Vulnerability Assessments and implement certain specified security measures (as per Public Law 109-205). The final implementation of this rule was completed with the publication of Appendix A on November 2, 2007. This rule applies to aqueous ammonia solutions of 20 percent or greater stored on-site in volumes 20,000 gallons and greater. This proposed facility plans to store this amount of 29 percent aqueous ammonia. This Rule will be enforced by the Office of Homeland Security, and ESP II has been informed of this new requirement.

HAZARDOUS MATERIALS MANAGEMENT Table 1
Laws, Ordinances, Regulations, and Standards

<i>Applicable Law</i>	<i>Description</i>
Federal	
6 CFR Part 27	Contains the Chemical Facility Anti-Terrorism Standard (CFATS), a regulation of the U.S. Department of Homeland Security that requires all facilities that store certain hazardous materials in volumes and concentrations at or above the levels indicated in Appendix A of the regulation to conduct specified vulnerability assessments and implement specified security plans.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the project, including the proposed amendment, would be able to comply with all applicable LORS. Regarding the possible beach access procedure, the vehicle that will transport the power plant infrastructure from the barge to the project site will use fuels, lubricants, and hydraulic fluids that may leak. Leakage into Santa Monica Bay or on the beach should be prevented and any spill should be remediated as soon as possible. ESP II has proposed to implement an Emergency Response and Contingency Plan to ensure that any spill of hazardous material will be remediated in a timely fashion. In the event of a spill, the plan will call for cleanup response by a certified, local, hazardous materials

contractor. Staff feels that this is adequate to address any spill that may occur during the beach access procedure.

Regarding site security, the site is currently adequately protected by security guarded gate access and a perimeter fence, among other measures. This project uses and stores a hazardous material (29% aqueous ammonia) identified by the U.S. EPA as requiring the development and implementation of special site security measures to prevent unauthorized access and identified in Appendix A of CFATS (6 CFR Part 27) as a chemical that will require, at the minimum, the initiation of a security screening (TOPSCREEN) process. This new Rule will be enforced by the Department of Homeland Security. ESP II has been informed, and they will be working with the Department on implementation.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for new potential issues related to hazardous materials management. Based on this review, staff has determined that the approved Conditions of Certification remain adequate to minimize the risk related to the use and storage of hazardous materials at the project site.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

None.

REFERENCES

Shaw Environmental, Inc., June 18, 2007, Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project.

LAND USE

Prepared by: Mark Hamblin

INTRODUCTION

The project owner filed a Petition To Amend the Final Commission Decision for the El Segundo Power Redevelopment Project (petition) in June 2007. The petition involves major changes to power plant equipment, and includes a request to amend Condition of Certification **LAND-10** for the licensed project to allow a beach delivery of new oversized equipment to the El Segundo Generating Station property.

The implementation of the beach delivery option would restrict public access and use of an approximate 300-foot wide by 300-foot long beach area west of the El Segundo Generating Station and would cause intermittent closure of the Marvin Braude Bikeway adjacent to the power plant. The bikeway is a Los Angeles County maintained Class 1 bicycle trail. The closure of the bikeway would conflict with **LAND-10** of their certification issued February 2005. The petition also includes the use of a new offsite construction laydown and parking area in the city of Los Angeles to replace the use of the Federal Express laydown/parking area in El Segundo that is identified in the license.

The project owner has proposed three new conditions of certification in their petition. These conditions provide for grading on the beach area west of the El Segundo Generating Station owned by the project owner to allow the construction of a beach delivery ramp to permit the movement of new oversized power plant equipment from off-shore barges to the power plant. Staff has proposed new Conditions of Certification **LAND-10**, **LAND-11**, **LAND-12**, **LAND-13**, and **LAND-14** as a part of this petition.

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

The proposed amendment to the licensed project does not involve federal managed lands, or applicable federal land use planning related laws ordinances, regulations and standards (LORS).

LAND USE Table 1 provides a general description of identified state and local LORS pertaining to land use planning relevant to the proposed project. The proposed project would be consistent with the land use planning LORS identified in Table 1. Staff did not find any new state or local LORS applicable to the proposed project that was not reviewed for the issuance of the license by the Energy Commission.

LAND USE Table 1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
City of El Segundo Local Coastal Program, July 1980 includes Coastal Zone Specific Plan (certified by California Coastal Commission on February 4, 1982)	Identifies land uses and standards by which development will be evaluated within the Coastal Zone. The plan identifies uses and provides standards adopted by the city of El Segundo for the “Power Plant” and “Shoreline Area” land use designations that are in conformance and satisfy the polices and requirements for coastal land use contained in the California Coastal Act 1976 and certified by the California Coastal Commission.
City of El Segundo Zoning Regulations - M2 (Heavy Industrial)	This zone is intended to provide areas suitable for the development of heavy manufacturing, assembling, or processing activities having unusual or potentially deleterious operational characteristics, that would be detrimental if allowed to operate in other zones within the city. The zone district includes as a permitted use: heavy manufacturing, construction yards, factories, generating stations, and the extraction of raw materials and refining.

ANALYSIS

Condition of Certification **LAND-10**, in the El Segundo Power Redevelopment Project Commission Decision, in summary, states that project pre-construction and construction activity shall not prevent public use or access to the Los Angeles County maintained Class 1 bicycle trail that borders the west side of the El Segundo Generating Station.

The project owner is considering a beach delivery option for new oversized equipment (e.g., steam turbine generators, heat recovery steam generators, air-cooled condensers). This option would close for public use an approximate two-acre area west of the El Segundo Generating Station for an approximate six-month period (construction period). The two-acre area extends from the northwest corner of the El Segundo Generating Station property to the surf zone of Santa Monica Bay (**Land Use Figure 1** – Aerial Photo of Proposed Beach Delivery Path and Existing Bicycle Path).

The beach delivery option would cause intermittent closure of the bicycle trail during times when equipment is being transferred from offshore barges to the project site. The duration of closure of the trail would range from one to two hours when off-loading of equipment is occurring. At all other times, the bicycle trail is to remain open to the public during the beach delivery phase (Hilton 2007a).

BICYCLE PATH

The county of Los Angeles, doing business as the Los Angeles County Department of Public Works (LACDPW), maintains the segment of the bicycle trail adjacent to the El Segundo Generating Station as part of an executed agreement between Southern California Edison (SCE) and the County of Los Angeles dated June 20, 1978 (**Land Use Figure 1**, and **Land Use Figure 2** – Marvin Braude Bikeway). SCE was the prior owner of the power plant. The bikeway crosses El Segundo Generating Station property.

On January 31, 2008, staff received an email from Abu Yusuf, bikeway coordinator, Programs Development Division, LACDPW. He provided staff with his department's "Bicycle Trail Special Provisions" for closure of a bike trail. He stated that a permit would be required from the LACDPW Construction Division, and the submittal of a detour plan for the portion of the bike trail to be closed. The assigned LACDPW construction inspector would be responsible for taking pictures before construction, to verify damages to the path from the project. Mr. Yusuf recommends temporary closures of the bike path at night time preferably during winter (Yusuf 2008).

Staff and the project owner met with representatives from LACDPW on February 13, 2008, to discuss the project owner's beach delivery option. Noted concerns expressed by them pertained to trail user notification and awareness of construction activity, and repair and restoration of the bike trail upon completion of project construction.

Staff revised the project owner's draft condition. With the effective implementation of staff's proposed Condition of Certification **LAND-10**, the temporary closure of the bicycle trail would be consistent with the LACDPW's bicycle trail special provisions and includes restoration of the bikeway. Condition of Certification **LAND-11** provides for the restoration or repair of the bicycle trail pavement to its pre-construction condition.

BEACH

During the beach delivery phase, beach users would not be able to use an approximate 300-foot by 300-foot (2 acres) beach area west of the El Segundo Generating Station between Dockweiler State Beach and Manhattan Beach (**Land Use Figure 3** – Beach Area West of the El Segundo Generating Station). This beach area, owned by the project owner, is to be traversed by an approximate 250-foot long beach ramp made of geo-tech fiber, wood matting and sandbags with an access ramp extending over the bicycle trail into the El Segundo Generating Station. The access ramp would include closure gates across the bike path to prevent public access to the beach ramp during deliveries. Fencing for safety and security purposes would be installed around the beach delivery area (**Land Use Figure 4** – Conceptual Layout of Beach Delivery Area). Staff has recommended Condition of Certification **LAND-12** which provides for the restoration of the beach area after project construction is completed.

The project owner has informed the California State Lands Commission (State Lands Commission) about the proposed project and specifically its beach delivery option. The State Lands Commission informed the project owner that they would be required to obtain a temporary lease from them for use of tide and submerged land within the

state's jurisdiction¹ adjacent to the El Segundo Generating Station beach property in the event a beach delivery is selected. The temporary lease would be acquired through the formal process set forth by the State Lands Commission which includes compliance with the California Environmental Quality Act. The State Lands Commission requires the issuance of a license for the project by the California Energy Commission prior to the State Lands Commission's execution of a lease with the project owner (Hilton 2007b). Staff's proposed Condition of Certification **LAND-13** requires the submittal of a copy of the executed lease with the State Lands Commission prior to the start of pre-construction activity on the beach.

Public use of both Dockweiler State Beach and Manhattan Beach would remain available. The majority of public beach activity occurs to the north and south of the El Segundo Generating Station. During high tide, the narrow stretch of beach south of the beach delivery area is inundated; preventing beach users from walking along the shoreline (**Land Use Figure 5** -View of Beach Area Next to El Segundo Generating Station at High and Low Tide).

Los Angeles County Department of Beaches and Harbors (LACDBH) manages, operates, maintains, develops and promotes County-owned or operated beaches including Dockweiler State Beach and Manhattan Beach. The LACDBH provides beach maintenance (refuse removal, restroom cleaning, sand maintenance, grounds maintenance and facility repairs); facilities maintenance inspections; planning and implementation of capital and infrastructure improvement programs; concession, parking and special event use permit administration; and children's water awareness, training, education and recreation programs. The project's proposed ramp crossing the beach to move oversized equipment from barges docked in Santa Monica Bay to the project site may affect beach operations conducted by the LACDBH (**Land Use Figure 6** – Beach Ramp Rendering).

Wayne Schumaker, Chief of Facilities and Property Management Division for the LACDBH states that the department uses the beach west of the El Segundo Generating Station to move heavy equipment between Manhattan Beach and Dockweiler State Beach during beach related emergencies (e.g.; oil spills, sewage spillage fouling the shoreline, beach erosion, high tides, mammal rescue) and maintenance. If the beach is blocked, the alternative action for the LACDBH would be to load and truck transport (haul) heavy equipment to the location using public streets; thereby increasing the department's emergency response time and transportation cost (Woodell 2008). Staff's proposed Condition of Certification **LAND-14** provides for heavy equipment/emergency service vehicle passage across the beach delivery area.

Staff and the project owner met with Gregory Woodell, a representative from the LACDBH, on February 13, 2008. He informed staff that a permit ("Right of Entry Permit") would be required if a county owned or operated beach area were to be used,

¹ The State Lands Commission manages and protects all statutory lands which the state received from the federal government upon its entry into the Union on September 9, 1850. These lands include the beds of all naturally navigable waterways such as major rivers, streams and lakes, tide and submerged lands in the Pacific Ocean which extend from the mean high tide line seaward to the three-mile limit, swamp and overflow lands, state school lands, and granted lands (CSLC 2007). The Commission authorizes the use of public lands based upon environmental, health and safety, and public benefit considerations.

or crossed by project activities. The project owner would be using beach area which they own.

The Los Angeles County Fire Department Lifeguard Division is responsible for providing ocean lifesaving protection on Dockweiler State Beach and Manhattan Beach. The Lifeguard Division provides ocean lifesaving operations and protection, and paramedic services. The Lifeguard Division performs over 10,000 ocean rescues a year along 72 miles of Southern California coastline (LACFDLD 2005). The Lifeguard Division uses the beach and the bicycle trail to respond to emergencies. Staff and the project owner met with a representative from the Lifeguard Division on February 13, 2008. A concern expressed was that the vertical height of the beach ramp at the water's edge may obscure a view of the ocean from the nearby lifeguard station. Individuals may enter the project's beach delivery area swimming between the beach ramp and the existing jetty out of view of the lifeguard. As shown in **Land Use Figure 4** the project's two-acre beach delivery area would be fenced for safety and security purposes. Staff believes this fencing will ensure swimmers are restricted from entering the project's beach delivery area.

The Executive Director of the California Coastal Commission states that the project as proposed would end the environmentally destructive use of seawater from once-through cooling by using dry cooling technology which the Coastal Commission has strongly supported during past power plant reviews. The move away from once-through cooling removes what has been the single most contentious and environmentally damaging aspect of past coastal zone power plant proposals. The elimination of the once-through cooling also reduces the Coastal Commission's concerns about the type and scale of impacts associated with the project, and the ability of it to conform to Coastal Act provisions. Although the project has the potential to cause other types of adverse effects to coastal resources, the Executive Director noted in his letter that the Coastal Commission trust that Energy Commission staff will continue to thoroughly review coastal zone power plant projects as it has done in past Application For Certification proceedings incorporating Coastal Act conformity into the review (CCC2007). As a courtesy, on May 29, 2008 staff left a phone message and provided an email detailing the proposed beach delivery option to his counterpart at the California Coastal Commission.

CONSTRUCTION LAYDOWN AREA

The project proposes a new offsite construction laydown area. The original laydown area identified as the Federal Express site is no longer available for use. A commercial building has been built on the site. The new laydown area is approximately 13 miles from the project site in the city of Los Angeles, west of the junction of U.S. Interstate 405 and U.S. Interstate 110.

The new laydown area consists of 10 acres (8 acres usable). A large portion of the property is asphalt surfaced and currently used for the parking of vehicles. The property has three buildings (22,000 sq. ft., 1,300 sq. ft., and 2,250 sq. ft.) originally built in the 1950s that are currently used as machine shops and to conduct printing. Vehicle access to the laydown area would be from West 190th Street (**Land Use Figure 7 – Aerial View of New Laydown Area**). Land uses surrounding the laydown site consist of heavy and light industrial, and highway service related commercial.

The 10 acre property is in the city's "M2" (Light Industrial) Zone. Automobile parking space and loading space is permitted within this zone. The M2 Zone (section 12.19) of the Los Angeles Municipal Code provides for the open storage of materials and equipment, including used materials and equipment unless conducted in accordance with the limitations specified in subsection A.4 (b) of section 12.19. The phrase "used materials and equipment" includes vehicles, boats, or airplanes which are inoperable, wrecked, damaged or unlicensed (i.e.; not currently licensed by the Department of Motor Vehicles) (LAMC 1974).

CONCLUSIONS AND RECOMMENDATIONS

The land use analysis focused on two main issues; (1) would the project cause significant land use planning impact(s) under the California Environmental Quality Act (CEQA) and Guidelines, and (2) would the project comply with applicable state and local LORS pertaining to land use?

- The project's beach delivery option requires the public closure of an approximate 300' x 300' (2 acre) beach area west of the El Segundo Generating Station owned by the project owner during project construction.
- The project's beach delivery option requires the intermittent closure of the Marvin Braude Bikeway during project construction.
- Dockweiler State Beach and Manhattan Beach are public beaches north and south of the El Segundo Generating Station owned beach area.
- The California State Lands Commission has informed the project owner that a temporary lease is required from them to use tide and submerged lands under the state's jurisdiction.
- The new construction laydown area in the city of Los Angeles is within the "M2" (Light Industrial) Zone which allows automobile parking, loading, and the open storage of used materials and equipment.

The construction of the proposed project with the effective implementation of the mitigation measures identified by the project owner and staff's recommended conditions of certification (below), would not cause a direct, indirect or cumulative adverse land use planning impact under CEQA, and would ensure conformance with the applicable LORS pertaining to land use.

PROPOSED AMENDED CONDITIONS OF CERTIFICATION

Staff recommends the following changes and additions to the licensed project's land use conditions of certification (Note: deleted text is in ~~strikeout~~, and new text is underlined).

~~**LAND-10:** Project pre-construction and construction activity shall not prevent public use of the County maintained Class 1 bicycle path. The project owner shall maintain public access along the bicycle path that borders the El Segundo Generating Station.~~

~~The project owner shall repair any damage to the bicycle path that is caused by preconstruction and construction activities conducted for the project.~~

~~**Verification:** The project owner shall complete any repair to the bicycle path pursuant to the schedule contained in Visual Resources Condition of Certification **VIS-3**.~~

~~The CPM, the designated representative of the affected local jurisdiction(s) and the designated representative of the Coastal Commission may conduct random site visits to verify compliance. Also, the CPM will investigate filed complaints to ensure compliance.~~

Bikeway Closure or Width Reduction

LAND-10 The project owner shall not prohibit public access and use of the Los Angeles County maintained Class 1 bicycle trail known as the “Marvin Braude Bikeway” (bikeway) except as stipulated below for the project:

- A. Prior to the start of pre-construction activity involving the bikeway, the project owner shall contact the Los Angeles County Department of Public Works and provide for its review a schedule for bike trail closure and trail use interruption, the detour route, the location of delineators or barricades to channelize individuals past the work site, and the placement of public signage (e.g., construction warning signs).
- B. Prior to the first closure of the bikeway to perform necessary project pre-construction or construction activity, the project owner shall:
 - a. Provide the final schedule and timing of bike trail closures to the Department of Public Works Construction Division and Bikeway Coordinator, and CPM,
 - b. Provide a detour plan to the Department of Public Works Construction Division, Bikeway Coordinator and CPM showing a safe bicycle route around the project site for bicyclists.
 - c. Provide the Department of Public Works Construction Division and Bikeway Coordinator 30-calendar days to review and provide written comments to the project owner on a. and b. above.
 - d. Provide to the CPM a copy of the transmittal letter submitted to the Department of Public Works Construction Division and Bikeway Coordinator requesting their review of the items identified in a. and b. above.
 - e. Provide to the CPM a copy of the Department of Public Works Construction Division and Bikeway Coordinator written comments on the items identified in a. and b. above for approval.
 - f. Notify the Bikeway Coordinator within 24-hours after any reopening of the bikeway.
- C. If the bikeway’s existing width must be reduced in size to perform necessary project construction activity, the project owner shall provide the following:

Eight (8) feet of bicycle trail width shall be maintained around the project site to the greatest extent possible. The project owner shall post construction signs warning “CONSTRUCTION AHEAD” and “BIKEWAY NARROWS” in advance of the project site on all approaches along with delineators and barricades for channelization.

If a minimum of eight feet of paved bicycle trail cannot be provided, construction signs warning “CONSTRUCTION AHEAD” and “WALK BIKE” shall be posted in advance of the project site on all approaches. Where bicyclists are instructed to walk their bikes, flagmen shall be present at all approaches. Delineators or barricades shall also be placed to channelize pedestrians past the work site.

Vertical clearance to obstructions across the clear width of the bicycle trail shall be a minimum of 8 feet.

D. Required public signage shall be posted at least 14-calendar days prior to the start of pre-construction activity involving the bikeway. The Department of Public Works Construction Division and Bikeway Coordinator, and the CPM shall be notified that signage has been installed within 24-hours after posting.

E. To the extent feasible, the project owner shall make the bicycle trail open to the public on weekends and holidays. The bicycle trail shall be completely free of obstructions including barricades, swept clean, and have a minimum of eight-feet of vertical clearance with a two-foot wide shoulder. If a two-foot wide shoulder cannot be maintained, the project owner shall provide warning signage.

F. Within 48-hours after receiving a bicycle related trail complaint specific to the project’s bikeway pre-construction and construction activities, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions and a written explanation of the resolution to the complaint.

