COMMISSION DECISION

Application for Certification of the

SACRAMENTO COGENERATION AUTHORITY'S PROCTER & GAMBLE COGENERATION PROJECT

Docket No. 93-AFC-2

NOVEMBER 1994

CALIFORNIA ENERGY COMMISSION

Pete Wilson, Governor

P800-94-010

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COMMISSION MEMBERS

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STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, *Governor*

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

NOTICE OF AVAILABILITY
of the
FULL COMMISSION DECISION
on the
Application for Certification
of the
PROCTER & GAMBLE COGENERATION FACILITY
(CEC Docket No. 93-AFC-2)

On November 16, 1994, the full Commission adopted the Presiding Member's Proposed Decision certifying the Procter & Gamble Cogeneration Project in accordance with the California Code of Regulations, title 20, sections 1754(a) and 1755.

Copies of the Decision may be obtained by sending a self-addressed mailing label to:

California Energy Commission
Publications Unit
1516 Ninth Street, MS-13
Sacramento, California 95814

The first copy is free. All other copies are $17.00. Make check or money order payable to the California Energy Commission. Refer to Publication No. P800-94-010.

Mailed to list 783

STATE OF CALIFORNIA

State Energy Resources
Conservation and Development Commission

In the Matter of:	)	Docket No.: 93-AFC-2
	)	
Application for Certification of	)	
the Sacramento Cogeneration Authority's	)	**COMMISSION DECISION**
Procter & Gamble Cogeneration Project	)	
	)	

The following Commission Decision in the above-captioned matter is based upon the evidentiary record of these proceedings (Docket No. 93-AFC-2) including the detailed technical environmental analysis performed by Commission staff pursuant to Title 20, California Code of Regulations sections 1742 through 1747. The Commission Decision was developed in accordance with Title 20, California Code of Regulations sections 1748 through 1755. It contains a summary of the proceedings and the evidence presented, the rationale for the Commission's findings, and identifies the Conditions imposed on the project. The Decision includes the narrative text, specific Conditions of Certification, general Conditions of Compliance, Compliance Verifications, and Appendices.

FINDINGS

The Commission hereby adopts the following findings in addition to those contained in the accompanying text:

1. The proceedings leading to this Decision were conducted in conformance with the applicable provisions of the Commission's regulations governing the consideration of an Application for Certification (Title 20, California Code of Regulations sections 1700 et seq.) and thereby meet the requirements of Public Resources Code sections 21000 et seq. and 25500 et seq.

2. The Commission Decision applies only to the Sacramento Cogeneration Authority's Procter & Gamble Cogeneration Project, including the associated electrical transmission lines.

3. The Procter & Gamble Cogeneration Project conforms with the 12-year forecast of statewide and service area electrical power demands, and the integrated assessment of need adopted by the Commission in the 1992 Electricity Report pursuant to Public Resources Code sections 25305(e) and 25308, and is therefore consistent with the requirements of Title 20, California Code of Regulations section 1752(a).

4. There are no feasible site alternatives to the project site that would accomplish the objectives of constructing and operating a cogeneration facility to generate electricity for the Sacramento Municipal Utility District and to produce process steam for the existing Procter & Gamble manufacturing facility.

5. The Procter & Gamble Cogeneration Project will use only natural gas supplied by the SMUDGAS Pipeline as combustion fuel to operate the facility. The use of any other fuel or natural gas supplier would require the project owner to file a request to amend this Certification.

6. Implementation of the Conditions of Certification and Compliance Verifications as contained in the accompanying text ensures that the Procter & Gamble Cogeneration Project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal standards, ordinances, regulations, and laws, including applicable public health and safety standards, and air and water quality standards.

7. Implementation of the Conditions of Certification and Compliance Verifications contained in the accompanying text will ensure protection of environmental quality, and reasonably safe and reliable operation of the cogeneration facility. The Conditions of Certification also ensure that the project will not cause any significant adverse environmental impacts.

8. Siting of the Procter & Gamble Cogeneration Project will conform with existing governmental land use and zoning requirements which are adequate to control population density in the project vicinity and may reasonably be expected to ensure public health and safety.

9. The Procter & Gamble Cogeneration Project will operate as a cogeneration facility in conformance with the requirements of Public Resources Code section 25134.