Verification: At least 30 days prior to start of pre-construction activity involving the bikeway, the project owner is to contact the Los Angeles County Department of Public Works Construction Division and Bikeway Coordinator.

The project owner is to provide to the CPM a copy of the transmittal letter submitted to the Department of Public Works Construction Division and the Bikeway Coordinator requesting their review.

The project owner is to provide to the CPM a copy of the written comments provided by the Department of Public Works Construction Division and the Bikeway Coordinator on the scheduled for bike trail closure and trail use interruption, the detour route, the installation of public signage and notification.

The project owner is to notify the Construction Division, Bikeway Coordinator, and the CPM within 24-hours after posting signage along the bicycle trail.

The project owner is to notify the Bikeway Coordinator within 24-hours after any reopening from a scheduled closure of the bicycle trail.

Within 48-hours after receiving a bicycle related trail complaint, the project owner is to provide the CPM with a complaint resolution form report and resolution explanation.

Bikeway Restoration

LAND-11 The project owner shall complete restoration or repair of bicycle trail pavement (including striping) to the bikeway's preconstruction condition consistent with the schedule established for the completion of the seawall pursuant to Condition of Certification **VIS-3** found in the visual resources section of the Commission Decision dated February 2, 2005.

The project owner shall contact the Los Angeles County Department of Public Works Construction Division and the CPM for a site inspection after the project owner has restored/repared the bicycle trail to its pre-construction condition.

If upon completion of the site inspection by the Los Angeles County Department of Public Works Construction Division and the CPM, the CPM notifies the project owner that additional restoration/repair is needed, within 30 days of receiving the notification the project owner shall complete the specified work.

Verification: The project owner is to notify the Los Angeles County Department of Public Works Construction Division and the CPM upon completion of the restoration/repair of the bicycle trail that it is ready for inspection.

Beach Restoration

LAND-12 The project owner shall remove all evidence of the project's beach delivery area structures and equipment (e.g., beach ramp, safety/security fencing, dozers, etc.), and restore the beach surface area to its original condition or better condition, including the replacement of any sand, vegetation, or paving that was removed to permit the project's beach delivery phase where project development does not preclude it.

The project owner shall record in video format the beach delivery laydown area prior to pre-construction activity and after the restoration completed. The project owner shall submit copies of both the pre- and post-video recordings to the CPM.

The project owner shall complete surface restoration of the beach area within 60 calendar days after the start of commercial operation. The project owner shall notify the CPM within seven days after completion of surface restoration that the beach area is ready for inspection. If the CPM notifies the project owner that additional surface restoration is needed after the site inspection, within 30 days of receiving that notification the project owner shall complete the specified work.

Verification: At least 15 days prior to the start of pre-construction on the beach, the project owner is to video the beach delivery laydown area and provide a copy of it to the CPM.

The project owner is to notify the CPM within seven days after completion of the beach restoration that it is ready for inspection and provide the CPM with a video/DVD showing the restored beach area.

California State Lands Commission Lease

LAND-13 Prior to the start of the project's pre-construction activity on the beach, the project owner shall provide the CPM a copy of their executed lease with the California State Lands Commission permitting barge anchorage, and the storage and transfer of oversized power plant equipment (e.g., steam turbine generators, heat recovery steam generators, air-cooled condensers) to the project site.

Verification: At least 15 days prior to the start of pre-construction activity on the beach, the project owner is to provide the CPM a copy of their executed lease with the California State Lands Commission.

Emergency Service Vehicle and Equipment Passage

LAND-14 The project owner shall allow the Los Angeles County Department of Beaches and Harbors, Facilities and Property Management Division, and the Los Angeles County Fire Department, Lifeguard Division, heavy equipment and emergency services vehicle passage through the project's beach delivery area, and the Marvin Braude Bikeway to respond to beach related emergencies (e.g.; oil spills, sewage spillage fouling the shoreline, beach erosion, high tides, mammal rescue), and to conduct lifesaving operations and paramedic services.

Prior to the start of pre-construction activity on the beach, if the project owner cannot provide heavy equipment/emergency services vehicle passage, the project owner may submit to the CPM for approval an alternative option that provides for the movement of heavy equipment and emergency services vehicles that has been reviewed by the Chief of Facilities and Property Management Division for the Los Angeles County Department of Beaches and Harbors and the Chief Lifeguard of the Los Angeles County Fire Department.

If the CPM determines that the heavy equipment/emergency services vehicle passage or the alternative option requires a revision, the project owner shall revise the heavy equipment/emergency services vehicle passage or alternative option and submit it to the CPM for approval.

The heavy equipment/emergency services vehicle passage or alternative option shall remain in effect until the beach ramp and fencing prohibiting passage of heavy equipment and emergency service vehicles through the project's beach delivery area are cleared from the beach.

Verification: At least 30 calendar days prior to the start of the project's pre-construction activity on the beach, the project owner is to contact the Chief of Facilities and Property Management Division for the Los Angeles County Department of Beaches and Harbors, and the Chief Lifeguard of the Los Angeles County Fire Department to formalize the heavy equipment/emergency services vehicles passage or alternative option.

At least 10 days prior to the start of pre-construction activity on the beach, the project owner is to provide to the CPM a map showing the agreed upon heavy equipment/emergency services vehicle passage or alternative option.

REFERENCES

CCC 2007 – California Coastal Commission, letter from Peter M. Douglas, Executive Director to B.B. Blevins, Executive Director California Energy Commission, subject; Coastal Commission review of projects, dated October 16, 2007, docketed October 16, 2007.

COES 1980 - City of El Segundo Local Coastal Program, July 1980

COES 1992 - City of El Segundo General Plan, December 1, 1992

COES 1996 - City of El Segundo Zoning Regulations. 1996

CSLC 2007 - California State Lands Commission, Sovereign Lands website http://www.slc.ca.gov/about_the_cslc/Sovereign_Lands.html, 2007

El Segundo II - El Segundo II, LLC, Petition To Amend Final Commission Decision for the El Segundo Power Redevelopment Project, June 2007

Hilton 2007a -Seth D. Hilton, Stoel Rives, LLP, letter from Seth D. Hilton to Tracy Swann Office of the County Counsel for Los Angeles County, subject; LA County Bicycle Path Anticipated Closure for El Segundo Generating Station Construction, July 31, 2007

Hilton 2007b -Seth D. Hilton, Stoel Rives, LLP, letter from Seth D. Hilton to Christopher Meyer, CEC Compliance Project Manager, subject; State Lands Commission Application for Temporary Lease By El Segundo Power II LLC, dated August 1, 2007, docket August 1, 2007

LACDBH – Los Angeles County Department of Beaches and Harbors, permit website <http://beaches.co.la.ca.us/BandH/Permits/Main.htm>, 2008

LACFDLD 2005 - Los Angeles County Fire Department Lifeguard Division, website <http://fire.lacounty.gov/Lifeguards/Lifeguards.asp>, 2005

LAMC 1974 - Los Angeles Municipal Code, Section 12.19, "M2" Light Industrial Zone, Amended by Ordinance No. 146,030, effective July 11, 1974

SCE 1978 – Southern California Edison Company, Agreement Between Southern California Edison Company and County of Los Angeles, subject; Bicycle Path Repair and Maintenance Agreement, docketed as Los Angeles County document no. 345498, June 20, 1978

Woodell 2008 – Gregory Woodell, Los Angeles County Department of Beaches and Harbors, email to Mark Hamblin, CEC staff, subject; beach passage for heavy equipment during an beach emergency response, January 14, 2008

Yusuf 2008 – Abu Yusuf, bikeway coordinator, Los Angeles County Department of Public Works, email to Mark Hamblin, CEC staff, subject; bike trail closure and bicycle trail special provisions, January 31, 2008

LAND USE - FIGURE 1

El Segundo Power Redevelopment Project - Aerial Photo of Proposed Beach Delivery Area and Existing Bicycle Path



CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, JUNE 2008

SOURCE: El Segundo Power Redevelopment Project Amendment Petition - Figure 3.6-1

LAND USE - FIGURE 2
El Segundo Power Redevelopment Project - Marvin Braude Bikeway

North View of the Bicycle Trail



South View of the Bicycle Trail



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, JUNE 2008
SOURCE: Staff Photos

LAND USE - FIGURE 3

El Segundo Power Redevelopment Project - Beach Area West of El Segundo Generating Station

North View of Beach



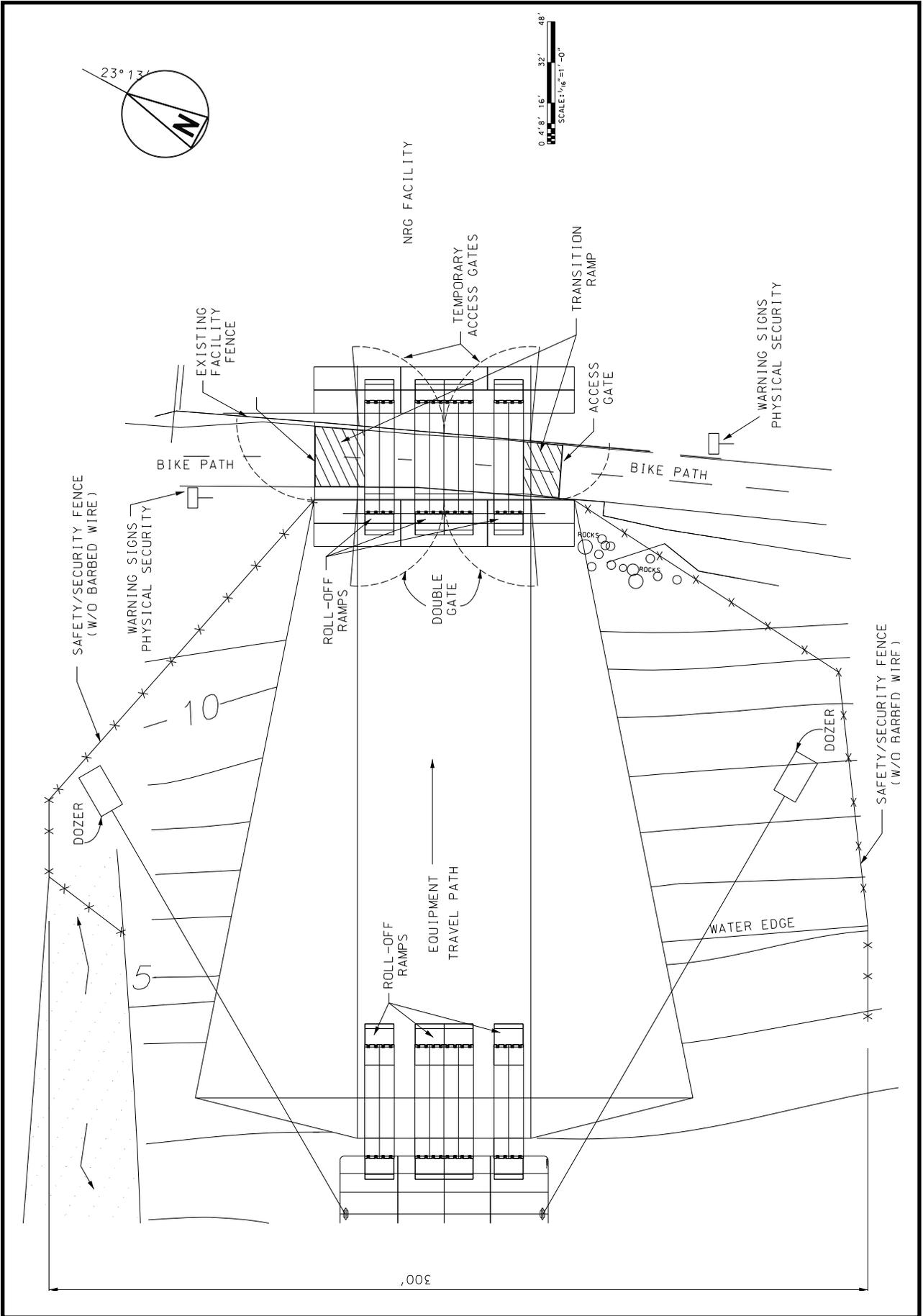
South View of Beach



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, JUNE 2008

SOURCE: Staff Photos

LAND USE - FIGURE 4
 El Segundo Power Redevelopment Project - Conceptual Layout of Beach Delivery Area



LAND USE - FIGURE 5

El Segundo Power Redevelopment Project - View of Beach Area Next to El Segundo Generating Station
At Low and High Tide

Low Tide



High Tide

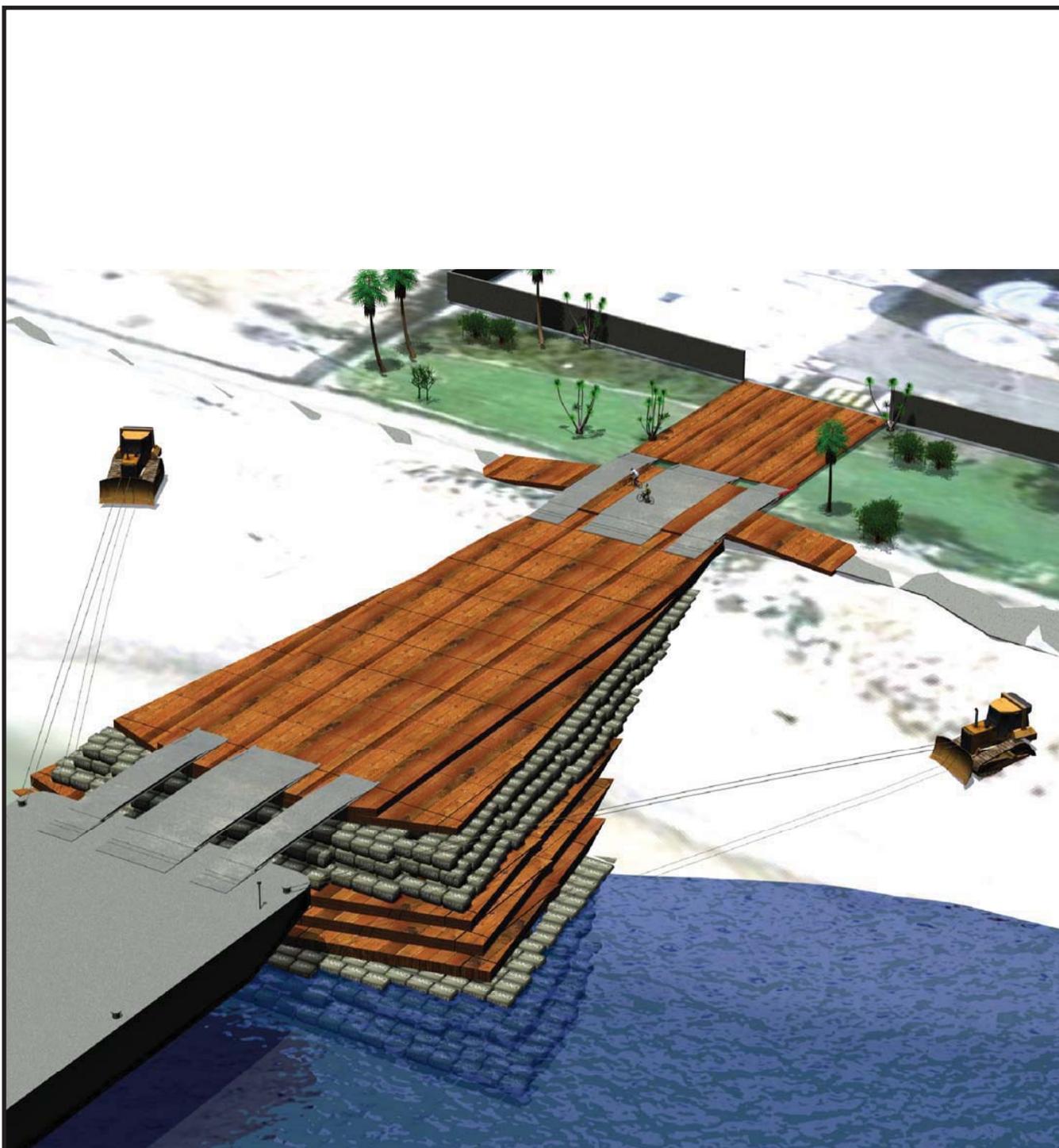


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, JUNE 2008

SOURCE: Staff photos

LAND USE - FIGURE 6

El Segundo Power Redevelopment Project - Beach Ramp Rendering



CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, JUNE 2008

SOURCE: El Segundo Power Redevelopment Project Amendment Petition - Figure 2.2-2

LAND USE - FIGURE 7
El Segundo Power Redevelopment Project - Aerial View of New Laydown Area



NOISE AND VIBRATION

Prepared by: Steve Baker

INTRODUCTION

The amended El Segundo Power Redevelopment Project would employ air-cooled fin fan coolers instead of the existing once-through ocean water cooling system, and would utilize different turbine generators and heat recovery steam generators (HRSGs) from those envisioned in the Commission Decision. The fin fan coolers represent a new source of noise, and the turbine generators and HRSGs would produce different noise emissions from those described in the Decision. Further, transporting large pre-assembled components (HRSGs, turbines, etc.) across the beach would produce different noise impacts from the procedures described in the Decision.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No applicable noise and vibration LORS have changed since issue of the Commission Decision.

ANALYSIS

The changes proposed that could influence noise impacts of the amended project are:

- Changing from a General Electric Frame 7FA two-on-one combined cycle power train to a pair of Siemens rapid-start one-on-one combined cycle trains;
- Changing from once-through ocean water cooling of the steam condenser to a pair of fin fan air coolers (air-cooled backpressure heat exchangers) to cool spent steam from the two backpressure steam turbines;
- Locating water storage tanks to the south of existing power plant Units 3 and 4;
- Relocating the north end of the seawall closer to the property line to accommodate the larger footprint of the Siemens power trains;
- Bringing large preassembled components, such as HRSGs, onsite via barge at a beach landing zone; and
- Modifying the plant entrance road to accept larger pieces of equipment.

POWER TRAIN

Replacing the General Electric combined cycle power train with the Siemens machines would have little effect on noise emissions. The turbine generators would all be housed in acoustic enclosures in either case. While the northernmost power train would be located 25 feet nearer the west property line, this is no nearer any of the sensitive noise receptors in Manhattan Beach, and would thus cause no additional noise impacts.

COOLING SYSTEM

The principal change in noise emissions would be due to the addition of two fin fan air coolers to cool exhaust steam from the two backpressure steam turbines, replacing the existing once-through ocean water cooling system that would have served the General Electric machines. Due to the design of these turbines, the cooling duty required is much less than for a traditional combined cycle, allowing the use of much smaller heat exchangers with fewer, smaller, quieter fans to produce noise. Due to their location north of the existing Units 3 and 4, and their distance from any sensitive receptors (approximately 2,200 feet, or 0.4 mile), noise from the cooling system would cause no additional noise impacts at any sensitive receptors.

WATER TANKS

With the change to the Siemens equipment, three new water storage tanks would be required, for service water and fire water storage for the existing Units 3 and 4, for raw water storage for the new units, and for demineralized water storage for the new units. Construction of these tanks would be subject to the same noise restrictions applicable to all other plant construction, and thus would not constitute a significant adverse noise impact at any sensitive receptors. Their presence at the southern end of the property would interpose a new noise barrier between the power plant (the new units as well as the existing Units 3 and 4) and the nearest sensitive receptors, thus aiding in reducing power plant noise impacts on the receptors.

SEAWALL RELOCATION

The northern end of the seawall would be relocated to the west to accommodate the larger footprint of the Siemens power trains. This change could only affect joggers and bicyclists on the bike path; it is too far from sensitive receptors to cause any increase in detectable noise levels. Since all noise LORS restricting noise emissions at the property line would be adhered to, and since users of the path are only in the vicinity of the power plant for a short duration as they pass by, this relocation would be unlikely to cause any significant adverse noise impacts.

BEACH DELIVERY

By preassembling large components, such as the HRSGs, turbine generators, partial pipe rack assemblies, fin fan coolers and others, the project owner would reduce the noise from onsite construction. Fewer components would be transported to the site, reducing the amount of heavy truck traffic, and fewer components would be fitted and assembled onsite. Noise from the six planned beach landings of major components would occur only during daytime hours, and would produce noise levels at sensitive receptors in the range of 30 dBA, inaudible against the ambient noise levels. No significant adverse noise impacts would be likely.

PLANT ENTRANCE ROAD

Easing the slope and widening the turns of the entrance road would allow still more large preassembled components to be trucked to the site, reducing the number of truck trips and the amount of onsite construction noise. Noise due to modification of this road would be restricted to daytime hours, and would be no louder at sensitive receptors than any other construction noise. No significant adverse noise impacts would be likely.

THE ROLE OF CONDITIONS OF CERTIFICATION

Condition of Certification **NOISE-6** in the original Commission Decision limits increases in ambient noise levels due to power plant noise at the nearest sensitive receptors (dwellings in Manhattan Beach, immediately south of the project boundary) to less than 2 dBA. ESP II has modeled noise emissions from the originally proposed plant and from the modified plant using industry standard techniques, and has confidence that the project can be designed and constructed so that noise from the facility will cause an increase in ambient noise levels at the nearest sensitive receptors of only 1.5 dBA.

Condition of Certification **NOISE-6** further requires that, following construction and startup of the project, ESP II monitor actual noise levels at the sensitive receptors to verify that any increase in noise levels is limited to less than 2 dBA. Should project noise be too great, ESP II would be required to make any necessary changes in order to achieve compliance. This process has proven workable on previous Energy Commission-sited projects (Sutter Energy Center, 97-AFC-2, and Cosumnes Power Plant, 01-AFC-19). Should project construction or operation cause annoyance, Condition of Certification **NOISE-2**, a mandatory noise complaint resolution process, would trigger any necessary changes.

Condition of Certification **NOISE-8** in the Commission Decision limits the loudness of construction noise impacts on sensitive receptors, and the times of day during which noisy construction work may occur. ESP II's construction plans and noise modeling show that construction of the amended project, including beach delivery of major components, would comply with these limits.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for potential environmental impacts and for consistency with applicable LORS. Based on this review, staff has determined that the amended project would comply with all applicable noise and vibration LORS, would not produce significant adverse noise or vibration impacts on sensitive receptors, and would produce no noise and vibration impacts greater than those on which the original Commission Decision was based.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Neither staff nor the project owner has proposed any modifications to the **Noise and Vibration** conditions of certification.

REFERENCES

CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.

ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.

PUBLIC HEALTH

Prepared by: Alvin Greenberg, Ph.D.

INTRODUCTION

The proposed amendment (Shaw 2007) has no significant impacts on public health

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no new LORS and no LORS that have been modified since project certification.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the project, including the proposed amendment, should still be able to comply with all applicable LORS.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for new potential issues related to public health and a new health risk assessment prepared by ESP II for the South Coast Air Quality Management District (NRG 2007). Based on this review, staff has determined that the project's emissions of toxic air contaminants would pose a risk to the public of 0.04 in one million, a chronic hazard index of 0.0024, and an acute hazard index of 0.015, all values being much lower than the level of significance (cancer risk of 10 in one million; hazard index of 1.0). Therefore, staff concludes that no significant risk or hazard would be posed to the public by emissions from the combustion turbines. No conditions of certification are proposed.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

None

REFERENCES

NRG 2007. Data response Set 2, Appendix G: "Excerpts from Application for a Determination of Compliance and permit to Construct for the El Segundo Power Redevelopment Project", submitted to the South Coast Air Quality Management District June 21, 2007.

Shaw Environmental, Inc., June 18, 2007, Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project..

SOCIOECONOMIC RESOURCES

Prepared by: Amanda Stennick

INTRODUCTION

The proposed amendment would reduce the construction workers from 422 to 337, or by about 20 percent. There would be no change in the number of workers necessary to operate and maintain the facility.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

There are no changes to LORS as a result of the El Segundo modification. Please refer to the 2001 Final Decision for the list of Socioeconomic LORS.

ANALYSIS

In its 2001 Socioeconomic analysis, staff concluded that ESPRP would not cause a significant adverse direct or cumulative impact on schools, housing, law enforcement, emergency services, hospitals, employment, or public services and utilities. Staff concluded that the project would have a temporary benefit to the city of El Segundo and adjacent areas in terms of an increase in local jobs and commercial activity during the construction of the facility. Staff concluded that the project would have a positive socioeconomic impact on the El Segundo area and would be consistent with all applicable socioeconomic LORS.

The 2001 analysis showed that project construction would require up to 422 construction workers; the proposed amendment shows that project construction would require up to about 372 construction workers. Employment Development Department (EDD) Labor Market Information, Occupational Employment Projections show that the Construction Occupations for Los Angeles County in 2004 totaled 160,350 workers; the number of construction workers for 2014 is projected to be 173,240 workers. Therefore, staff concludes there is an adequate supply of workers in the trades required to construct the plant and the project would not result in any problems with labor availability for other construction projects. Because of the robust county-wide labor supply reported by EDD, no in-migration of construction workers and their families would occur or be required for project construction.

Staff has reviewed the proposed amendment for potential environmental effects and determined that no new or modified conditions of certification would be necessary. Based on its review of the proposed amendment and the conclusions in the 2001 Socioeconomic analysis, staff concludes that the proposed amendment would not have significant adverse impacts on schools, housing, law enforcement, emergency services, hospitals, or parks and recreation.

CONCLUSIONS AND RECOMMENDATIONS

Staff determined that the proposed amendment is consistent with Socioeconomic LORS and no new or modified conditions of certification would be necessary.

Based on staff's 2001 Socioeconomic analysis and staff's review of the proposed amendment, staff concludes that the proposed amendment would not cause significant direct or cumulative adverse socioeconomic impacts on schools, housing, law enforcement, emergency services, hospitals, or parks and recreation. Staff also concludes that the proposed amendment would not induce substantial growth or concentration of population, induce substantial increases in demand for public services, or displace a large number of people.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed no new modifications to the Socioeconomic Resources Conditions of Certification.

REFERENCES

CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.

ESPRP (El Segundo Power Redevelopment Project). 2000. Application for Certification. Submitted to the California Energy Commission on December 18, 2000.

ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.

SOIL AND WATER RESOURCES

Prepared by: Richard Latteri

INTRODUCTION

Construction of the proposed ESPRP would result in additional soil disturbing activities by the construction of the new turbine configuration and air-cooled condensers, the beach delivery of equipment, and changes to the in-plant roadway and laydown areas. Operation of the proposed ESPRP would increase the volume of recycled water used for industrial and landscape irrigation purposes as well as change the quality and quantity of the plant's wastewater discharges. These aspects of the proposed ESPRP are examined as they relate to the California Environmental Quality Act (CEQA) and current laws, ordinances, regulations, and standards (LORS).

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

Staff has reviewed the LORS identified in the Energy Commission Final Staff Assessment (FSA) for the El Segundo Power Redevelopment Project (00-AFC-14) and has listed those LORS in **SOIL & WATER Table 1** that are both new to this analysis and those that require re-examination based on the proposed ESPRP modifications.

SOIL & WATER Table 1
Laws, Ordinances, Regulations, and Standards

Federal LORS	
Clean Water Act (33 U.S.C. Section 1251 et seq.)	The Clean Water Act requires states to set standards to protect water quality, includes regulation of stormwater discharges during construction and operation of power plant facilities.
Resource Conservation and Recovery Act (40 CFR Part 260 et seq.)	The Resource Conservation and Recovery Act of 1976 seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State LORS	
Water Code Section 100	Requires the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.
Water Code Section 13550	Requires the use of recycled water for industrial purposes subject to recycled water availability and upon a number of criteria including provisions that the quality and quantity of recycled water be suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use would not impact downstream users or biological resources.
Water Code Section 13551	Requires the water resources of the state be put to beneficial use to the fullest extent to prevent waste, unreasonable use, or unreasonable method of use.
Local LORS	
El Segundo Ordinance 1329	Chapter 6.28 Ordinance 1329 requires that new development and redevelopment projects demonstrate proof of compliance regarding stormwater discharge requirements per Municipal NPDES Permit No. CAS00004001.

State Policies and Guidance	
California Constitution, Article X, Section 2	This section requires the water resources of the State be put to beneficial use to the fullest extent possible and states the waste, unreasonable use, or unreasonable method of use of water is prohibited.
The Porter-Cologne Water Quality Control Act of 1967, WC Section 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require the RWQCBs to issue waste discharge requirements specifying conditions for protection of water quality standards.
California Code of Regulations, Title 2	Title 2, Div-3, Ch-1, Art-4.6 regulates ballast water for vessels arriving at California ports or places after departing from ports or places within the Pacific Coast Region.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15, requires the California Department of Health Services (DHS) to review and approve the wastewater treatment systems and end-user connections to ensure public health and safety.
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq)	In the 2003 IEPR, consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they would approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”
SWRCB Resolution 75-58	Resolution 75-58 states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.
SWRCB Resolution 77-1	Encourages and promotes recycled water use for non-potable purposes.
Enclosed Bays and Estuaries (SWRCB Resolution 74-43)	The “Water Quality Control Policy for the Enclosed Bays and Estuaries of California” contains a number of prohibitions on waste discharges including chemical, biological and petroleum related wastes.

ANALYSIS

Staff reviewed ESP II's June 19, 2007 amendment petition to identify potential environmental impacts to soil and water resources and for consistency with applicable LORS. This analysis is based on information provided in the original Application for Certification (ESPRP 2000), the Energy Commission 2002 FSA (CEC 2002), ESP II's Petition to Amend (ESPRP 2007a), and ESP II's data responses (ESPRP 2007b). Based on this review, staff presents the following analysis with proposed new and modified conditions of certification to address and mitigate ESPRP impacts to soil and water resources. Those impacts related to the new plant design, the beach delivery system, the larger plant footprint, entrance and roadway modifications, and recycled water use and discharge are evaluated in this analysis.

SETTING

The regional setting for the proposed project has not changed from the original ESPRP project and the proposed project would be located at the same site on the northern portion of the existing ESGS facility. As with the original ESPRP, Units 1 and 2 of the El Segundo Generating Station (ESGS) are proposed for demolition and replacement.

Units 3 and 4 would continue to operate using its existing once-through cooling and discharge facilities (ESPRP 2000a).

PROJECT MODIFICATIONS

The original ESPRP was permitted as a nominally rated 630-megawatt (MW) combined-cycle power plant that would continue to use once-through cooling. ESP II has proposed several modifications to the original project that revolve around the new generation technology not available during the original ESPRP application. The new design would consist of two gas turbine generators (GTG), heat recovery steam generator (HRSG), and one steam turbine generator (STG) using an air cooled heat exchanger for thermal heat rejection.

The air cooled design would allow water and steam cycle wastewaters to be recycled back to the single-pressure reverse osmosis water storage tank where the waters would be diluted for reuse as evaporative cooler makeup or reprocessed by a mobile demineralizer. With the zero liquid discharge (ZLD) system, water and steam cycle wastewaters would be recycled and reused to the maximum extent practicable. The proposed air cooled condensers and ZLD system would eliminate once-through cooling and the discharge of heated seawater and steam cycle wastewaters to the Bay (ESPRP 2007a Section 2.0).

Each GTG and STG is equipped with auxiliary equipment to support its operation. The primary change in design of the auxiliary equipment is the change to dry cooling that eliminates the need for cooling water. Use of this new technology requires modifications to the site layout. The footprint of the two power blocks is slightly larger than the 33 acres of the previously approved project. As a result, the larger footprint would require relocating the west sea wall and a set-back to the perimeter sea wall at the southern end of the plant (ESPRP 2007a Section 2.1.2).

To support the new units, new water storage tanks would be installed. A fire and service water storage tank would be used to store potable water supplied by the city of El Segundo (City) for fire suppression and plant sanitary uses. A raw water storage tank would be installed to store single-pass reverse osmosis (RO) quality recycled water supplied by West Basin Municipal Water District (WBMWD). A third tank would be installed to store demineralized water generated from the single pass RO water that would ultimately be used in the plant steam cycle (ESPRP 2007a Section 2.1.2).

Other proposed changes to the ESPRP include:

- A different method of delivery of the oversize equipment to the plant including ocean delivery by barge and a new plant entrance and in-plant roadway.
- Addition of a new offsite laydown area and removal of a previously considered laydown area.

Each of the above changes is analyzed in detail as they pertain to potential impacts to soil and water resources during the construction and operation phases of the ESPRP.

CONSTRUCTION AND OPERATION WATER REQUIREMENTS

Construction Water Requirements

The originally permitted ESPRP anticipated the use of potable water from the City to serve the needs of construction workers and for construction activities. Average use of construction water was anticipated to be approximately 5,000 gallons per day (gpd). During hydrostatic testing of pipelines and storage tanks, potable water consumption was estimated to be 20,000 gpd. ESP II proposes the continued use of potable water for all ESPRP construction activities. **SOIL & WATER Table 2** identifies El Segundo's proposed daily and annual potable water consumption for ESPRP construction (ESPRP 2007a Section 3.13.2.1 and ESPRP 2007b Data Responses 1 & 2).

SOIL & WATER Table 2

Daily and Annual Potable Water Consumption for ESPRP Construction Activities			
	Gallons per Day	Gallons per Year	Acre-Feet per Year
Dust Suppression	4,144 ¹	1,248,000	3.83
Equipment Wash	250 ²	78,000	0.24
Hydrostatic Testing	20,000 ³	504,000 ⁴	1.55
Total Construction Water	24,394	1,358,000	5.62

(ESPRP 2007b, Soil & Water Tables 1 & 2)

1 – Based on one 2,000 gallon water truck filling up 2 times per day.

2 – Based on proposed demolition equipment that might be wet washed once per week (6 dys/wk), 150 gals/wash.

3 – Hydrostatic testing pipelines and equipment assume four new offsite pipelines and major equipment such as service and deionized water tanks, boilers and in-plant process water piping.

4 – Assumes that all hydrostatic testing occurs in same year.

Construction Dewatering

Groundwater dewatering activities were anticipated during the demolition and construction phases of the originally approved ESPRP. Dewatering would occur during foundation excavation and power block construction and was estimated by ESP II to be between 40 and 200 acre-feet (AF) for a maximum duration of 90 days.

Construction and installation of the new equipment is anticipated to require less below grade demolition and construction due to the elimination of once-through cooling. The once-through cooling tunnels will be abandoned and the extensive reconstruction of the tunnels will not be necessary. Dewatering will still be required for some below grade demolition and foundation excavations, but the duration and extent of dewatering required for the new equipment configuration is anticipated to be significantly less than the 90 day estimate for the once-through cooling configuration (ESPRP 2006 Section 7.1.6, ESPRP 2007a Section 3.13.2.1 & 3.15.15.2).

As shown in **SOIL & WATER Table 2**, the proposed potable water consumption for ESPRP construction activities is 5.6 AF. Groundwater from dewatering activities should be considered as an alternative to potable water for dust suppression and soil compaction during those times when deep foundation excavations require groundwater dewatering. Additionally, tertiary treated recycled water is already available at the ESGS site. This recycled water is used primarily for landscape irrigation and to

supplement seal water used to lubricate and cool the once-through water circulation equipment (CEC 2002).

Staff finds the use of potable water for construction activities when degraded groundwater and/or tertiary treated recycled water are available is in conflict with state water recycling policies as promulgated in the state constitution and California Water Code (CWC) Section 100. Article X, Section 2 of the California Constitution and CWC Section 100 require the water resources of the state be put to beneficial use to the fullest extent they are capable, and the waste or unreasonable use or unreasonable method of use be prevented. Therefore, the use of potable water for construction activities that are suitable for non-potable water use is a waste and unreasonable use of potable water. Additionally, tertiary treated recycled water from WBMWD is approximately half the cost of potable water from the City and will provide an economic benefit to ESP II (WBMWD 2005).

Staff proposes new Condition of Certification **WATER RES-4**, to disallow the use of potable water for all construction activities where non-potable water can be used. There are a number of non-potable water sources suitable for construction activities available to ESP II, including groundwater from dewatering activities and tertiary treated recycled water that is currently available on-site. This use of non-potable water will conserve potable water and comply with state LORS.

Operation Water Requirements

As with the previously permitted ESPRP, potable water from the City and Title 22 tertiary treated recycled water from WBMWD would be supplied to the ESPRP for plant operation. ESP II proposes to use City water for all potable purposes and fire suppression. Tertiary treated single-pass RO quality water would be used to supply the HRSG makeup treatment system; while a blend of single pass RO and tertiary treated irrigation water would be used in the GTG inlet evaporative coolers (ESPRP 2007a Section 3.15.2).

A comparison by type of the annual average and annual maximum water consumption for operation of the previously permitted ESPRP and the proposed ESPRP are shown below in **SOIL & WATER Table 3**.

SOIL & WATER Table 3
Potable and Recycled Water
Consumption for Industrial Activities
(Acre-Feet per Year)

Water Source	Annual Average		Annual Maximum	
	Previously Permitted ¹	Proposed ⁵	Previously Permitted ²	Proposed ⁶
Potable Water from the City of El Segundo	97	0.72	104	0.84
Recycled Water From West Basin Municipal Water District	112 ^{3,4}	33.2	120 ^{3,4}	647.3
Seawater	215,000	0	231,000	0

(ESPRP 2007a, Tables 2.1-1 & 3.15-2)

1 - Annual average is estimated as the daily average x 365 days x 93 percent.

2 - Annual maximum is estimated as the daily average x 365 days x 100 percent.

3 - Annual average recycled water demand is estimated as the peak daily use x 42 days + the average daily use x 23 days the quantity x 93 percent.

- 4 - Annual maximum recycled water demand is estimated as the peak daily use x 42 days + the average daily use x 323 days the quantity x 100 percent.
- 5 - Annual average is estimated as the daily average usage (Table 3.15-2) x 313 days
- 6 - Annual maximum is estimated as the daily average usage (Table 3.15-2) x 365 days.

Potable Water Requirements

The proposed project will continue to use potable water for drinking, sanitary purposes, and fire suppression. However, due to the increased use of recycled water the proposed potable water consumption for the ESPRP decreases from an annual maximum of 104 acre-feet per year (AFY) to less than 1-AFY (ESPRP 2007a Section 3.15.2).

ESP II also proposes to use potable water as an emergency backup water supply. The use of potable water as an emergency backup is a change to the Energy Commission's 2005 Decision. The 2005 Decision approved the use of once through cooling; therefore, a backup water supply was not required because of the availability of seawater from the Santa Monica Bay. ESP II estimates that the longest reasonable period that the ESPRP would require potable water as a backup to recycled water would be two days. During peak operation, the new combined-cycle units would have a maximum water demand of 602-gpm or up to 577,920-gpd (based on 16-hours/day of planned operation). Based on a recycled water outage of two days, ESPRP would require an additional 3.5-AF of potable water (ESPRP 2007a Section 3.15.2 & Table 3.15-2, ESPRP 2007b Data Response 4).