ORDER

Therefore, the Commission **ORDERS** the following:

1. The Application for Certification for the Sacramento Cogeneration Authority's Procter & Gamble Cogeneration Project described in this Decision is hereby APPROVED.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications identified in the accompanying text and Appendices, including operation within the statutory definition of "cogeneration" as set forth in Public Resources Code section 25134. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While the project owner may delegate the performance of a Condition or Verification, the duty to ensure adequate performance thereof may not be delegated.

3. For purposes of reconsideration pursuant to Public Resources Code section 25530, this Decision is deemed adopted when filed with the Energy Commission's Docket Unit.

4. For purposes of judicial review pursuant to Public Resources Code section 25531, this Decision is final thirty (30) days after being filed with the Docket Unit providing that no petition for reconsideration has been filed; if a petition for reconsideration is filed within the thirty-day reconsideration period, the Decision is final upon the adoption and filing of a Commission Order ruling on the reconsideration.

5. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code sections 21081.6 and 25532.

6. The Executive Director of the Commission shall transmit a copy of this Decision and appropriate accompanying documents as provided by Public Resources Code section 25537 and Title 20, California Code of Regulations section 1768.

Dated: 11/16/94

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

CHARLES R. IMBRECHT
Chairman

SALLY RAKOW
Vice Chair

RICHARD A. BILAS, Ph.D.
Commissioner

JANANNE SHARPLESS
Commissioner and Presiding Committee Member

WARREN D. NOTEWARE, P.E.
Commissioner and Committee Member

I. INTRODUCTION

The following Energy Commission Decision approves the Application for Certification of the Sacramento Cogeneration Authority's (SCA) Procter & Gamble Cogeneration Project. The cogeneration project consists of a 171 megawatt (MW) natural gas-fired combined cycle powerplant that will generate electricity for the Sacramento Municipal Utility District (SMUD) and provide process steam to the existing Procter & Gamble manufacturing facility in the City of Sacramento.

Under the Warren-Alquist Act, the Energy Commission (Commission) has jurisdiction over the siting of powerplants that generate 50 megawatts or more in the State of California. (Public Resources Code sections 25000 et seq.) The Commission provides one-stop licensing to powerplant proponents in order to streamline the process of reviewing the engineering and environmental aspects of a proposed powerplant project. (Public Resources Code sections 25500 et seq.)

The Commission staff performs an independent analysis of the project similar in scope to an Environmental Impact Report required to license project developments under the California Environmental Quality Act (CEQA; Public Resources Code sections 21000 et seq.) By law, the Energy Commission's licensing process is the functional equivalent of the CEQA process. The Commission staff is required to conduct its engineering and environmental analyses in accordance with the CEQA Guidelines, i.e., Title 14, California Code of Regulations sections 15000 et seq.

The Commission Decision is based on the evidence of record which includes the Application for Certification, the Commission staff's Final Staff Assessment, the written and oral testimony, and the documentary evidence presented by the Applicant, Staff, and the Sacramento Metropolitan Air Quality Management District.

In addition, several other governmental agencies provided guidance and information regarding the areas of concern in which they have special expertise, including but not limited to, the City of Sacramento Planning Department, the Central Valley Regional Water Control Board, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the California Air Resources Board, and the federal and state Occupational Safety and Health Administrations.

All workshops and hearings in this proceeding were publicly noticed as required by law and members of the public were welcome to participate, present comments, and intervene as parties in the matter. Other than the comments submitted by the interested agencies, there were no written or oral public comments received in the record during the proceedings.

If unmitigated, the Procter & Gamble Cogeneration Project has the potential to cause adverse impacts to the environment. However, the Commission Decision requires the project owner to implement certain mitigation measures which are specified in the Conditions of Certification to ensure that the project is constructed and operated in a manner consistent with all applicable laws, ordinances, regulations, and standards which will reduce any potential adverse impacts to levels of insignificance.

The Procter & Gamble Cogeneration Project will be located in a highly industrialized area in the southeastern area of Sacramento. The Commission Decision requires the project owner to operate the project as a cogeneration facility. Several contracts between SCA (the project owner), SMUD, and the Procter & Gamble Company establish the relationships between these entities whereby electricity produced by SCA will be supplied to SMUD and steam produced by SCA will be supplied to Procter & Gamble. The site location adjacent to the existing Procter & Gamble facility was chosen specifically to accomplish the objectives of the cogeneration project.

The Procter & Gamble Cogeneration Project is one of four new cogeneration projects sponsored by SMUD in the Sacramento area to provide needed electrical power. The other cogeneration projects include the Sacramento Power Authority at Campbell Project (Campbell); the Carson Ice-Gen Cogeneration Project (Carson); and the Sacramento Ethanol and Power Cogeneration Project (SEPCO). In addition, the Commission has certified a new natural gas pipeline project sponsored by SMUD (SMUDGAS) that will provide natural gas to the Procter, Campbell, and SEPCO projects.

In its environmental analysis of the Procter project, the Commission staff conducted a review of the potential cumulative impacts of all the SMUD-related projects. The evidence indicated that the Procter project will not cause or contribute to any potential cumulative impacts associated with construction and operation of the SMUD projects.

The development of SMUD's four local cogeneration projects will accomplish several salutary objectives for the Sacramento area. The projects are among the least expensive resource options in terms of direct costs, including infrastructure requirements; the projects will be financed by tax-exempt bonds to protect SMUD's ratepayers from added costs; the projects will employ the best available air emissions control technologies and acquire air emissions offsets to prevent impacts on air quality; and the projects will stimulate the local economy and expand the sales tax revenue base by providing new employment opportunities for area residents and by the procurement of materials and supplies from local vendors.

In processing the Application for Certification in this case, the Energy Commission worked cooperatively with SMUD to develop the most feasible cogeneration project that would achieve the project's goals while maintaining appropriate safeguards to protect the environment and public health and safety. The expeditious resolution of the matters associated with the Application reflects the expertise of Commission staff and the willingness of the agency to work

with the developer to meet its objectives without undermining or weakening the licensing requirements.

The Commission Decision summarizes the evidence submitted in the proceeding and makes findings and conclusions on that evidence. The format of the Decision reflects the topics that must be addressed by law. The Decision discusses the project's potential impacts, the analyses that were conducted, the mitigation measures that will be necessary, and the basis for the Commission's findings and conclusions. The Conditions of Certification, which incorporate the mitigation measures required for each topic of concern, are found at the end of each section of the Decision.

* * *

NOTE: Throughout the Decision, the Exhibits are identified as Ex. at [page number]; and the Reporter's Transcript of testimony during Evidentiary Hearings is identified as [Date] Reporter's Transcript [RT] [Page: Line].

II. PROJECT DESCRIPTION AND OBJECTIVES

Sacramento Cogeneration Authority proposes to construct and operate the Procter & Gamble Cogeneration Project adjacent to the existing Procter & Gamble manufacturing complex in the City of Sacramento. The proposed cogeneration project consists of a natural gas-fired combustion turbine powerplant with a nominal gross generating capacity of 171 megawatts (MW). The cogeneration project will provide process steam to Procter & Gamble while simultaneously producing electricity for the Sacramento Municipal Utility District (SMUD). The project also includes a 1.3 mile transmission/fiber optic line to SMUD's existing transmission system.