ESP II has received a confirmation of potable water service from the City by letter dated September 26, 2007 (ESPRP 2007a Data Response 5). In the letter, the City commits to the delivery of potable water, consistent with its previous Will Serve letter dated May 16, 2001, for an estimated 130,748-gpd (average of 91-gpm) for 30 to 35 years. The delivery rate of 91-gpm is not sufficient to meet the 602-gpm delivery rate for ESPRP operation if recycled water is not available.

By switching from an inexhaustible water supply from Santa Monica Bay, a backup water supply is required for operational reliability of the ESPRP. The proposed use of potable water as an emergency backup water supply is a reasonable and necessary use of potable water in the event of a recycled water interruption. ESP II will need to negotiate a potable water supply agreement that will provide a delivery rate of 602-gpm if potable water is to be used as a backup source.

Because the proposed use of potable water as a backup water supply, is a change to the original Decision, staff proposes new Condition of Certification **WATER RES-4** to allow the use of potable water as an emergency backup supply with consumption capped at 4-AFY. To ensure the long-term reliability of the potable water supply for both domestic and industrial uses, an executed and final long-term (30-35 years) water supply agreement, with a maximum delivery rate of 602-gpm, will also be added to Condition of Certification **WATER RES-4**.

Recycled Water Requirements

ESP II proposes to use both irrigation and first pass RO quality (industrial) recycled water supplied by the WBMWD. The WBMWD Water Recycling Treatment Facility provides tertiary treatment to secondary-treated recycled water from the City of Los

Angeles Hyperion Wastewater Treatment Plant. WBMWD's water recycling facility has the capacity to produce up to 35 million gallons per day (mgd) of disinfected tertiary treated recycled water (ESPRP 2007a Section 3.15.2, WBMWD 2005 Section 8.3).

For operation of the ESPRP, ESP II proposes to use 34,560-gpd (daily average) of industrial/irrigation recycled water with a peak demand of up to 577,920-gpd. With the capacity to produce 35-mgd, WBMWD has the capability to meet ESPRP's long-term demand for recycled water. By letter dated September 27, 2007, WBMWD has provided assurance to ESP II that it is their intent to provide a Will Serve letter for the ESPRP project pending completion of an evaluation and finalization of a water purchase agreement between WBMWD and ESP II (ESPRP 2007b Data Response 3 & Appendix K).

The proposed modification of the ESPRP design to Rapid Response – Combined-Cycle technology and the proposed use of recycled water would provide significant environmental benefits for water and biology resources. Through the use of air-to-air heat exchangers for thermal heat rejection, seawater will no longer be used for heat rejection through the process of once-through cooling. The proposed use of dry cooling and recycled water for all industrial purposes eliminates the need for up to 231,000-AFY of seawater for once-through cooling and approximately 103-AFY of potable water for in-plant industrial use. This proposed change of cooling source and technology is in full compliance with state LORS for the elimination of once-through cooling and the use of recycled water for industrial and landscape irrigation purposes.

Because of the proposed change to dry cooling along with the increased demand for recycled water, staff proposes new Condition of Certification **WATER RES-3**, which will eliminate the use of seawater for once-through cooling and require an executed and final long-term (30 - 35 years) recycled water purchase agreement between WBMWD and ESP II, that provides for a maximum delivery rate of 602-gpm.

Staff has added Condition of Certification **WATER RES-5** for the collection of ESPRP operation water consumption data, which has been legislatively mandated. Condition of Certification **WATER RES-5** requires the installation of metering devices on all water supply pipelines that deliver potable, industrial, and landscape irrigation water for ESPRP operation. Staff also believes Condition of Certification **WATER QUALITY-6** is no longer necessary and should be deleted given the proposed Condition of Certification **WATER RES-3** and addition of **WATER RES-5**.

STORMWATER AND NON-STORMWATER DISCHARGES

Stormwater at the existing ESGS sites combines with the plant's floor drains and is directed to a system of catch basins via a closed pipe system. The flow is routed to an oil/water separator before combining with the once-through cooling water and treated sanitary wastes for discharge to the Bay. Units 1 and 2 discharge to Outfall No. 001 and Units 3 and 4 discharge to Outfall No. 002. At the southwest corner of the ESGS site, a municipal stormwater system intercepts runoff from Vista Del Mar Boulevard and conveys the runoff beneath the ESGS site for discharge to El Segundo Beach. The existing tank farm is currently bermed and stormwater is pumped to nearby municipal stormwater inlets (CEC 2002, ESPRP 2007a Section 3.14-2.1).

Construction Discharges

During the construction phase of the ESPRP, stormwater will be retained in a newly constructed forebay and tested before discharge through Outfall 002. The existing runoff from the tank farm that currently discharges to the municipal stormwater system will be eliminated. Construction of the new stormwater drainage system may encounter potentially contaminated soils. Appropriate measures to protect stormwater runoff and to address the discharge of waste associated with the installation of the stormwater drainage system are addressed and mitigated by the existing Condition of Certifications **WASTE-5 & WASTE-6** (ESPRP 2007a Section 3.13.2.2 & 3.14.2.1, ESPRP 2006).

Condition of Certification **WATER QUALITY-7** requires ESP II to prepare and implement a Storm Water Pollution Prevention Plan (Construction SWPPP) for stormwater discharges associated with construction activity prior to site mobilization or soil disturbing activities. As a requirement of the Los Angeles Regional Water Quality Control Board (LARWQCB) Municipal Stormwater Permit (NPDES No. CAS004001), ESP II must comply with all applicable requirements of the City's Standard Urban Stormwater Mitigation Plan (SUSMP). The SUSMP was developed to address stormwater pollution from new development and redevelopment projects by the private sector.

Staff agrees with ESP II that soil and water resources will be adequately protected through the preparation and implementation of a Construction SWPPP per the requirements of LARWQCB Permit No. CAS004001. Staff has added Condition of Certification **WATER QUALITY-7** to be consistent with the 2006 Soil and Water Standard Conditions wherein the LARWQCB and the city of El Segundo will have review and approval authority for the Construction SWPPP.

In the final decision, ESP II had also agreed to Condition of Certification **WATER QUALITY-8** that requires the power plant owner to develop an Erosion and Sediment Control Plan (ESCP). Again, to be consistent with the 2006 Soil and Water Standard Conditions that apply to all power plants, staff has modified Condition of Certification **WATER QUALITY-8** to include the requirements of an updated Drainage, Erosion, and Sediment Control Plan (DESCP). With the preparation and implementation of the Construction SWPPP and DESC, ESP II will keep soil loss and water pollution to a negligible amount resulting in no significant impact to soil or water resources.

Operation Discharges

During ESPRP operation, ESP II proposes to direct stormwater from yard drains outside of the power block to a relocated oil/water separator as previously permitted through its Industrial NPDES Permit No. CA000147, CI4667. Discharge from the oil/water separator will then be routed to the forebay of Outfall 002 and discharged to the Bay. ESGS's individual discharge permit characterizes the stormwater discharge from the existing site as negligible. ESP II has calculated a preliminary stormwater design flow based on a 25-year rain event to be 3,100-gpd. Outfall 002 has a design capacity in excess of 398-mgd. Thus, the additional flow from the new ESPRP footprint will not affect the site's ability to discharge through Outfall 002 (ESPRP 2007a Sections 3.14.2.1 & 3.14.2.3).

Stormwater and surface drainage conveyances within the power block would be engineered to allow for segregation of stormwater discharges from non-stormwater discharges. Non-stormwater discharges will be routed to a pre-treatment system to remove oils, greases, and solids from the waste stream then returned to the raw water tank for reuse in the power generating process. The plant drainage system will provide the capability to capture and contain non-stormwater discharges for offsite disposal or recycling. Per the requirement of the existing individual discharge permit, stormwater and non-stormwater runoff will be sampled prior to discharge (ESPRP 2007a Section 3.13.2.2, 3.14.2.1 & 3.14.2.3).

ESP II's proposed modifications to the ESPRP would have less environmental impacts than the previously permitted project. The proposed modifications would improve water quality of the Bay due to the ZLD system and the redesigned ESPRP drainage system resulting in the elimination of industrial wastewater discharge to the Bay from Outfall 001. Additionally, ESPRP's permitted runoff to Outfall 002 would be sampled prior to discharge per ESGS's individual NPDES Permit No. CA000147.

Although the ESGS is permitted under the LARWCB Industrial NPDES Permit No. CA000147, Condition of Certification **WATER QUALITY-9** requires ESP II to prepare and implement an Industrial SWPPP for operation of the ESPRP. The Industrial SWPPP would also have to comply with all applicable requirements of the City's SUSMP per Municipal Permit No. CAS004001. Staff proposes to modify Condition of Certification **WATER QUALITY-9** to be consistent with the 2006 Soil and Water Standard Conditions and will no longer be reviewed and approved by the Compliance Project Manager (CPM). The proposed ESPRP will prevent increased stormwater runoff through the development of structural Best Management Practices (BMPs) in compliance with Condition of Certification **WATER QUALITY-9**. Staff believes that through the submittal and implementation of the site-specific requirements in Condition of Certification **WATER QUALITY-9**, including compliance with all municipal codes and discharge permits, impacts to surface water and soil resources from stormwater runoff during ESPRP operation will be less than significant.

Because of the requirements of the City's municipal permit and the implementation of structural BMPs in accordance with the SUSMP, staff proposes to remove Condition of Certification **WATER QUALITY-4 and WATER QUALITY-5**, which require ESP II to develop an ESCP for ESPRP operation and comply with comprehensive reporting requirements.

BEACH DELIVERY SYSTEM

ESP II proposes to transport oversize plant equipment to the ESPRP by barge and transport it to the plant site from El Segundo Beach. El Segundo Beach is a narrow 3-acre sandy beach seaward of the ESGS facilities that is owned by the State Lands Commission (SLC). Up to six barges would be used for the beach landing; each barge transported to the landing site by tug. The construction barge would be pulled onto the beach and moored to the beach by two Caterpillar D-6 bulldozers during high tide (ESPRP 2007a Section 3.14.2.2).

The beach delivery ramp would consist of geo-tech fiber, wood matting, and sandbags. The ramp would be positioned next to an existing rock groin and secured with cables

attached to the D-6 bulldozers. One stationary barge (construction barge) would be connected to the ramp, while delivery barges would be moved via a tug boat to the stationary barge for heavy equipment off-loading. The system would be in place for approximately eight months.

ESP II recognizes that operation of the beach delivery system poses a number of environmental threats to soil and water resources. ESP II anticipates those impacts to be caused from:

- erosion and sediment pollutants;
- imported soils of dissimilar quality than the beach sand;
- heavy equipment spills, leaks, and drips;
- fueling or repairing equipment on the beach;
- treated or contaminated matting or wood planking; and
- improper staging of equipment or materials in the beach area.

Section 404 of the Clean Water Act regulates the discharge of dredged material and placement of fill material within waters of the U.S. and requires the U.S. Army Corps of Engineers (USACE) to permit such activities. The USACE can issue either a general permit for projects anticipated to have minimal individual and cumulative impacts or a project-specific permit for projects not authorized under the general permit.

As presented in the **Biological Resources** section of this analysis, USACE is expected to issue a permit for the beach delivery system. Staff expects the USACE to issue a Nationwide 33 Permit governing temporary structures necessary for construction activities. A Section 401 water quality certification from the LARWQCB would also be required.

In order to ensure that no pollutant discharge occurs, ESP II proposes measures to avoid, prevent, and/or minimize discharge of pollutants to Santa Monica Bay associated with the beach delivery operation. Proposed mitigation measures would include the implementation of BMPs to address pollutants and pollutant sources including erosion and sediment pollutants. To accomplish this, ESP II has proposed Conditions of Certification **WATER QUALITY-7 to -12** to mitigate potential environment impacts to soil and water resources associated with the beach delivery (ESPRP 2007a Section 3.14.5).

ESP II's proposed Conditions of Certification **WATER QUALITY-7 to -12** are summarized below:

- **WATER QUALITY-7** requires a CWA Section 404, Rivers and Harbors Act, Section 10 Permit prior to the placement of fill materials and/or structures within waters of the United States.
- **WATER QUALITY-8** requires a CWA Section 401 Water Quality Certification from the LARWQCB verifying the beach delivery is in compliance with state water quality standards.

- **WATER QUALITY-9** requires the submittal of a Notice of Intent (NOI) to comply with the General Permit for Storm Water Discharges Associated with Construction Activity prior to ground disturbing activities related to the beach delivery.
- **WATER QUALITY-10** requires ESP II to modify its existing Construction Stormwater Pollution Prevention Plan to include the beach delivery activities.
- **WATER QUALITY-11** requires ESP II to include beach delivery activities in an erosion and sediment control plan.
- **WATER QUALITY-12** requires ESP II to prepare a mitigation plan for the repair and enhancement of El Segundo Beach.

Staff has reviewed the requirements of ESP II's proposed Conditions of Certification **WATER QUALITY-7 to -12** and finds those requirements can be met through the implementation of existing **WATER QUALITY** conditions of certifications and from the proposed Conditions of Certification **BIO-12 & 13** in the **Biology Section**. Condition of Certification **BIO-12** requires a CWA Section 404/Section 10 Permit prior to the placement of fill materials and/or structures within waters of the United States; while Condition of Certification **BIO-13** requires a CWA Section 401 Water Quality Certification from the LARWQCB. Therefore, Conditions of Certification **WATER QUALITY-7 & -8** are not required as **WATER QUALITY** conditions of certification.

Additionally, through the implementation of Conditions of Certification **WATER QUALITY-7, -8, and -9**, the mitigation measures proposed above to protect soil and water resources would be met. Therefore, ESP II's proposed Conditions of Certification **WATER QUALITY-9 to -12** are incorporated in the existing Conditions of Certifications **WATER QUALITY-7 & -9**, which would provide an economy of process through the review and approval of the Construction and Industrial NPDES Permits by the LARWQCB and the City and through staff's review of the DESC (ESPRP 2007a Section 3.14.5).

Ballast Water Discharge

To secure and stabilize the barges at the El Segundo Beach site, the barges would need to be ballasted and grounded. To ensure that ballast water is not contaminated, ESP II proposes to include Condition of Certification **WATER QUALITY-13**. **WATER QUALITY-13** requires the development of a Ballast Water Management Plan in accordance with CCR Title 2, Division 3, Chapter 1, Article 4.6, for the regulation of ballast water.

As part of **WATER QUALITY-13**, the project owner would ensure that the ballast water holding tanks are certified clean and uncontaminated prior to taking on local ballast water. Staff agrees that inclusion of a Ballast Water Management Plan that is in compliance with CCR Title 2, Division 3, Chapter 1, Article 4.6 and has been reviewed by the California State Lands Commission will be protective of Santa Monica Bay waters. Staff has modified and renumbered the proposed Condition of Certification **WATER QUALITY-13** as **WATER QUALITY-10** in the Conditions of Certification section of this analysis (ESPRP 2007a Section 3.14.4).

ESPRP ENTRANCE AND ROADWAY MODIFICATIONS

The current ESPRP entrance and in-plant roadway is a two-lane road that extends approximately 450-feet from Vista del Mar Boulevard down to the existing ESGS facility. The combination of the narrow plant entrance, sharp turns, and steep grade creates driving hazards for heavy equipment deliveries. To improve the access, the existing entrance road would be widened to 24-feet, the sharp curves eliminated, and the grade slopes decreased where possible. Modifications to the entrance and in-plant roadway will improve El Segundo's ability to receive deliveries of heavy and oversize equipment during both the construction and operation phases of the ESPRP (ESPRP 2007a Sections 2.2.2 and 3.4.2.4).

Typical of roadway construction, pollutants such as construction debris, concrete residue, asphalt slurry, oils, grease, and fuels spills are potential soil and water contaminants. Staff agrees with ESP II, that through the Construction NPDES process, the entrance and in-plant roadway modifications would not have a significant impact on soil resources or water quality. Through this process, ESP II is required to revise the ESPRP Construction SWPPP to include all new soil disturbing activities that result from the larger plant, laydown, and delivery footprints (ESPRP 2007a Section 3.14.2.4).

The Construction SWPPP and DESCP required in Conditions of Certification **WATER QUALITY-7 & -8** will ensure the entrance and in-plant roadway construction activities comply with soil and water resources pollution prevention plans. With implementation of these plans, no significant impacts to soil and water resources are expected.

OFFSITE LAYDOWN AND PARKING AREAS

Following the licensing of ESPRP in 2005, the Fed Ex site previously considered for offsite laydown was redeveloped. ESP II now proposes a replacement site. The proposed site is approximately 12.1-acres and includes a 5,500 square-foot industrial building. The site is relatively flat, paved, lighted, and fenced and is suitable for equipment staging and employee parking. No site preparation other than minor grading is proposed by ESP II (ESPRP 2007a Section 2.3).

During site use, potential soil and water pollutant sources are expected to be limited to trash and leaks of automotive fluids from vehicle parking. Staff agrees with ESP II that the existing conditions of certifications requiring the submittal and implementation of a construction SWPPP and erosion control plan will keep potential impacts to soil and water resources to an insignificant level. Compliance with staff's modified Conditions of Certification **WATER QUALITY-7 & -8** will be protective of soil and water resources through the implementation of those pollution prevention plans (ESPRP 2007a Section 2.3).

CONCLUSIONS AND RECOMMENDATIONS

The proposed changes by ESPRP would greatly reduce the impacts anticipated from the previously permitted project due to the elimination of once-through cooling and wastewater discharges to Santa Monica Bay. Although the site will maintain its industrial NPDES permit for operation of Units 3 and 4, the elimination of once-through cooling and industrial wastewater streams from Outfall 001 will reduce the thermal and industrial discharges to the Santa Monica Bay by over 206 million gallons per day. The

use of the new equipment technology with dry cooling will also greatly reduce or eliminate the amount of ocean, potable, and recycled water consumption that would be required for evaporative cooling approved in the 2005 Decision. These project changes are fully compliant with state LORS for the use of recycled water, use of alternative cooling technology, and the elimination of once-through cooling.

As presented in **SOIL AND WATER Table1**, both new and existing LORS were evaluated in the analysis. The proposed changes in the ESPRP amendment would comply with the following LORS if the new and amended conditions of certification are implemented.

- Clean Water Act (33 USC Section 1251) for protection of water quality through the regulation of discharges through the submittal and implementation of Construction and Industrial SWPPPs.
- The Resource Conservation Recovery Act of 1976 by the proper handling and discharge of wastewater.
- The California Constitution, Article X, Section 2 by using recycled water for plant construction, industrial, and landscape irrigation purposes.
- California Water Code Sections 100, 13550, and 13551 by using recycled water in lieu of potable water.
- The 2003 Integrated Energy Policy Report by using dry cooling in conjunction with recycled water for thermal cooling and plant processes.
- Title 2 of the California Code of Regulations for the regulation of ballast water;
- Title 17 of the California Code of Regulations, through the approval by Los Angeles County for backflow prevention and cross connections of potable and recycled water lines.
- Title 22 of the California Code of Regulations, through the proper use and discharge of recycled water.
- The City of El Segundo Ordinance 1329 for the preparation and implementation of a Standard Urban Stormwater Mitigation Plan.

It is staff's position that project related effects and potential impacts on soil and water resources would not result in unmitigated significant adverse impacts if the proposed and modified conditions of certification are adopted and implemented. If unanticipated circumstances arise, staff is confident they can be adequately dealt with under the guidance and specifications of the required federal and state permits. As such, compliance with applicable LORS for the protection of soil and water resources is expected to occur.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed the addition of Conditions of Certification **WATER RES-3 &-4** and **WATER QUALITY-7, -8, & -9**, and the addition of **WATER RES-5** and **WATER QUALITY-10**. Staff has proposed deletion of **WATER RES-1 &-2** and **WATER QUALITY-4, -5, & -6**. Because of the extensive changes to the conditions of

certification, all the original conditions are shown in strikeout and all new and modified conditions are shown in **bold and underlined text**.