A. Project Description

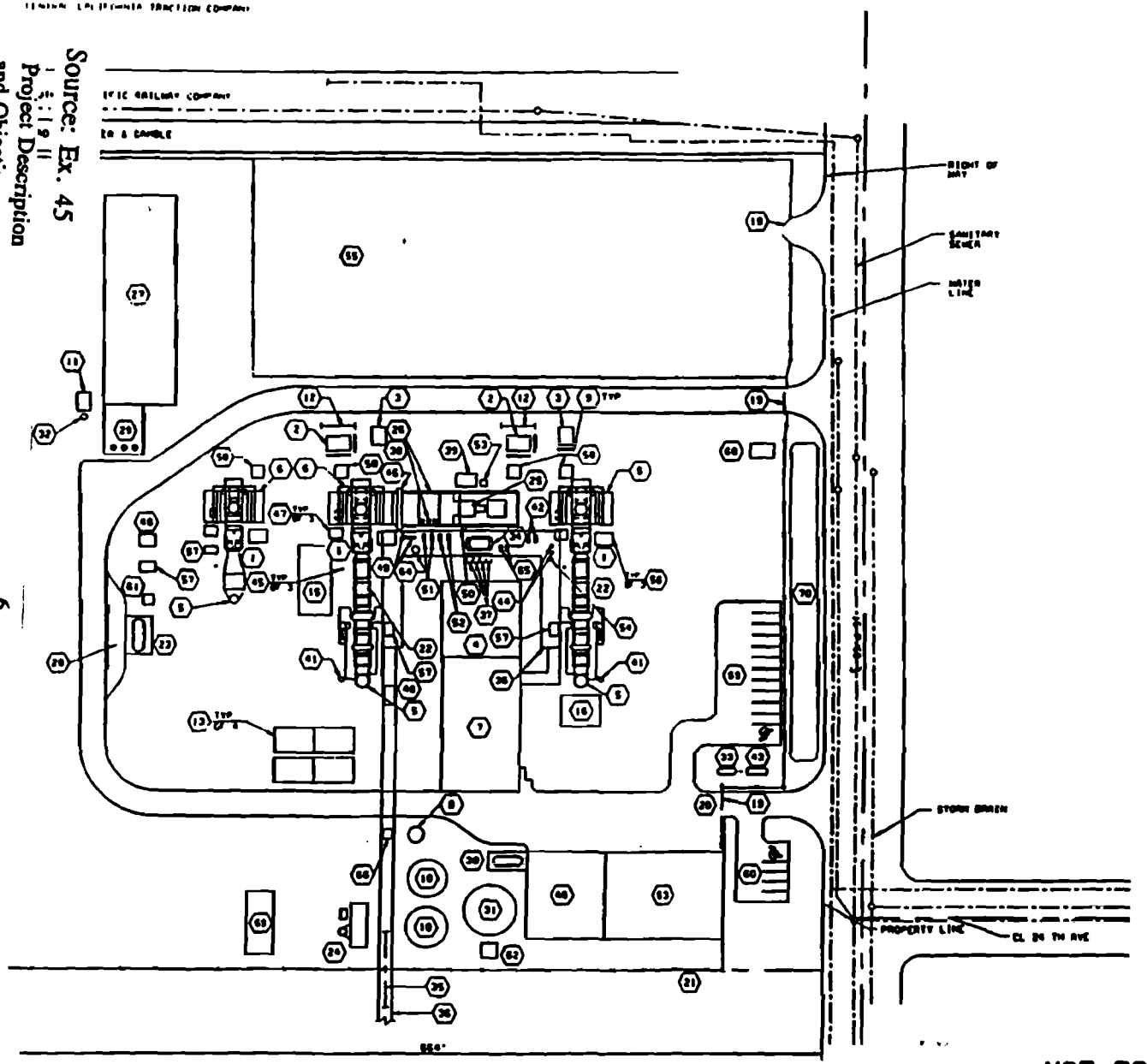
1. Features

The Procter & Gamble Cogeneration Project consists of the following major power blocks, totaling 171 MW gross (nominal) capacity:

- Combined cycle power block configured with two 45 MW (nominal) General Electric (GE) LM6000 natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG) with natural gas-fired duct burners, and one 45 MW (nominal) steam turbine generator; and

- One simple cycle, natural gas-fired GE LM6000 CTG rated at 42 MW (nominal).

The project also includes four fuel gas compressors, an auxiliary boiler, and a cooling tower. Buildings on the project site will include a plant control and administration building, storage tanks, switchyard, a water treatment building, warehouse/machine shop, a chiller building, and a water chemical feed building. (Ex. 45 and 46; Ex. 1: Testimony of John Larsen at pp. 2-3; Ex. 2 at pp. 3.1 et seq.) See FIGURES 1, 2, 3, and 4 for schematics of the site arrangement, and power and steam generation systems.