~~**WATER RES-1:** The project owner shall use reclaimed water for all in-plant process water needs, except those specifically excluded uses, unless it can be demonstrated that its use is not compatible with any particular application. Specifically excepted from using reclaimed water are fire control water, sanitary water, and potable water, and once-through cooling water. The project owner shall submit a Reclaimed Water Use Plan (RWUP) that includes a detailed revised project design, operational plan, water balance, and heat balance for the use of reclaimed water for review and approval by the CPM prior to the start of any site mobilization activities for the project or any linear element. This RWUP shall be consistent with all applicable LORS, including Title 22 California Code of Regulations.~~

~~All in-plant water needs that the project owner claims cannot be met using reclaimed water, other those excepted, shall be identified and a discussion of the infeasibility of reclaimed water use for these needs shall be included in the RWUP for review and approval by the CPM. Site mobilization activities shall not begin without a CPM approved RWUP.~~

~~**Verification:** The project owner shall submit the RWUP to the CPM for review and approval sixty day prior to the start of any site mobilization activities associated with the project or any linear elements. The RWUP must be approved by the CPM before the start of site mobilization.~~

WATER RES-3: The project owner shall provide the CPM a copy of the executed and final recycled water purchase agreement (agreement) with West Basin Municipal Water District (WBMWD) for the long-term supply (30 – 35 years) of tertiary treated recycled water to the ESPRP. The agreement shall specify a minimum delivery rate of 602-gpm. The agreement shall specify all terms and costs for the delivery and use of recycled water by ESPRP. The ESPRP shall not connect to WBMWD’s new 10-inch recycled water pipeline without the final agreement in place and submitted to the CPM. The project owner shall comply with the requirements of Title 22 and Title 17 of the California Code of Regulations.

Verification: No later than 60 days prior to the delivery of single pass reverse osmosis recycled water from the new 10-inch pipeline, the project owner shall submit two copies of the final and executed recycled water purchase agreement for the supply and on-site use of recycled water at the ESPRP. The project owner shall submit to the CPM a copy of the cross connection inspection and approval report from the Los Angeles County Health Department prior to the delivery of recycled water from the new 10-inch recycled water pipeline.

~~**WATER RES-2:** Only potable water and irrigation quality reclaimed water from the City of El Segundo or reclaimed water from the West Basin Municipal Water District shall be used by the project for uses other than once-through cooling. The process water supply shall be reclaimed water. A backup water supply~~

~~has not been included in the project design or operational plan, and the project shall not operate during periods when reclaimed or potable water is not available in sufficient quantities from the primary supply sources. The project owner shall report the periods of non-operation due to unavailability of water from any source in the Annual Compliance Report.~~

~~The project owner shall install on-site metering and recording devices and record on a monthly basis all water used by the ESPRP, except water used for once-through cooling, including the amount of reclaimed, and non-reclaimed water used by the project, with the source and amount of all reclaimed and non-reclaimed water identified. The annual summary shall include the monthly range, monthly average, and total amounts of reclaimed and non-reclaimed water identified by amount and source used by the project in both gallons per minute and acre feet. Following the first year of operation, the annual summary shall also include the yearly range and yearly average of reclaimed and non-reclaimed water identified by amount and source used by the project. This information shall be supplied to the CPM in the Annual Compliance Report for review and approval for the life of the project.~~

~~**Verification:** No less than 60 days prior to the start of operation of ESPRP, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the pipelines serving and within the project. These metering devices shall be capable of differentiating between uses of these supplies by ESPRP in order to report water demand. The project owner shall provide a report on the servicing, testing and calibration of the metering devices and operation in the annual compliance report. The project owner shall submit the required water use summary to the CPM for review as part of the Annual Compliance Report for the life of the project.~~

WATER RES-4: The project owner shall use potable water supplied by the City of El Segundo (City) for potable and sanitary purposes only during construction of the ESPRP. Potable water shall not be used for any construction activity that is suitable for non-potable water use. In the event of a recycled water delivery interruption, potable water may be used as an emergency back-up supply for plant operation.

Prior to completion of the 14-inch potable water pipeline, the project owner shall provide the CPM with a copy of an executed and final Potable Water Supply Agreement (agreement) for the long-term supply (30 – 35 years) of potable water. The agreement shall specify a minimum delivery rate of 602-gpm in order to meet ESPRP's operation requirements in the event of a recycled water interruption. The project owner shall not use more than 4-AFY of potable water as an emergency backup source for ESPRP operation.

Verification: No later than 30 days prior to completion of the 14-inch potable water pipeline, the project owner shall submit to the CPM two copies of the executed and final Potable Water Supply Agreement (agreement). The project owner shall submit to the CPM any water quality monitoring reports required by the City in the annual compliance report. The project owner shall notify the CPM of any violations of the agreement terms and conditions, the actions taken or

planned to bring the project back into compliance with the agreement, and the date compliance was reestablished.

WATER RES-5: The project owner shall use potable water supplied by the City of El Segundo (City) and recycled water supplied by the West Basin Municipal Water District (WBMWD) during ESPRP operation. Prior to the use of water from any source for ESPRP operation, the project owner shall install and maintain metering devices as part of the potable and recycled water supply and distribution systems. The metering devices shall be in operation for the life of the project. The project owner shall prepare an annual Water Use Summary that includes the monthly range and monthly average of daily potable and recycled water usage in gallons per day on a monthly basis and in acre-feet on an annual basis. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average water use, by source, for the project. The annual Water Use Summary shall be submitted to the CPM as part of the annual compliance report.

Verification: At least 60 days prior to ESPRP commercial operation, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable and recycled water supply and distribution systems. The project owner shall submit a Water Use Summary report to the CPM in the annual compliance report. The report shall disaggregate potable water supplied by the City and recycled water supplied by WBMWD for ESPRP industrial and landscape irrigation use. The project owner shall provide a report on the servicing, testing and calibration of the metering devices in the annual compliance report.

~~**WATER QUALITY-1: Prior to site mobilization, demolition, and/or construction related ground disturbance activities, including linear facilities, the project owner shall develop a Storm Water Pollution Prevention Plan (SWPPP) for the project as required under the NPDES General Stormwater Construction Activity Permit. A copy of the SWPPP and the Notice of Intent (NOI) submitted to the LARWQCB as required under the NPDES General Stormwater Construction Activity Permit regulations shall be provided to the CPM for review and approval. The SWPPP shall include the actual drainage and facility design for all on- and off-site ESPR project facilities for construction, and shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. The SWPPP shall demonstrate compliance with all applicable SUSUMP requirements. The project owner shall submit the construction SWPPP to the City of El Segundo for review and comment, and provide the CPM with a copy of a transmittal letter that requests the City provide copies of their comments to both ESPRP and to the CPM.**~~

~~**Verification: Sixty days prior to the start of any site mobilization activities and/or ground disturbing activities associated with demolition or construction of the project (including demolition of tanks or Units 1 and 2) or any linear element, the project owner shall submit copies of the construction SWPPP, the NOI, and the transmittal letter to the CPM for review and approval. The SWPPP must be approved, and the transmittal letter and NOI copies received by the CPM prior to the start of site mobilization activities.**~~

WATER QUALITY-7: The project owner shall comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (Construction SWPPP) for the construction of the ESPRP site, laydown areas, including El Segundo Beach, and all linear facilities. The Construction SWPPP shall be reviewed and approved by the City of El Segundo (City) and be in compliance with the City's Standard Urban Stormwater Mitigation Plan (SUSMP) per the requirements of the Los Angeles Regional Water Quality Control Board (LARWQCB) NPDES Permit No. CAS0004001.

Verification: Prior to site mobilization, demolition, and/or construction related ground disturbing activities, including those activities associated with the beach delivery and linear facilities, The project owner shall submit to the CPM a copy of the Construction SWPPP that includes the requirements of the City's SUSMP prior to site mobilization, demolition, and/or construction related ground disturbing activities and retain a copy on-site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the City about the City's SUSMP and the Construction SWPPP within 10 days of its receipt or submittal. This information shall include copies the Notice of Intent and Notice of Termination for the project.

~~**WATER QUALITY-2:** Prior to site mobilization, demolition, and/or construction related ground disturbance activities, including linear facilities, the project owner shall develop an Erosion and Sedimentation Control Plan (ESCP) for the construction phase of the project. A copy of the ESCP for construction shall be provided to the CPM for review and approval. The ESCP shall address the actual drainage and facility design for all on and off site ESPR project facilities for construction, and shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. The ESCP shall demonstrate compliance with all applicable SUSUMP requirements. The project owner shall submit the construction ESCP to the City of El Segundo for review and comment, and provide the CPM with a copy of a transmittal letter that requests the City provide copies of their comments to both ESPR and to the CPM.~~

~~**Verification:** Sixty days prior to the start of any site mobilization activities and/or ground disturbing activities associated with demolition or construction of the project or any linear element, the project owner shall submit the ESCP and a copy of the transmittal letter to the CPM for review and approval. The ESCP must be approved, and the transmittal letter received by the CPM prior to the start of site mobilization activities.~~

WATER QUALITY-8: Prior to site mobilization or demolition activities, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion, and Sediment Control Plan (DESCP) that addresses all project elements including those activities related to delivery of equipment onto El Segundo Beach. The DESCPC shall be consistent with the grading and drainage plan as required by condition of certification CIVIL-1 and may incorporate by reference any Storm Water Pollution Prevention Plan

(SWPPP) developed in conjunction with state or municipal NPDES permits. The DESC shall contain elements A through I below:

- A. Vicinity Map – A map(s) at a minimum scale 1"=100' shall be provided indicating the location of all project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas.
- B. Site Delineation – All areas subject to soil disturbance for the ESPRP project (project site, lay down area, all linear facilities, landscaping areas, and any other project elements) shall be delineated showing boundary lines of all construction area and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- C. Watercourses and Critical Areas – The DESC shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the ESPRP project construction, lay down, and landscape areas and all transmission and pipeline construction corridors.
- D. Drainage Map – The DESC shall provide a topographic site map(s) at a minimum scale 1"=100' showing all existing, interim and proposed drainage systems and drainage area boundaries. On the map, spot elevations and contours shall be extended off-site for a minimum distance of 100 feet.
- E. Drainage Narrative – The DESC shall include a narrative of the drainage measures to be taken to protect the site and downstream facilities. The narrative should include the summary pages from the hydrologic analysis prepared by a professional engineer/erosion control specialist. The narrative shall state the watershed size(s) in acres used in the calculation of drainage control measures and text included that justifies their selection. The hydrologic analysis should be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the ESPRP project construction and laydown areas.
- F. Clearing and Grading Plans – The DESC shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features will also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography.
- G. Clearing and Grading Narrative – The DESC shall include a table with the quantities of material excavated or filled for the site and all project elements of the ESPRP project (project site, lay down areas, transmission corridors, and pipeline corridors) to include those materials removed from the site due to demolition, whether such

excavations or fill is temporary or permanent, and the amount of such material to be imported or exported. The table shall distinguish whether such excavations or fill is temporary or permanent and the amount of material to be imported or exported.

- H. Best Management Practices – The DESC P shall identify on a Water Pollution Control Drawing(s) (WPCD) the location of the site specific BMPs to be employed during each phase of construction (initial grading/demolition, excavation and construction, and final grading/stabilization). Treatment control BMPs used during construction should enable testing of stormwater runoff prior to discharge to the stormwater system. BMPs shall include measures designed to prevent wind and water erosion in areas with existing soil contamination.
- I. Best Management Practices Narrative – The DESC P shall show the location (as identified on the WPCD), timing, and maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading/demolition, during project excavation and construction, and final grading/stabilization (accomplished by the submittal of DESC P revisions). Text with supporting calculation shall be included for each project specific BMP. Separate BMP implementation schedules shall be provided for each project element.

Verification: No later than 90 days prior to site mobilization or demolition activities, the project owner shall submit a copy of the DESC P for the initial grading/demolition phase of construction to the City of El Segundo (City) for review and comment. No later than 60 days prior to site mobilization or demolition activities, the project owner shall submit the DESC P and the City's comments to the CPM for review and approval. The CPM shall consider comments received from the City on the DESC P before issuing approval.

The DESC P shall be revised and a revision submitted to the CPM for project excavation/construction and final grading/stabilization prior to the soil disturbing activities associated with these stages of construction. The DESC P shall be consistent with the grading and drainage plan as required by condition of certification CIVIL-1 and relevant portions of the DESC P shall clearly show approval by the Chief Building Official. The DESC P shall be consistent with the Stormwater Pollution Prevention Plan (SWPPP) developed in conjunction with the City's municipal NPDES Permit No. CAS0004001 and its Standard Urban Stormwater Mitigation Plan. In the monthly compliance report, the project owner shall provide a narrative describing the effectiveness of the drainage, erosion and sediment control measures; the results of monitoring and maintenance activities, including any BMP inspection reports; and the dates of any dewatering activities.

~~**WATER QUALITY-3:** Prior to power plant operation the owner shall develop a SWPPP as required under the NPDES stormwater discharge permit for operation of the project. The SWPPP shall include the actual drainage and facility design for all on- and off-site ESPR project and linear facilities showing the details of the stormwater and sediment run-off and run-on to the ESPR project facilities~~

during operation. The SWPPP shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. This plan shall document that the existing and proposed project stormwater facilities have adequate capacity as required by the City of El Segundo. The SWPPP shall be consistent with all other permit and design documents, and shall demonstrate compliance with all applicable SUSUMP requirements. The project owner shall include in this plan the installation of secondary containment for the entire site, excluding off-site and linear facilities. The containment design shall have design documentation and specifications for the berms or other walled structures. The project owner shall submit the operational SWPPP to the City of El Segundo for review and comment, and provide the CPM with a copy of a transmittal letter that requests the City provide copies of their comments to both ESPR and to the CPM. The operational SWPPP shall be approved, and the transmittal letter received by the CPM prior to the start of operation.

Verification: Sixty days prior to the start of operation the project owner shall submit copies of the SWPPP and the transmittal letter to the CPM for review and approval. The SWPPP must be approved, and the transmittal letter received by the CPM prior to power plant operation.

WATER QUALITY-9: The project owner shall comply with the requirements of the Individual and/or General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (Industrial SWPPP) for the operation of the ESPRP. The Industrial SWPPP shall be reviewed and approved by the City of El Segundo (City) and be in compliance with the City of El Segundo's (City) Standard Urban Stormwater Mitigation Plan (SUSMP) per the requirements of the Los Angeles Regional Water Quality Control Board (LARWQCB) NPDES Permit No. CAS0004001.

Verification: The project owner shall submit to the CPM a copy of the Industrial SWPPP that includes the requirements of the City's SUSMP prior to commercial operation and retain a copy on-site. The project owner shall submit to the CPM copies of all correspondence between the project owner and the City about the City's SUSMP and the Individual and/or General NPDES Permit for the Discharge of Storm Water Associated with Industrial Activity within 10 days of its receipt or submittal. The Industrial SWPPP shall include a copy of the Notice of Intent for the project.

WATER QUALITY- 4: Prior to power plant operation the owner shall develop an Erosion and Sedimentation Control Plan (ESCP) for the operational phase of the project. The ESCP shall include the actual drainage and facility design for all on- and off-site ESPR project and linear facilities showing all of the details of stormwater and sediment run-off and run-on to the ESPR project facilities during operation. The ESCP shall address all issues detailed in the Staff Recommended Mitigation section of this FSA. The SWPPP shall be consistent with all other permit and design documents, and shall demonstrate compliance with all applicable SUSUMP requirements. The project owner

shall include in this plan the installation of secondary containment for the entire site, excluding off-site and linear facilities. The containment design shall have design documentation and specifications for the berms or other walled structures. The project owner shall submit the operational ESCP to the City of El Segundo for review and comment, and provide the CPM with a copy of a transmittal letter that requests the City provide copies of their comments to both ESPR and to the CPM. The operational ESCP shall be approved, and the transmittal letter received by the CPM prior to the start of operation.

Verification: Sixty days prior to the start of operation the project owner shall submit a copies of the ESCP and the transmittal letter to the CPM for review and approval. The ESCP must be approved, and the transmittal letter received by the CPM prior to power plant operation.

WATER QUALITY- 5: The project owner shall maintain in effect the National Pollutant Discharge Elimination System (NPDES) Permit from the LARWQCB for the life of the ESPR project. The project owner shall comply with all provisions of the NPDES Permit, and shall notify the CPM of any proposed or actual changes made to this permit and provide copies of materials related to permit amendment, modification, and renewal, and of any changes to the project design or operational plan necessary to comply with the NPDES permit changes. All NPDES compliance monitoring reports submitted to the LARWQCB, permit violations, and enforcement actions shall be reported and discussed in the annual Compliance Report to the CPM. All NPDES enforcement actions against the project shall be reported to the CPM by letter within 30 days of the project being notified by LARWQCB. The project shall not operate without the NPDES permit in place.

Verification: Within 30 days following receipt of a new, amended, or modified NPDES Permit from the LARWQCB, the project owner shall submit a copy of the new permit to the CPM. The Annual Compliance report shall include a copy of NPDES compliance monitoring reports submitted to the LARWQCB, notices of violations, and discussion of enforcement actions taken against the project owner. The CPM shall be notified by letter of NPDES permit enforcement actions within 30 days of the project being notified by the LARWQCB. The project owner shall notify the CPM in writing of any changes made to this permit, and of any changes to the project design or operational plan necessary to comply with NPDES permit revisions.

WATER QUALITY-6: The project owner shall use reclaimed water for all in-plant process water needs. Specifically excepted from using reclaimed water are fire control supply water, sanitary water, and potable water. The project owner shall submit a Reclaimed Water Use Plan (RWUP) that includes a detailed revised project design, operational plan, and water balance for the use of reclaimed water for review and approval by the CPM prior to the start of any site mobilization activities for the project or any linear element. This RWUP shall be consistent with all applicable LORS, including Title 22 California Code of Regulations. Site mobilization activities shall not begin without a CPM approved RWUP.

~~**Verification:** The project owner shall submit the RWUP to the CPM for review and approval sixty days prior to the start of any site mobilization activities associated with the project or any linear elements. The RWUP must be approved by the CPM before the start of site mobilization.~~

WATER QUALITY-10: The project owner shall ensure that each barge operator develops and implements a Ballast Water Management Plan in accordance with CCR Title 2, Division 3, Chapter 1, Article 4.6, The project owner shall ensure that the ballast water holding tanks are certified clean and uncontaminated by the California State Lands Commission prior to taking on local ballast water.

Verification: No later than 90 days prior to grounding of any barge associated with the delivery of ESPRP equipment over El Segundo Beach, the project owner shall provide the State Lands Commission with a copy of the Ballast Water Management Plan that is in compliance with Title 2, Division 3, Chapter 1, Article 4.6 for review and comment. At least 60 days prior to grounding of any barge associated with the delivery of ESPRP equipment over El Segundo Beach, the project owner shall provide the CPM for review and approval, a copy of the Ballast Water Management Plan that has been reviewed by the State Lands Commission.

REFERENCES

- CEC (California Energy Commission). 2002. Final Staff Assessment for the El Segundo Power Redevelopment Project. September 2002.
- CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.
- ESPRP (El Segundo Power Redevelopment Project). 2000. Application for Certification. Submitted to the California Energy Commission on December 18, 2000.
- ESPRP (El Segundo Power Redevelopment Project). 2000. Application for Certification. Submitted to the California Energy Commission on December 18, 2000.
- ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.
- ESPRP (El Segundo Power Redevelopment Project). 2007b. ESPRP Responses to CEC Data Requests Set 1. Soil and Water Resources. September 10, 2007

TRAFFIC AND TRANSPORTATION

Prepared by: James Adams

INTRODUCTION

With respect to traffic and transportation, the petition has four substantive changes to the original approved project description: 1) use of Rapid Response Combined Cycle technology; 2) alternative method of delivery for oversize equipment; 3) new offsite laydown and parking area; and 4) modification of the plant entrance road.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

In general, the applicable federal, state and local LORS have not changed since the project was analyzed in the original proceeding in 2002. However, the city of El Segundo revised the Circulation Element of the General Plan in 2004. Policy C1-1.14 requires a full evaluation of potential traffic impacts associated with new developments prior to project approval, including implementation of mitigation measures prior to, or in conjunction with, project development (City of El Segundo 2004, pg. 4-46).

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the proposed amendment would not be a significant change from the original project in terms of traffic and transportation impacts. Therefore, staff is not recommending any modifications to existing traffic and transportation conditions of certification.

As noted earlier, there are four changes from the original project. The first change involves the use of Rapid Response – Combined-Cycle technology which would require a lower peak construction workforce (337 versus 422 workers) and a slight increase in peak truck traffic (32 versus 29 trips per day) [El Segundo 2007a, pg. 3-92]. The reduction in the construction workforce is due to the ability to transport larger prefabricated modules to the project site (El Segundo 2007a, pg. 2-2). The second change involves the possible use of beach delivery of oversize equipment as an alternative to delivery by truck through the plant entrance off Vista Del Mar. This would involve constructing a temporary ramp structure which would cross an existing pedestrian and bicycle path along the beach. The ramp would have an access lane to allow the bike path to be used when deliveries are not scheduled (see the **LAND USE** section of this analysis for more information). It is estimated that there would be six barge deliveries over a six month period (El Segundo 2007a, pg. 3-93). However, the decision to use the beach delivery of equipment option has not been made to date (El Segundo 2007b).

The third change is a new laydown and parking area located at 777 W. 190th Street near the Interstate 110/405 interchange, which is about thirteen miles southeast of the project site. Construction workers would be shuttled to and from the site by bus via 190th Street, Hawthorne Boulevard, Imperial Highway, and Vista Del Mar. A new proposed truck route would use El Segundo Boulevard, Main Street, Grand Avenue and

Vista Del Mar (El Segundo 2007a, pg. 3-94). The last substantive change is a proposed alteration of the project entrance road off Vista Del Mar. A curve in the road would be realigned to allow large trucks easier access to and from the site (El Segundo 2007a, pg. 3-95).

Staff has reviewed the project changes and has identified the following impacts on the local traffic and transportation system. The decrease in peak construction workers related to the use of the new equipment technology would have a beneficial impact since there will be fewer shuttle bus trips on the local roads. The slight increase in peak construction truck traffic (three additional truck trips per day) is not a significant change when compared with the original project. The possible use of beach delivery of oversize and other equipment would replace 64 truck deliveries during project construction (16 per month for four months) [El Segundo 2007c]. The new laydown and parking area off 190th Street is not a significant change since the original project involved parking and laydown areas away from the site. The arrival and departure of construction workers would, pursuant to Condition of Certification **TRANS-5**, still occur during off-peak periods. The proposed alteration of the project entrance would improve truck ingress/egress to the site for both construction and operation. This is an additional benefit for the project. Staff notes that traffic flow on most local streets (i.e. Vista Del Mar) is similar to conditions noted in the original analysis performed in 2002, and is within the city of El Segundo's acceptable levels of service (C or better) [City of El Segundo 2004, pg. 4-2].

Staff understands that city of El Segundo planning staff is supportive of the project in terms of traffic issues because the expectation is that the project amendment is in compliance with the Circulation Element Goals, Policies, and Objectives (i.e. Policy C1-1.14). Final determination by the city will be made after staff's analysis is released and the subsequent hearing process takes place (City of El Segundo 2008).

In addition to the city of El Segundo, staff has discussed the petition with the city of Manhattan Beach, the Los Angeles County Department of Beaches and Harbors, and the Los Angeles Department of Public Works staff. The city of Manhattan Beach staff sent a letter to Energy Commission staff regarding the El Segundo petition that commented on two visual resources conditions from the Energy Commission 2005 decision (see **Visual Resources**). They did not have any comments on traffic and transportation issues.

CONCLUSIONS

Staff concludes that the four changes in the project related to traffic and transportation would result in either less than significant adverse, or beneficial, impacts when compared with the original project. The project would comply with all applicable LORS.

REFERENCES

City of El Segundo 2004. El Segundo General Plan – 4. Circulation Element, revised in 2004.

City of El Segundo 2007a. Personal communication between Daniel Garcia, Engineering Department, and James Adams, California Energy Commission, on November 14, 2007.

City of El Segundo 2007b. E-mail from Daniel Garcia, Associate Planner, to James Adams on November 16, 2007.

City of El Segundo 2008. E-mail from Kimberly Christensen, Planning Manager, to James Adams on January 23, 2008.

City of Manhattan Beach 2007a. Letter from Cary Chicots, Planning and Building Safety Department, to Steve Munro, California Energy Commission, dated September 27, 2007.

City of Manhattan Beach 2007b. Personal communication between Gary Chicots, and James Adams, on November 16, 2007.

El Segundo 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, June 2007.

El Segundo 2007b. Statement at a pre-construction meeting on September 25, 2007.

El Segundo 2007c. E-mail from George Piantka, Project Manager for El Segundo Power Redevelopment Project, to James Adams on December 21, 2007.

Los Angeles County Department of Public Works 2007. E-mail from Abu Yusuf, Bikeway Coordinator, to James Adams, on November 19, 2007.

TRANSMISSION LINE SAFETY AND NUISANCE

Prepared by: Obed Odoemelam

INTRODUCTION

The amended petition would not significantly change the project description relating to the ESPRP transmission system interconnection and its effect on Transmission Line Safety and Nuisance (TLSN).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No change from original analysis.

ANALYSIS

The proposed modifications do not change the original TLSN analysis and will:

- Not add any new offsite transmission lines or increase the capacity of those lines,
- Not adversely impact aviation safety.
- Not change any conclusions regarding radio and television interference
- Not significantly change any aspects of the project relating to audible noise, fire hazard, and electrical shock hazard.

CONCLUSIONS AND RECOMMENDATIONS

There is no impact on the original TLSN project analysis or conditions of certification. The findings and conclusions incorporated in the original Commission Decision remain valid.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No new or modified conditions of certification apply to TLSN.

REFERENCES

ESPR (El Segundo Power Redevelopment). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project (00-AFC-14C). Received on June 19, 2007.

VISUAL RESOURCES

Prepared by: David Flores

INTRODUCTION

Staff reviewed the amendment proposal for the El Segundo Power Redevelopment Project (ESPRP) which includes: going to rapid response-combined cycle technology with horizontal instead of vertical Heat Recovery Steam Generators (HRSGs); a change to the method of delivery for oversize equipment; the addition of an offsite laydown and parking area for equipment staging and construction employee parking; and the modification of the plant entrance road.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no changes to the Visual Resources LORS as specified in the Commission Decision for the ESPRP. With the modifications to the project description as discussed in the introduction section of this analysis, the project will remain in compliance with Visual Resources LORS.

ANALYSIS

The Petition to Amend submitted by El Segundo LLC includes the following components:

- Replacement of the vertical HRSGs with lower profile horizontal Benson HRSGs;
- A centralized chiller plant housed in a metal enclosure mounted on a concrete slab foundation. The structure will measure 75 feet by 47 feet and 76 feet high at the highest point;
- Oversize equipment, including the HRSGs, two GTGs, two steam turbines, air-cooled condensers and other equipment may be delivered to the facility by barges via a ramp system across the beach; and
- The addition of an offsite laydown and parking area for equipment staging and construction employee parking, and modification of the plant entrance road.

The overall layout of the new rapid response-combined cycle design will replace the previously permitted vertical HRSGs with horizontal HRSGs. The new technology design will shift the HRSGs slightly to the west from their previous location. In addition, three new storage tanks will be installed. One of the tanks will contain water for fire suppression and plant sanitary uses. The other two tanks will be used for raw water and demineralized water storage. The tanks would be located within the central portion of the project site, and just south of the HRSGs.

Staff has reviewed the proposed amendment and determined that the key changes that would affect the visual appearance of the project are the new chiller unit building, the storage tanks and the horizontal HRSGs.

For this review, staff chose Key Observation Points (KOPs) 1, 2, 3, 7, and 8 for analysis from the original Application for Certification (AFC). The KOP's selected represent the existing visual setting and visual change that would occur with the installation of the chiller system, the redesigned HRSGs stacks and the overall project redesign. Staff did not consider KOP 4, 5 and 6 in the analysis for the following reasons:

- KOP 4 was taken from the Manhattan Beach State Park Pier, which is approximately 2 ½ miles south of the ESPRP project. Based on staff's review, the redesign of the ESPRP project will hardly be visible from this distance, therefore it was not considered as part of the analysis;
- KOP 5 is similar to KOP 8 in its representation of motorist views along the Vista Del Mar roadway; and
- KOP 6 is similar to KOP 2 in its representation of views along Manhattan Beach.

See **VISUAL RESOURCES Figure 1**, which identifies the KOP locations.

KOP 1: DOCKWEILER STATE BEACH

This KOP represents views to the south from the beach, bike path, and parking lots, which are located approximately 0.25 to 0.5 mile north of the project site. The visual quality at this KOP as seen in **VISUAL RESOURCES Figure 2** is generally high due to the open panoramic views of the Bay. Slopes east of the beach in the foreground of the Chevron marine loading facility are heavily landscaped.

The addition of the proposed chiller building, tanks and exhaust stacks would be consistent with the forms and lines established by the existing power plant structures and nearby oil storage tanks. The chiller building and tank would appear spatially prominent but subordinate to the existing industrial setting. The project owner proposes to paint the chiller system structures to match the existing plant structures.

The chiller building, storage tanks and exhaust stacks would be added to a view that includes a variety of large-scale industrial structures (i.e., existing power plant with exhaust stacks, cooling tower and transmission lines supported by lattice towers, and several large oil storage tanks on the east side of Vista Del Mar). The addition of the chiller building and three storage tanks (raw water, fire/service water and demineralized water storage tanks) to the ESPRP would be noticeable, but due to the similar nature of the structural forms of the chiller system to that of the existing El Segundo Power Plant and other industrial features in the view, the overall visual change would not be substantial.

As indicated earlier, the visual quality of the view from KOP 1 is generally high. From the viewpoint of viewers along the bike path, with the backdrop of Units 1 and 2 and the landscaped area in the immediate foreground, visual quality is reduced to a moderate level.

As depicted in **VISUAL RESOURCES Figure 2**, the high degree of existing contrast between Units 1 and 2 and their setting would continue under the proposed amendment due to a comparable level of vertical line and form contrast between the proposed new units and the strong horizontal lines and open sky of the existing setting. The resulting

change in levels of contrast between the existing and proposed conditions would, however, be low.

Viewer concern would still be considered high due to the recreational activities of visitors and their expectations of high scenic quality. Visibility and exposure to the project site are high. Views to the plant are unimpeded, and the number of viewers very high, therefore overall visual sensitivity is still considered high.

Staff concludes the introduction of the ESPRP project structures would not substantially degrade the existing viewshed at KOP 1. The sensitivity to impact of this KOP is high. However, since the level of overall visual change between the existing and proposed conditions would be low, anticipated impacts would be less than significant.

KOP 2: MANHATTAN BEACH

This KOP represents views to the north from Manhattan Beach State Park, the bike path, parking lots, and the adjacent residences, which are located approximately 1/2-mile from the project site.

Visual quality from the area of this KOP, as seen in **VISUAL RESOURCES Figure 3**, is high due to panoramic Bay views in three directions. The ESPRP Units 1 and 2 power block is hidden behind Units 3 and 4, revealing only the visually subordinate exhaust stacks, which are closely aligned with the existing stacks.

The El Segundo Generating Station (ESGS) facilities as a whole, are sufficiently distant to appear visually subordinate to the tank farm located in the foreground. These industrial features, though tending to lower visual quality, occupy a relatively small portion of the view, and draw less attention than views of the Bay and distant mountains, which exert strong visual attraction westward.

Viewer concern would remain high due to recreational viewer activity. Visibility of the proposed ESPRP site from this KOP is low due to the intervening Units 3 and 4, which largely screen the project. Overall exposure is moderate, despite the very high numbers of viewers.

Staff concludes the introduction of the ESPRP project structures would not substantially degrade the existing viewshed at KOP 2. When considering the moderate overall visual sensitivity of the viewing group at KOP 2, and the moderate overall visual change, the introduction of the proposed project's publicly visible structures would generate a less than significant visual effect at this KOP.

KOP 3: VIEWS FROM MANHATTAN BEACH

This KOP is representative of views of the ESPRP by northbound motorists on Vista del Mar at distances of about one mile or less. It is also representative of views from some residences lining Vista del Mar. Within the city of Manhattan Beach, views of the power plant are visually subordinate to co-dominant, framed by low-rise residential development on each side.

From KOP 3, as seen in **VISUAL RESOURCES Figure 4**, the surrounding area consists generally of medium density residential structures with little or no landscaping

and limited scenic views, but also including some views of the Bay and Santa Monica Mountains in the vicinity of 45th Street. Visual quality from this viewing area is generally moderate.

Viewer concern is considered moderate to high, due to the combination of recreationists, tourists, and residents with higher viewer concern, and commuters and others with lower levels of viewer concern.

Visibility and exposure to the plant is moderate to high. Near-distance views to the existing plant, strongly sky-lined against a background of Bay and mountains at the horizon, are generally unimpeded. Overall visual sensitivity is considered moderate to high.

Staff concludes the introduction of the ESPRP project structures would not substantially degrade the existing viewshed at KOP 3. The sensitivity to impact of this KOP is moderate to high. However, since the level of overall visual change between the existing and proposed conditions would be low, anticipated impacts would be less than significant.

KOP 7: DOCKWEILER STATE BEACH

This KOP represents views directly east towards the project site and as seen from the bike path and beach directly adjacent to the power plant. This viewpoint is representative of beach visitors in the immediate foreground of the ESGS, and particularly, the many pedestrians, bicyclists, and joggers who use this portion of beach in transit from Dockweiler Beach to the north and Manhattan Beach to the south.

From KOP 7 as seen in **VISUAL RESOURCES Figure 5**, the contrast of the ESGS with the surrounding, highly scenic landscape is strong. The two power blocks introduce strongly contrasting blocky, vertical forms against an otherwise horizontal landscape of coastal bluffs to the east, and level beaches and Bay in other directions. Texture contrast is also strong, characterized by the introduction of the steam turbine fin fan coolers (22 feet high) and air inlet filters which stand approximately 76 feet in height, against a backdrop of vegetation, sky, beach and sea. The strong degree of contrast from the main power plant structures would continue under the proposed ESPRP project or decrease slightly, depending upon the exact viewpoint, due to the lower height of the HRSGs compared to the Units 1 and 2 power block, and the spatial separation of Units 5 and 7. The overall change in contrast to the ESGS as a result of the ESPRP project would be negligible.

As reflected in **VISUAL RESOURCES Figure 5**, views toward the ESGS are completely dominated by the existing and proposed power plants, resulting in a visually chaotic, highly industrial character of low visual quality.

Considering the overall high visual sensitivity of bike path and beach viewers, staff concludes the introduction of the ESGS project structures would not substantially degrade the existing viewshed at KOP 7 due to the low overall visual change between the existing and proposed conditions. Therefore, anticipated visual impacts from KOP 7 would be less than significant.

KOP 8: VISTA DEL MAR

This KOP represents southbound views from motorists on Vista del Mar heading towards the project site. As depicted in **VISUAL RESOURCES Figure 6**, contrast in form, line, color, and texture would be similar to those of the existing facility. With the horizontal lines formed by the marine horizon, mountain ridges enclosing the Bay to the north and south, and beaches which can be seen extending to background distances from elevated viewpoints such Vista Del Mar, the anticipated levels of contrast of the ESPRP project would remain very high. The level of change between the existing and proposed projects would therefore be low.

From KOP 8, the proposed Units 5 and 7, in comparison to the existing ESGS, would result in an overall decrease in visual scale from very high as discussed in the original visual analysis to a moderate level with the project's reconfiguration. The proposed plant facilities would decrease the project surface area exposed to view, due partly to the smaller scale of the HRSG structures and the reduced spatial separation of Units 5 and 7. The HRSGs even though slightly reduced in overall height and diameter, would occupy the views of motorists for a slightly longer duration of time due to their horizontal configuration and closer proximity to the roadway in comparison to the existing Units 1 and 2. They would therefore appear more dominant from a greater distance than the existing power plant. Primarily motorists would experience this increased visual scale for relatively brief durations of time (approximately 2 to 3 seconds at 45 miles per hour). The change in visual scale would be moderate.

The overall visual change to KOP 8 viewshed is considered moderate as a result of high visual contrast, moderate dominance, and low view disruption.

Staff concludes the introduction of the ESPRP project structures would not substantially degrade the existing viewshed at KOP 8. When considering the moderate overall visual sensitivity of the various viewing groups at KOP 8, and overall visual change of moderate, the introduction of the proposed project's publicly visible structures would generate a less than significant visual effect at this KOP.

WATER VAPOR PLUMES

Staff reviewed the visual plume potential for the HRSGs and determined that they will be lower than the original proposal and visual plumes occurring from the HRSG exhausts will be very rare, if they will occur at all considering the range of normal ambient conditions experienced at the site. The exhaust temperatures for the new gas turbines (around 360 degrees F) are higher than that previously proposed, and are about 160 to 180 degrees Fahrenheit higher than typical 7F combined cycle projects.

The exhaust moisture content given in the data response are approximately in the same range, or a bit lower, than that of the previous proposal. In summary, the original design proposal had a very low HRSG visual plume potential, which will be decreased with this new proposal. The use of air-cooled condensers will not cause visual plumes (W. Walters, 2007).

OVERSIZE EQUIPMENT DELIVERY

Oversize plant equipment such as the two HRSG's, two GTG's, two steam turbines, two air cooled condensers, and other equipment may be delivered to the El Segundo site from barges via a ramp system across Dockweiler State Beach.

Mobilization, construction of the beach ramp and up to six deliveries will take place over approximately six months, and will be removed immediately following the last delivery and the beach will be restored to pre-construction conditions.

The ramp structure will be constructed from a barge secured to the shoreline, across the beach from the project site. The barge structure is approximately 250 feet in length by 75 feet wide. The offloading ramp is approximately 20 feet above the beach at the water's edge at low tide, and approximately 8 feet at high tide mark, making the surface about 2 feet higher than the existing bike path. See the **LAND USE** section of this analysis for a discussion on access for the recreation viewers during the use of the beach ramp deliveries.

Surrounding uses will be exposed to project construction activities across the western project area, including views from recreational beach users. Visual quality, visibility and viewer concern are high due to the panoramic views of the Bay and the recreational activities of the visitors and their expectations of high scenic quality. The proposed ramp structure would result in a horizontal feature that would visually dominate portions of the beach area as seen from the recreational viewer; therefore the ramp structure would provide a strong visual dominance.

Even though recreational viewers would be exposed for six months to an unobstructed view of construction activities taking place on the beach, the exposure would be temporary. Construction activities would therefore not result in a long-term visual degradation. Moreover, restoration of the beach to pre-construction condition would occur immediately after the last delivery of equipment. Overall, the project's construction activities given their relatively short duration, and the complete restoration of the beach afterwards would generate a less than significant visual effect.