1. COMBUSTION TURBINE (3)
2. GENERATOR TRANSFORMER (2)
3. AUXILIARY TRANSFORMER (2)
4. CHILLER BUILDING
5. STACK (3)
6. INLET FILTER (3)
7. CONTROL/ADMIN BUILDING
8. CONDENSATE STORAGE TANK
9. TRANSFORMER FIREWALL (8)
10. DEMINERALIZED WATER STORAGE TANK (2)
11. CIRC WATER CHEMICAL FEED
12. COMBINATION TAKEOFF TOWER AND DISCONNECT SWITCH (2)
13. GAS COMPRESSORS (4)
14. NOT USED
15. SIMPLE CYCLE CHILLER BUILDING
16. CYCLE CHEMICAL FEED
17. NOT USED
18. NOT USED
19. GATE (3)
20. PAVED SITE ACCESS ROAD
21. SITE FENCE
22. HEAT RECOVERY STEAM GENERATOR (2)
23. AMMONIA STORAGE TANK
24. AUXILIARY BOILER
25. STEAM TURBINE
26. CONDENSER
27. COOLING TOWER
28. AMMONIA UNLOADING AREA
29. CIRCULATING WATER PUMP STRUCTURE
30. ACID STORAGE TANK (1)
31. NEUTRALIZATION TANK
32. SODIUM HYPOCHLORITE TANK
33. OIL/WATER SEPARATOR
34. GENERATOR
35. STEAM LINE TO PROCTER & GAMBLE
36. PIPE RACK
37. BOILER FEED PUMPS (4)
38. CONDENSATE PUMPS (3)
39. TURBINE LUBE OIL UNIT
40. WATER TREATMENT BUILDING
41. BOILER BLOWDOWN TANK (2)
42. AIR COMPRESSORS (2)
43. SANITARY DISCHARGE FLOWMETER AND SAMPLE STATION
44. DESICCANT AIR DRYERS (2)
45. INLET GAS SCRUBBERS (3)
46. GT MAINTENANCE CRANE
47. NOX WATER INJECTION SKID (3)
48. CT WASH SKID (2)
49. AUX COOLING WATER HEAT EXCHANGERS (2)
50. CONDENSER AIR EJECTOR
51. CLOSED CYCLE COOLING WATER PUMPS (2)
52. CONDENSER VACUUM PUMPS (2)
53. LUBE OIL CONDITIONER
54. AIR RECEIVER
55. OWNER'S SUBSTATION
56. AUXILIARY SKID (3)
57. AMMONIA FLOW CONTROL SKID (3)
58. GENERATOR BREAKER ENCLOSURE (4)
59. GAS METER STATION
60. VISITOR PARKING
61. AMMONIA TRANSFER PUMPS
62. NEUTRALIZATION TANK PUMPS
63. WAREHOUSE AND MAINTENANCE SHOP BUILDING
64. CLOSED COOLING WATER HEAD TANK
65. AUX BOILER FEED PUMPS (2)
66. CONDENSATE MAKEUP PUMPS
67. SIMPLE CYCLE CT LUBE OIL COOLER
68. SECONDARY POWER SUPPLY TRANSFORMER
69. EMPLOYEE PARKING
70. SITE STORMWATER RETENTION BASIN

FIGURE 1
Site Arrangement

NO	DATE	REVISIONS AND RECORD OF ISSUE
D	4-6-94	RELOCATED SECONDARY POWER TRANSFORMER
C	3-22-94	GENERAL REVISIONS FOR AFC
B	9-9-93	ISSUED FOR PRELIMINARY AFC REVIEW
A	9-3-93	ISSUED FOR PRELIMINARY AFC REVIEW