Construction of the beach ramp may occur during the evening hours with surrounding uses exposed to light and glare. The applicant's lighting design will ensure that lighting fixtures are shielded and directed downward and minimum brightness necessary for operational safety. Therefore, temporary lighting and glare impacts associated with construction activities would be less than significant.

OFF-SITE LAYDOWN ADDITION

Addition of a new offsite laydown area is proposed at 777 W. 190th Street. The laydown area will be used to store equipment and construction materials. The stored materials will not be visible due to screening with opaque perimeter fencing. In addition, the property is currently used for light industrial and storage/parking uses; therefore, project features would appear similar to the existing conditions. Use of this laydown area would not result in long-term visual degradation. Overall, the project's laydown site activities are considered to generate a less than significant visual effect.

CONCLUSIONS AND RECOMMENDATIONS

As discussed in this analysis, staff has determined that the installation of the air chiller system, storage tanks, and the redesigned HRSGs and exhaust stacks as seen from KOP's identified in this analysis would not result in a significant adverse visual impact. The existing and proposed trees and shrub plantings around the project site will reduce the chiller system structure's direct visual impact and contribution to cumulative visual impact to a less than significant level.

The proposed ESPRP is expected to result in less than significant HRSG stack water vapor plumes for both frequency and size.

With the installation of the air chiller system, and redesigned HRSGs and exhaust stacks, the requirement for architectural screening would no longer be required under **VIS-1** and **VIS-4** in the conditions of certification approved in the February 2, 2005 Commission Decision. Conditions of Certification **VIS-2**, **VIS-3**, and **VIS-5** through **VIS-9** will remain the same as approved in the 2005 Commission Decision, and **VIS-1** and **VIS-4** are proposed to be amended as shown below.

Although the proposed large equipment delivery system across the project owner's beach access will be a dominant feature in the view for beach users, due to its temporary nature, the visual impact will be less than significant.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff recommends the amended and proposed modifications to Visual Resources Condition of Certification **VIS-1** and deletion of **VIS-4** as shown below to the licensed project's visual resources conditions of certification (Note: deleted text is in ~~strikeout~~ and no new text has been added).

~~**VIS-1 Facility Visual Enhancement Plan.** Before starting construction, the project owner shall complete a comprehensive visual enhancement plan that includes architectural screening, landscaping, painting, lighting, and other measures that result in an overall enhancement of views of the facility from areas accessible to the public. The plan shall be made available for review and comment by the Executive Director of the Coastal Commission and for review and approval by the Energy Commission. The plan shall include:~~

~~Architectural screening: All industrial equipment below elevation 125' (i.e., below the elevation of the outlet dampers on the facility's exhaust stacks) and visible from the beach, coastal waters, Vista Del Mar Avenue, and other areas accessible by the public shall be screened using panels, wire mesh, louvers or other forms of architectural screening. The screening shall be opaque or semi-transparent and have a non-glare finish, and the color shall be harmonious with the facility's setting on a public beach. If the project owner proposes, and the Energy Commission concurs, that it is infeasible to shield portions of the facility using architectural screening, the project owner may instead propose other measures such as landscaping, berms, or fencing to provide the necessary screening. Any such proposal must be based on the definition of feasibility in~~

~~Coastal Act section 30108 and is subject to review and comment by the Executive Director of the Coastal Commission, and review and approval by the Energy Commission.~~

Landscaping: Where used to screen the facility, vegetation shall be selected and maintained to provide year-round screening (e.g., evergreen species). Preference shall be given to native species and/or species requiring little or no irrigation, or at a minimum, non-invasive species. Soils shall be tested, amended as needed or replaced to ensure plant survival.

Other structural screening: Where berms, fencing, or other structural elements are selected as the primary method to screen the facility, the structures shall harmonize with the facility's setting on a public beach. If berms are used, they shall be vegetated and maintained with evergreen, native, and/or species requiring little or no irrigation. If fencing is used, it shall include a non-glare finish and be painted in a neutral color.

The Facility Visual Enhancement Plan shall include photographs showing existing conditions and simulated post-construction conditions from Key Observation Points (KOPs) around the facility (these may be the same KOPs that were used to develop the Staff Assessment). The plan shall also include anticipated costs for completing and maintaining the various visual enhancement measures and a detailed schedule for completing construction of these components.

Seawall Design Plan: Before starting construction, the project owner shall complete a plan of the seawall design for review and comment by the Executive Director of the Coastal Commission, the City of Manhattan Beach, and the City of El Segundo, and review and approval by the CPM. This plan shall include:

Final design: The seawall along the west side of the facility shall be textured and finished in a neutral color harmonious with its location adjacent to a public bike path and beach. If painted, graffiti-resistant paint shall be used.

Landscaping: Where used to enhance the seawall design, vegetation chosen shall be selected or maintained to provide year-round screening (e.g., evergreen species). Preference shall be given to native species and/or species requiring little or no irrigation.

This seawall design plan shall include photographs showing the existing conditions and simulated post-construction conditions from observation points along the bike path adjacent to the seawall, from the beach, and from other points where the seawall is highly visible. The plan shall also include anticipated costs for completing and maintaining the seawall and a schedule for construction.

Verification: At least 120 days prior to ground disturbance, the project owner shall submit the required Facility Visual Enhancement Plan and Seawall Design Plan to the Executive Director of the Coastal Commission and the Cities of Manhattan Beach and El Segundo for comment, and to the CPM for review and approval. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will

approve the submittal, the project owner shall prepare and submit to the Coastal Commission staff, the Cities, and CPM a revised submittal.

~~**VIS-4 Architectural screening of power plant.** The project owner shall install architectural screening to cover the outer framework of the HRSG structures of the new proposed Units 5 through 7 and reduce visibility of mechanical equipment below 125 feet and above 10 feet elevation of the superstructures, except where infeasible due to excessive loading on support structures or where operation or safety requirements do not allow covering of a surface area. Such screening shall conform to the requirements of the Energy Commission's decision.~~

~~To the extent determined to be feasible by the Energy Commission in its decision, the project owner shall install similar architectural screening on existing Units 3 and 4 to conceal exposed piping and mechanical equipment.~~

~~Prior to the start of construction, the project owner shall submit an architectural screening plan to the California Coastal Commission (as a part of the facility Visual Enhancement Plan described in Condition **VIS-1**), and the City of El Segundo for review and comment, and to the CPM for review and approval. The screening plan shall include:~~

- ~~1) Detailed plans and specifications sufficient to enable the CPM and Chief Building Official (CBO) to determine adequacy and performance of the proposed screening. Determination of adequacy includes confirmation of consistency with the terms of the Energy Commission's decision. Determination of adequacy also requires sufficient evidence that the screening can be installed to be stable, uniform, able to withstand anticipated wind loads, and attractively mounted, without sagging, tearing, unsightly discoloration, or adverse visual effects from the mounting system itself; and with sufficient durability to allow good performance between maintenance cycles. Required performance data shall include design information of sufficient detail and specificity to establish confidence in the design's ability to perform as desired, or to clearly establish limitations on the feasibility of particular measures.~~
- ~~2) The applicant shall provide sufficient information to fully document and explain any areas where screening is infeasible or not possible. The information shall further include supporting engineering drawings analysis and calculations or specific safety or operational constraints or regulations.~~
- ~~3) 11" x 17" color simulations at life-size scale of the treatment proposed for use on project structures.~~
- ~~4) A detailed schedule for completion of the treatment.~~
- ~~5) A procedure to ensure proper treatment maintenance for the life of the project.~~

Verification: ~~Not later than 120 days prior to start of construction, the project owner shall submit the final architectural screening plan and details to the Coastal Commission, the Cities of El Segundo and Manhattan Beach for review and comment, and the CPM for review and approval.~~

~~If the CPM notifies the project owner of any needed revisions before the CPM will approve the plan, the project owner shall submit a revised plan to the CPM.~~

~~Not less than thirty 30 days prior to the start of commercial operation, the project owner shall notify the CPM that the architectural screening is ready for inspection.~~

~~The project owner shall provide a status report regarding screening maintenance in the Annual Compliance Report.~~

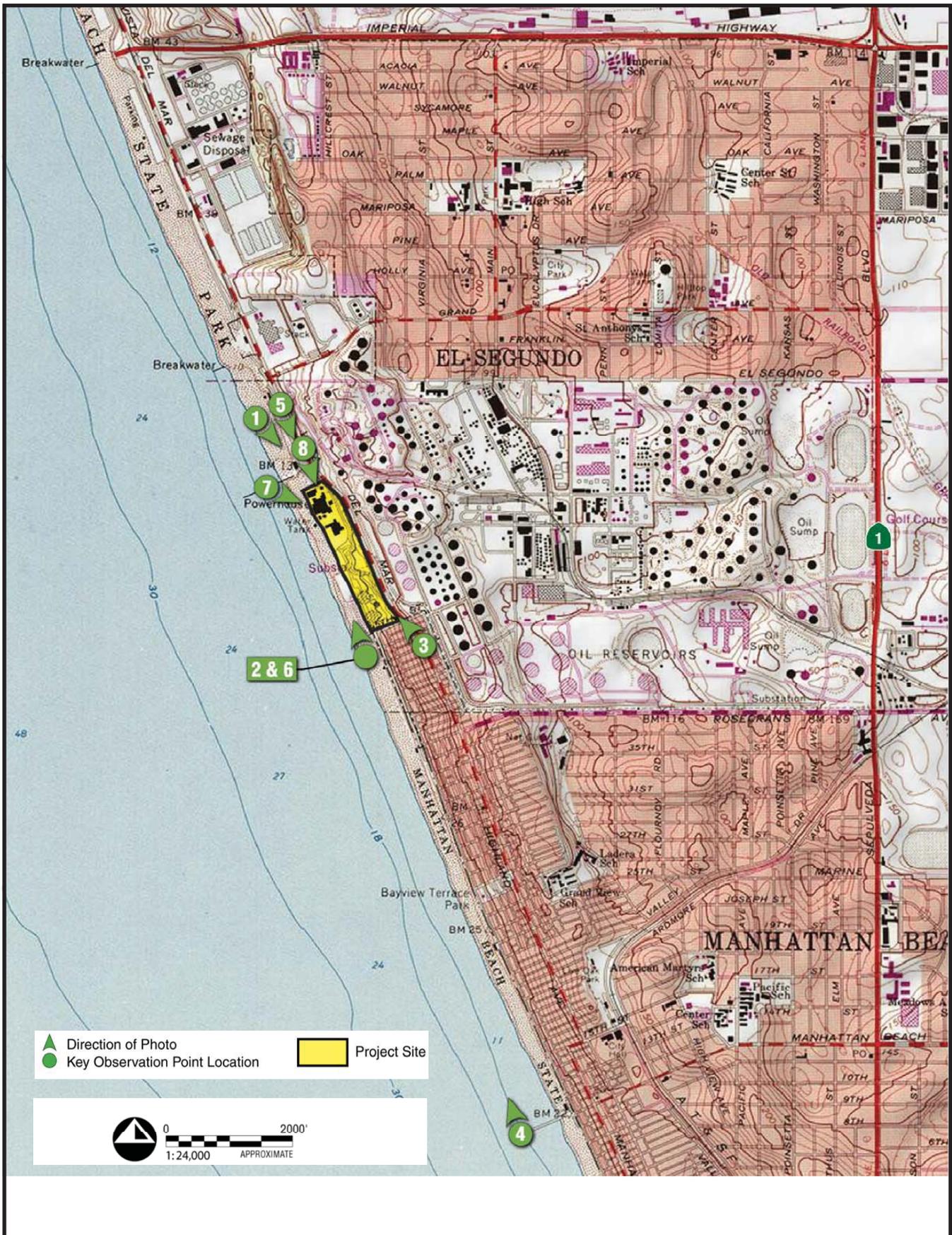
REFERENCES

El Segundo II-El Segundo II, LCC, Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, June 2007.

El Segundo Amendment Plume Finding, E-mail sent by William Walters on March 25, 2008.

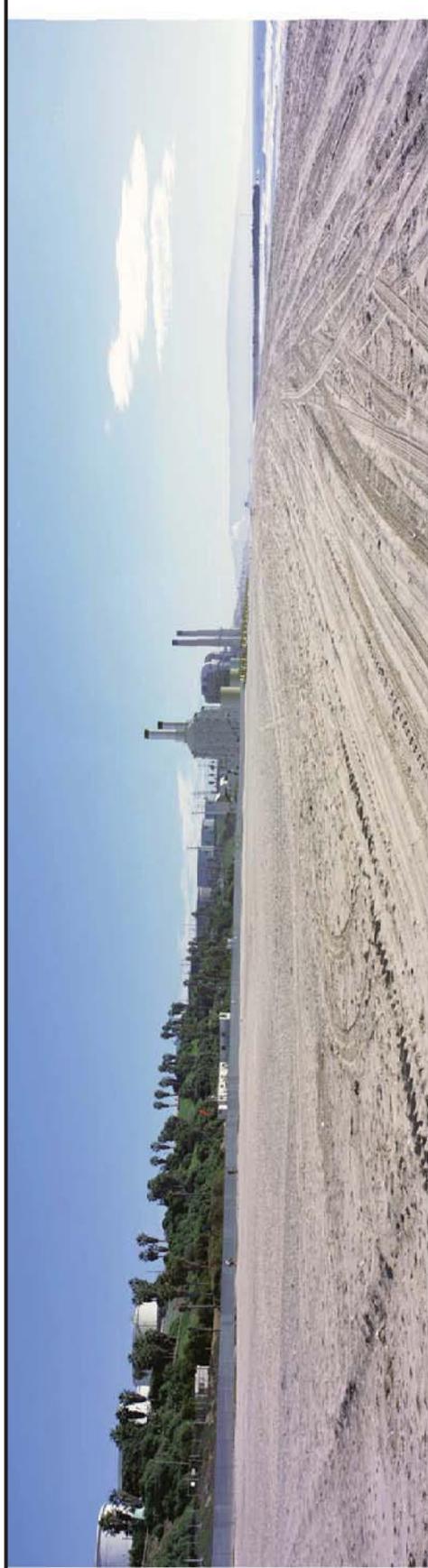
El Segundo Power Redevelopment Project, Commission Decision, February 2, 2005.

VISUAL RESOURCES - FIGURE 1
 El Segundo Power Redevelopment Project - KOP Location Map



CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, JUNE 2008
 SOURCE: El Segundo Power Redevelopment Project Amendment Petition - Figure 3.12-1

VISUAL RESOURCES - FIGURE 2
El Segundo Power Redevelopment Project - Final View KOP 1



VISUAL RESOURCES - FIGURE 3
El Segundo Power Redevelopment Project - Final View KOP 2

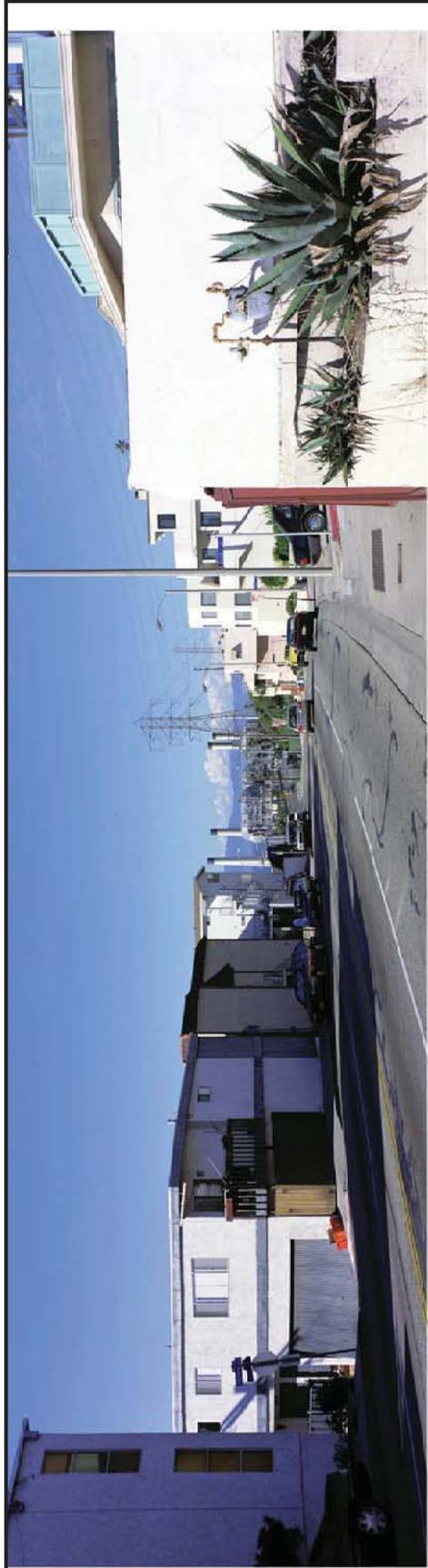


ESPR - Approved Application for Certification



ESPR - Petition to Amend

VISUAL RESOURCES - FIGURE 4
El Segundo Power Redevelopment Project - Final View KOP 3



ESPR - Approved Application for Certification



ESPR - Petition to Amend

VISUAL RESOURCES - FIGURE 5
El Segundo Power Redevelopment Project - Final View KOP 7



ESPR - Approved Application for Certification



ESPR - Petition to Amend

VISUAL RESOURCES - FIGURE 6
El Segundo Power Redevelopment Project - Final View KOP 8



ESPR - Approved Application for Certification



ESPR - Petition to Amend

WASTE MANAGEMENT

Prepared by: Ellie Townsend-Hough

INTRODUCTION

This staff analysis is an assessment of issues associated with the petition to as related to managing waste generated from the construction and operation of the project. The proposed modifications would not produce new or additional solid wastes evaluated by the previously permitted project. Therefore, staff believes that the proposed amendment would have no significant adverse impact on **WASTE MANAGEMENT**.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no changes to LORS as a result of the El Segundo modification. Please refer to the 2001 Final Decision for the list of Waste Management LORS.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the proposed amendment is consistent with Waste Management LORS and no new or modified conditions of certification would be needed. The amended project would generate wastewater, non-hazardous waste such as trash and debris, and hazardous waste consisting of fuels, oils, greases and asphalt slurry and concrete. Wastewater would be contained in tanks and discharged to municipal sewage treatment plants or transported to hazardous waste treatment or disposal facilities. Wastewater is analyzed in the SOIL & WATER RESOURCES Section.

Hazardous and non-hazardous waste from construction and demolition would be disposed of at either Class I, II, or III landfills (depending on the waste type). The ESPRP Application of certification identifies three non-hazardous waste disposal facilities in the area. The landfills are located in Corona, California (permitted disposal 4,000 tons per day until 2050), Simi Valley (4,000 tons per day from 2020 to 2050), and Orange county (8,500 tons per day through 2024). There are three Class I landfills permitted to accept hazardous waste. There is an excess of 22 million cubic yards of remaining hazardous waste remaining in these landfills.

The project, as amended, would generate about the same volume of wastewater, non-hazardous waste, and hazardous waste as the original project. Non new or additional wastes will be generated by the amended project. Based on the analysis of the original project and the review of the amended project, we do not foresee any significant waste-related impacts.

CONCLUSIONS AND RECOMMENDATIONS

Staff determined that the proposed amendment is consistent with Waste Management LORS, and no new or modified conditions of certification would be necessary with the

existing conditions of certification, staff concludes that the proposed amendment would not cause significant direct or cumulative impact on waste management.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

Staff has proposed no new modifications to the **WASTE MANGEMENT** Conditions of Certification.

REFERENCES

ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project. Submitted to the California Energy Commission on June 19, 2007.