BLACK & VEATCH

SACRAMENTO COGENERATION AUTHORITY
PROCTER & GAMBLE COGENERATION PROJECT

SITE ARRANGEMENT

PROJECT 23933-CSTU-S1010

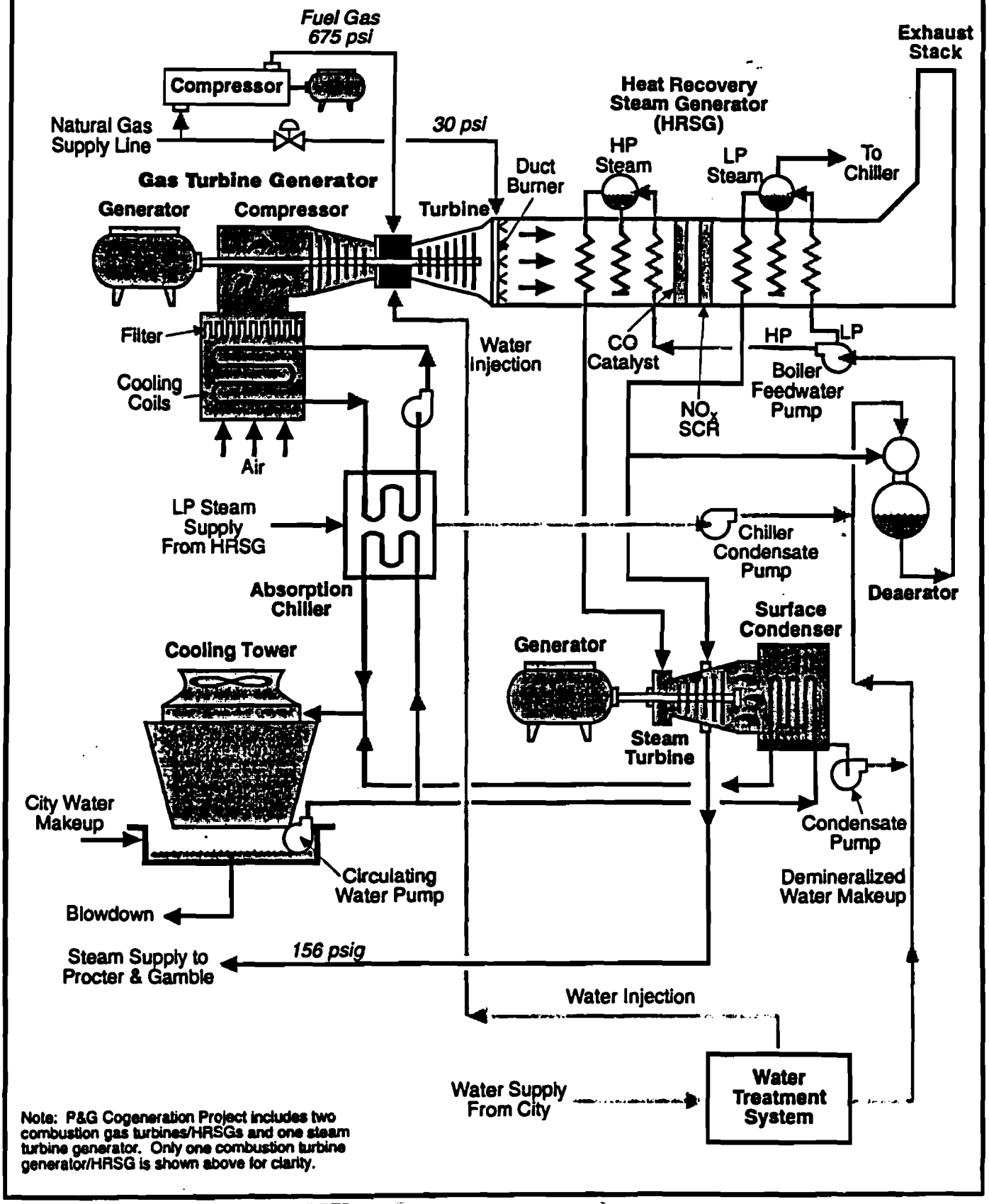
FIGURE 3.3

Source: Ex. 45
Project Description and Objectives

November 1994

FIGURE 2

PROCTER & GAMBLE COGENERATION PROJECT
Power and Steam Generation System



Note: P&G Cogeneration Project includes two combustion gas turbines/HRSGs and one steam turbine generator. Only one combustion turbine generator/HRSG is shown above for clarity.

Source: Application for Certification (Ex. 2, p. PROJECT DESCRIPTION AND ENGINEERING - 3-1.)