WORKER SAFETY AND FIRE PROTECTION

Prepared by: Alvin Greenberg, Ph.D.

INTRODUCTION

The proposed amendment (Shaw 2007) has potentially significant impacts on worker safety and fire protection. Three new conditions are proposed to mitigate impacts not previously identified in the original project but which have come to light as a result of experience at other power plants.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no new LORS and no LORS that have been modified since project certification.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the project, including the proposed amendment, would be able to comply with all applicable LORS if the newly proposed conditions are implemented. Staff believes that more advanced worker safety methods that have evolved since the date of original licensing of this project warrant implementation of additional necessary mitigation. These involve ensuring that a safe workplace exists during the construction phase and providing a rapid response in the case of a heart attack on the site.

The hazards associated with the construction industry are well documented. These hazards increase in complexity in multi-employer worksites such as the construction of gas-fired power plants. In order to reduce and/or eliminate these hazards, it has become standard industry practice to hire a Construction Safety Supervisor to ensure a safe and healthful environment for all personnel. The Federal Occupational Safety and Health Administration (OSHA) has also entered into strategic alliances with several professional and trade organizations to promote and recognize safety professionals trained as Construction Safety Supervisors, Construction Health and Safety Officers, and other professional designations. The goal of these partnerships is to encourage construction subcontractors to improve their safety and health performance, to assist them in striving for the elimination of major hazards, and to prevent serious accidents through implementation of enhanced safety and health programs.

To date, there are no OSHA or Cal-OSHA requirements that an employer hire or provide for a Construction Safety Officer. OSHA and Cal-OSHA regulations do, however, require that safety be provided by an employer and the term "Competent Person" is used in many OSHA and Cal-OSHA standards, documents, and directives. A "Competent Person" is usually defined by OSHA as an individual who, by way of training and/or experience, is knowledgeable of standards, is capable of identifying workplace hazards relating to the specific operations, is designated by the employer,

and has authority to take appropriate action. Therefore, in order to meet the intent of the OSHA standard to provide for a safe workplace during power plant construction, staff proposes Condition of Certification **WORKER SAFETY-4**, which would require the applicant/project owner to designate and provide for a power plant site Construction Safety Supervisor.

Furthermore, accidents, fires, and a worker death have occurred at Energy Commission-certified power plants in the recent past due to the failure to recognize and control safety hazards and the inability to adequately supervise compliance with occupational safety and health regulations. Safety problems have been documented by Energy Commission staff in safety audits conducted in 2005 at several power plants under construction. The findings of the audit staff include, but are not limited to, such safety oversights as:

1. Lack of posted confined space warning placards/signs;
2. Confusing and/or inadequate electrical and machinery lockout/tagout permitting and procedures;
3. Confusing and/or inappropriate procedures for handing over lockout/tagout and confined space permits from the construction team to commissioning team and then to operations;
4. Dangerous placement of hydraulic elevated platforms under each other;
5. Inappropriate placement of fire extinguishers near hotwork;
6. Dangerous placement of numerous power cords in standing water on the site thus increasing the risk of electrocution;
7. Construction of an unsafe aqueous ammonia unloading pad;
8. Inappropriate and unsecure placement of above-ground natural gas pipelines inside the facility but too close to the perimeter fence; and
9. Lack of adequate employee or contractor written training programs addressing proper procedures to follow in the event of finding suspicious packages or objects either on- or off-site.

In order to reduce and/or eliminate these hazards, it is necessary for the Energy Commission to have a professional Safety Monitor on-site to track compliance with Cal-OSHA regulations and periodically audit safety compliance during construction, commissioning, and the hand-over to operational status. These requirements are outlined in Condition of Certification **WORKER SAFETY-5**. A Safety Monitor, hired by the project owner yet reporting to the CBO and CPM, will serve as an “extra set of eyes” to ensure that safety procedures and practices are fully implemented at all power plants certified by the Energy Commission. During the audits conducted by staff, most site safety professionals welcomed the audit team and actively engaged them in questions about the team’s findings and recommendations. These safety professionals recognized that safety requires continuous vigilance and that the presence of an independent audit team provided a “fresh perspective” of the site.

Finally, a state-wide survey was conducted by staff to determine the frequency of Emergency Medical Services (EMS) response and off-site fire-fighter response for natural gas-fired power plants in California. The purpose of the analysis was to

determine what impact, if any, power plants may have on local emergency services. Staff has concluded that incidents at power plants that require fire or EMS response are infrequent and represent an insignificant impact on the local fire departments, except for rare instances where a rural fire department has mostly volunteer fire-fighting staff. However, staff has determined that the potential for both work-related and non-work related heart attacks exists at power plants. In fact, staff's research on the frequency of EMS response to gas-fired power plants shows that many of the responses for cardiac emergencies involved non-work related incidences, including visitors. The need for prompt response within a few minutes is well documented in the medical literature. Staff believes that the quickest medical intervention can only be achieved with the use of an on-site defibrillator; the response from an off-site provider would take longer regardless of the provider location. This fact is also well documented and serves as the basis for many private and public locations (e.g., airports, factories, government buildings) maintaining on-site cardiac defibrillation devices. Therefore, staff concludes that, with the advent of modern cost-effective cardiac defibrillation devices, it is proper in a power plant environment to maintain such a device on-site. Therefore, condition **WORKER SAFETY-6** is proposed which would require that a portable automatic cardiac defibrillator be located on site, that all power plant employees on-site during operations be trained in its use, and that a representative number of workers on-site during construction and commissioning also be trained in its use.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for new potential issues related to worker safety and fire protection. Based on this review, staff has determined that the approved Conditions of Certification together with three new proposed conditions would ensure a safe workplace during construction and operations.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

WORKER SAFETY-4 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the construction activities, and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- **Have over-all authority for coordination and implementation of all occupational safety and health practices, policies, and programs;**
- **Assure that the safety program for the project complies with Cal/OSHA & federal regulations related to power plant projects;**
- **Assure that all construction and commissioning workers and supervisors receive adequate safety training;**
- **Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and**

- Assure that all the plans identified in Worker Safety-1 and-2 are implemented.

Verification: At least thirty (30) days prior to the start of project mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement (CSS) shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- Summary report of safety management actions and safety-related incidents that occurred during the month;
- Report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- Report of accidents and injuries that occurred during the month.

WORKER SAFETY-5 The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO, and will be responsible for verifying that the Construction Safety Supervisor, as required in Worker Safety-4, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: Prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

WORKER SAFETY-6 The project owner shall ensure that a portable automatic cardiac defibrillator (also know as an automatic external defibrillator or AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on-site whenever the workers that they supervise are on-site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

Verification: At least thirty (30) days prior to the start of construction mobilization, the project owner shall submit to the CPM proof that a portable automatic cardiac defibrillator exists on site and a copy of the training and maintenance program for review and approval.

REFERENCES

Shaw Environmental, Inc., June 18, 2007, Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project.

ENGINEERING ANALYSIS

FACILITY DESIGN

Prepared by: Shahab Khoshmashrab

INTRODUCTION

The amended project would employ air-cooled heat exchangers instead of the existing proposed once-through ocean water cooling system. It would also utilize a dual-train one-on-one (one combustion turbine generator, or CTG, one heat recovery steam generator, or HRSG, and one steam turbine generator, or STG) combined cycle configuration instead of the previously licensed two-on-one (two STGs, two HRSGs, and one STG) train combined cycle configuration.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

Facility Design Conditions of Certification in the original Commission Decision refer to the 2001 California Building Standards Codes (CBSC) as the applicable edition of this LORS. The applicable edition is the one in effect at the time initial design plans are submitted to the Commission's delegate Chief Building Official (CBO) for review and approval. The 2007 edition became effective on January 1, 2008. Accordingly, staff proposes the following modification to Condition of Certification **GEN-1**.

No other changes to the **Facility Design** LORS as described in the Commission Decision are applicable.

ANALYSIS

The changes proposed that could affect **Facility Design** are:

- Changing from once-through ocean water cooling of the steam condenser to a pair of fin-fan air coolers, or a pair of air-cooled backpressure heat exchangers, to cool spent steam from the two backpressure steam turbines; and
- Changing from a two-on-one combined cycle configuration to a dual-train one-on-one combined cycle configuration

Condition of Certification **GEN-2, Table-1**, lists the major structures and equipment for which pertinent design documents must be submitted to the CBO for review and approval. As the result of the above proposed modifications, this table has been revised to delete the old items and add the new ones.

As described above, to acknowledge the effective date of the 2007 CBSC, staff proposes the following modification to Condition of Certification **GEN-1**.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for consistency with applicable engineering LORS, and in light of the following proposed modifications, staff has determined that the amended project would comply with those LORS.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

GEN-1: The project owner shall design, construct and inspect the project in accordance with the ~~2004~~ **2007** edition of the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) All transmission facilities (lines, switchyards, switching stations, and substations) are covered by the Transmission System Engineering Conditions of Certification.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [~~2004~~ **2007** CBC, Section 109 – Certificate of Occupancy].

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

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

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	2
HP/IP Steam Turbine (ST) Foundation and Connections	1
LP Steam Turbine (ST) Foundation and Connections	1
Combustion Turbine Generator Foundation and Connections	2
Steam Turbine Generator Foundation and Connections	1
Heat Recovery Steam Generator (HRSG) Structure, Foundation and Connections	2
Auxiliary Transformer Foundation and Connections	2
CT Inlet Air Plenum Structure, Foundation and Connections	2
Inlet Air Evaporative Cooler Structure, Foundation and Connections	2
HRSG Exhaust Stack, Foundation and Connections	2
Isolated Phase Bus Duct	2
HRSG Transition Duct from CTG — Structure	2
Secondary Unit Substation/Transformer	2
Electrical/Control Center	2
Condenser Structure, Foundation and Connections	1
Feed Water Pump Foundation and Connections	4
Condensate Pump Foundation and Connections	2
Feed Water Heater Foundation and Connections	2
Air Compressor Foundation and Connections	2
CT Water Injection Skid Foundation and Connections	2
CT Static Starter Skid Foundation and Connections	2
CT Mechanical Accessory Compartment Foundation and Connections	2
Switchgear Equipment Building Structure, Foundation and Connections	2
CT Generator Step-up Transformer Foundation and Connections	2
ST Generator Step-up Transformer Foundation and Connections	1
HRSG Blowdown Tank Foundation and Connections	2
Boiler Circulating Pump Connections	8
Condensate Circulating Pump Foundation and Connections	4
Fuel Gas Heater Foundation and Connections	2
ST Lube Oil Package Foundation and Connections	1
Drain Cooler Foundation and Connections	1

Table-1: Major Structures and Equipment List	
Equipment	Quantity
Gas Turbine Enclosure	2
Gas Turbine Inlet Filter	2
Electrical Package	2
Lube Oil Cooler	2
Rotor Air Cooler (Fin-Fan)	2
Heat Recovery Steam Generator	2
HRSO Stack	2
Boiler Blow Down	2
Boiler Feedwater Pumps	2
Sampling Panel	2
Continuous Emissions Monitoring	2
SCR Skid	2
MV Switchgear	2
Generator Circuit Breaker	2
Auxiliary Transformer	2
Generator Transformer - Gas Turbine	2
Generator Transformer - Steam Turbine	2
Oil/Water Separator	2
Steam Turbine PCC	2
Gland Steam Condensers	2
Steam Turbine	2
ST Lube Oil Cooler	2
Steam Turbine Fin Fan Cooler	2
Condensate Polishing Fin Fan Cooler	2
Air Compressor Area	2
Balance of Plant PCC	2
Chemical Dosing Equipment	2
Deaerator / Drain Tanks / Condensate Pumps	2
Fuel Gas Conditioning/metering	1
Fuel Gas Compressors	2
Raw Water Water Tank	1
Demineralized Water Tank	1
Raw Water Forwarding Pumps	2
Electric Fire Water Pumps	1
Demineralized Water Forwarding Pumps	2
Fire Water Tank	1

REFERENCES

CEC (California Energy Commission). 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.

ESPRP (El Segundo Power Redevelopment Project). 2000. Application for Certification.
Submitted to the California Energy Commission on December 18, 2000.

ESPRP (El Segundo Power Redevelopment Project). 2007a. Petition to Amend Final
Commission Decision for the El Segundo Power Redevelopment Project.
Submitted to the California Energy Commission on June 19, 2007.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

Prepared by: Dal Hunter, Ph.D., C.E.G.

INTRODUCTION

The proposed amendment has no significant effects on geologic hazards or geologic/paleontologic resources. The conditions of certification remain adequate.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

There are no new LORS and no LORS that have been modified since project certification.

ANALYSIS

Staff has reviewed the petition for potential environmental effects and consistency with applicable LORS. Based on this review, staff determined that the project, including the proposed amendment, should still be able to comply with all applicable LORS.

The proposed amendment indicates that the applicant (ESP II) may deliver oversized equipment, such as turbine-generators, via barges and a ramp constructed across the beach. The beach delivery is not expected to affect paleontological resources since the beach sands are very young, disturbed daily, and do not contain recoverable or significant fossils.

Most of the California coast has the potential for a tsunami (tidal wave) generated from an earthquake, submarine landslide, or distant volcanic eruption. The 1964 Alaskan earthquake generated tidal waves in Crescent City, California and even caused minor damage to docked boats as far south as Los Angeles. The probability of a tsunami striking the coast during the brief time a barge is unloading equipment is remote and not something that can be reasonably anticipated or mitigated. In most cases, there would be sufficient warning time to allow the barge to move safely out to sea. It is our understanding that the barge/ramp system will be designed to tolerate normal surge and tides.

CONCLUSIONS AND RECOMMENDATIONS

Staff has reviewed the petition for new potential issues related to geology and paleontology. Based on this review, staff has determined that the approved conditions of certification remain adequate to protect geologic resources and potential paleontologic resources, as well as minimize the risk related to potential geologic hazards.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

None.

REFERENCES

Shaw Environmental, Inc., June 18, 2007, Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project.

California Energy Commission. 2005. Commission Decision for the El Segundo Power Redevelopment Project. Publication CEC-800-2005-001-CMF.

Port of Los Angeles, May 2008, Draft Supplemental Environmental Impact Report (SEIS/SEIR) for the Pacific LA Marine Terminal LLC Crude Oil Terminal Project.

POWER PLANT EFFICIENCY

Prepared by: Shahab Khoshmashrab

INTRODUCTION

The amended project would utilize a dual-train one-on-one (one combustion turbine generator, or CTG, one heat recovery steam generator, or HRSG, and one steam turbine generator, or STG) combined cycle configuration using two Siemens SGT6-5000F CTGs instead of the previously licensed two-on-one (two STGs, two HRSGs, and one STG) train combined cycle configuration using two General Electric (GE) Frame 7FA CTGs. This analysis examines the potential effect of these changes on plant efficiency.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS apply to project efficiency.

ANALYSIS

The only proposed change that could affect project efficiency is:

- Changing from a two-on-one combined cycle configuration utilizing two GE Frame 7FA CTGs to a dual-train one-on-one combined cycle configuration utilizing two Siemens SGT6-5000F CTGs.

The Siemens SGT6-5000F technology in a one-on-one combined cycle power train is nominally rated at 57.0 percent maximum full load efficiency lower heating value (LHV) under International Organization for Standardization (ISO) conditions (GTW, 2007). The GE Frame 7FA technology is nominally rated in a two-on-one train combined cycle configuration at 56.5 percent maximum full load efficiency LHV at ISO conditions (GTW, 2007). As seen above, the project's overall efficiency will improve slightly as the result of this amendment. No further analysis in the area of Power Plant Efficiency is necessary.

CONCLUSIONS AND RECOMMENDATIONS

The Power Plant Efficiency findings and conclusions incorporated in the original Commission Decision remain valid. No LORS apply to project efficiency.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No conditions of certification apply to Power Plant Efficiency.

REFERENCES

GTW 2007 — Gas Turbine World 2007 Performance Specs. December 2006, pp. 29-35.

POWER PLANT RELIABILITY

Prepared by: Shahab Khoshmashrab

INTRODUCTION

The proposed ESPRP would utilize the rapid response combined cycle technology, not available during the original licensing of the project, instead of the previously permitted advanced combined cycle technology that offers slower start time. The amended project would also employ air-cooled heat exchangers instead of the once-through ocean water cooling system permitted in the original Commission Decision, reducing the project's water consumption. This analysis examines the potential effect of these changes on plant reliability.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No LORS apply to project reliability.

ANALYSIS

The changes proposed that could affect project reliability are:

- Utilizing the Rapid Response – Combined Cycle technology instead of the previously permitted combined cycle technology; and
- Changing from once-through ocean water cooling of the steam condenser to a pair of fin-fan air coolers, or a pair of air-cooled backpressure heat exchangers, to cool spent steam from the two backpressure steam turbines.

The project as previously permitted would utilize the advanced combined cycle technology. This technology can deliver power output at full load in up to three hours for warm and hot starts and in up to six hours for cold start. In comparison, the new rapid response technology can deliver 150 MW of power output within 10 minutes of unit startup and can achieve full load within 45 minutes for hot starts, 85 minutes for warm starts, and 125 minutes for cold starts (ESPRP 2007a). Therefore, the new rapid response technology would allow the project to respond more rapidly to the needs of the California electric market. The project as amended would enhance power supply reliability by providing operating flexibility (that is, the ability to start up, shut down, turn down, and provide load following and spinning reserve).

Changing from once-through ocean water cooling to air cooling as described above would significantly reduce the project's water consumption and thus its reliance on water usage.

Therefore, project reliability would improve as the result of the above-proposed changes. Staff believes no further analysis in the area of Power Plant Reliability is necessary.

CONCLUSIONS AND RECOMMENDATIONS

Project reliability would improve as the result of this amendment. The Power Plant Reliability findings and conclusions incorporated in the original Commission Decision remain valid. No LORS apply to project reliability.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No conditions of certification apply to Power Plant Reliability.

REFERENCES

ESPRP (El Segundo Power Redevelopment). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project (00-AFC-14C). Received on June 19, 2007

TRANSMISSION SYSTEM ENGINEERING

Prepared by: Mark Hesters

INTRODUCTION

The amended project would utilize the rapid response combined cycle technology, not available during the original licensing of the project, instead of the previously permitted advanced combined cycle technology that offers slower start time. The maximum electrical output will be reduced from 630 MW to 560 MW.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE

No change from original analysis.

ANALYSIS

The changes that were examined in relation to the projects' transmission interconnection are:

- Utilizing the rapid response – combined cycle technology instead of the previously permitted combined cycle technology; and
- Changing from once-through ocean water cooling of the steam condenser to a pair of fin-fan air coolers, or a pair of air-cooled backpressure heat exchangers, to cool spent steam from the two backpressure steam turbines.

The project as previously permitted would utilize advanced combined cycle technology. This technology would have delivered power output at full load in up to three hours for warm and hot starts and in up to six hours for cold starts. In comparison, the new technology can deliver 150 MW of power output within 10 minutes of unit startup and can achieve full load within 45 minutes for hot starts, 85 minutes for warm starts, and 125 minutes for cold starts (ESPR 2007a). Therefore, the new technology would allow the project to respond more rapidly to the needs of the California electricity market. Since the project is reducing its maximum MW output, the capacity of the existing transmission lines does not need to be changed.

CONCLUSIONS AND RECOMMENDATIONS

There is no impact on the original Transmission Systems Engineering project analysis or conditions of certification. The findings and conclusions incorporated in the original Commission Decision remain valid.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

No new or modified conditions of certification apply to Transmission System Engineering.

REFERENCES

ESPR (El Segundo Power Redevelopment). 2007a. Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project (00-AFC-14C). Received on June 19, 2007.