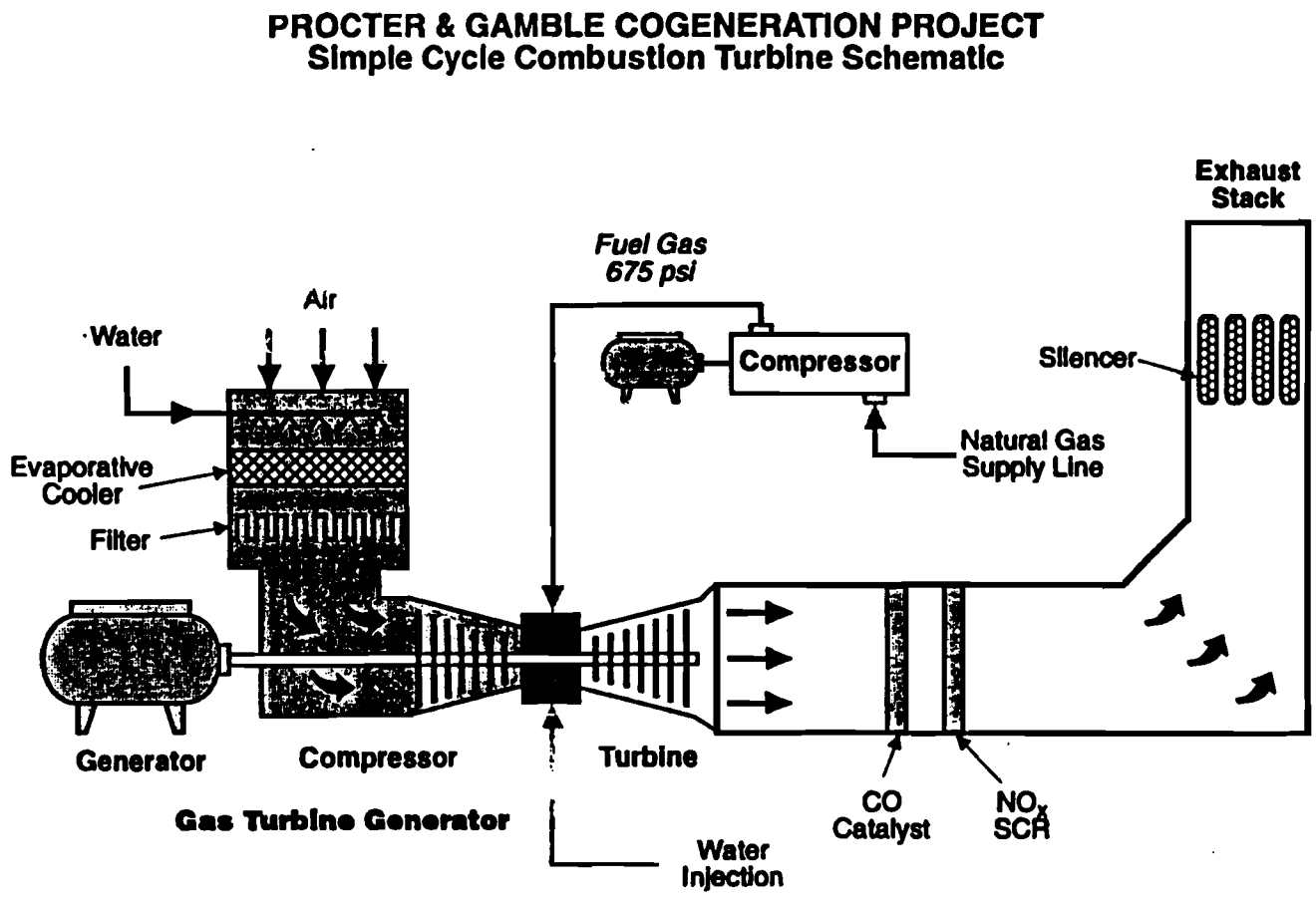
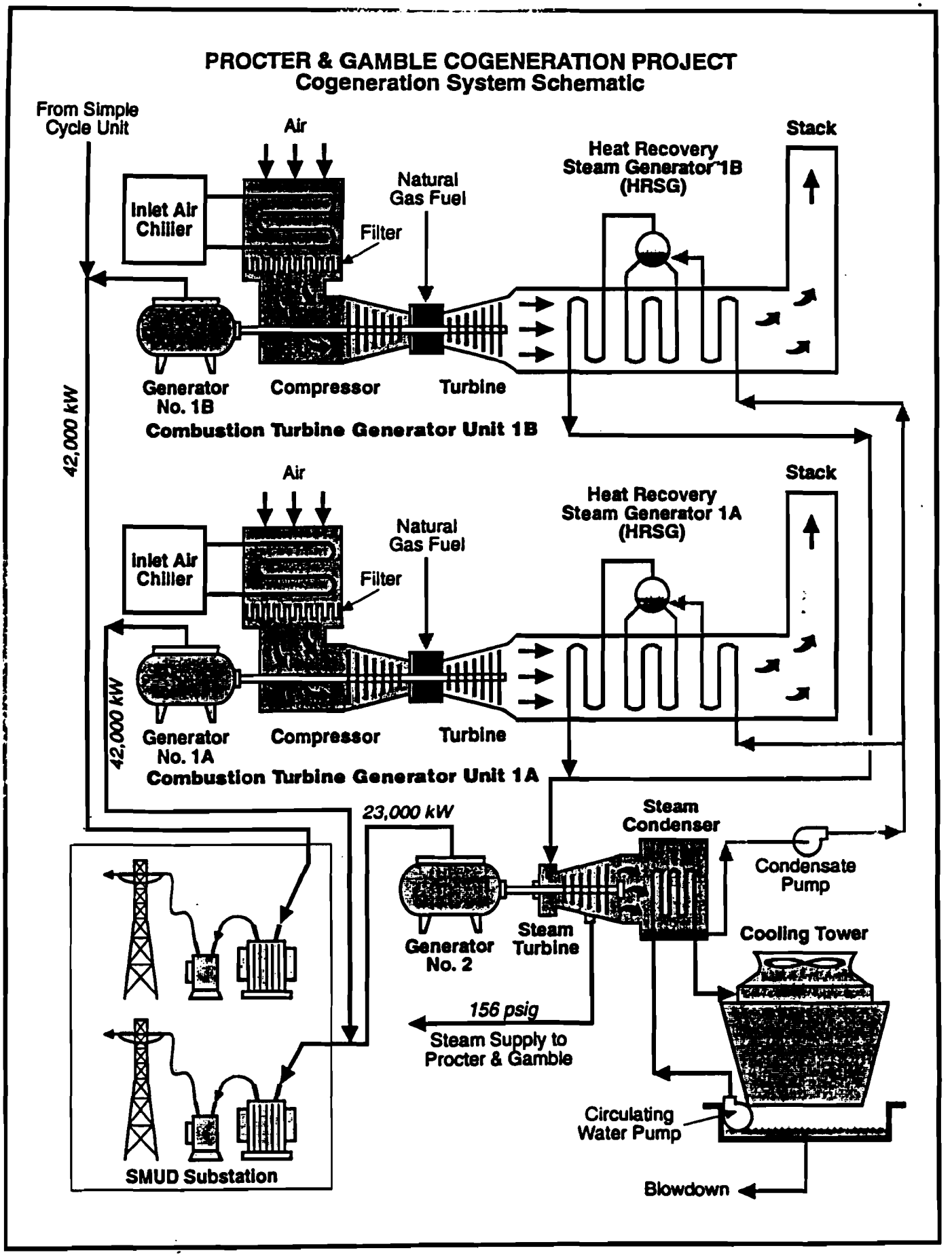


FIGURE 3

SIMPLE CYCLE COMBUSTION TURBINE

Source: Ex. 2, p. PROJECT DESCRIPTION - 3-1.



Source: Ex. 2, p. PROJECT DESCRIPTION - 3-1.

COGENERATION PROCESS

The project will be fueled by natural gas supplied by SMUD's new 64-mile gas pipeline system scheduled to be connected to the Procter & Gamble site by August, 1996. (Ex. 2 at p. 3-1; 7/19/94 RT 20.)[1] Natural gas is the only fuel used by the project; there is no fuel oil or any other backup fuel. (7/19/94 RT 15:8-10.)

Air emissions reduction equipment will be installed to reduce nitrogen oxide (NO_x) emissions from fuel combustion. The CTGs are equipped with water injection and selective catalytic reduction (SCR) systems. The CTGs will also use oxidation catalysts to reduce volatile organic compounds (VOC) and carbon monoxide (CO) emissions. Low No_x burners will be included in the duct burners. (Ex. A at p. 9; Ex. 1: Larsen at p. 3.)

NO_x emissions from the auxiliary boiler will be controlled to nine parts per million (9 ppm) at 3 percent oxygen using SCR for boiler loads at or above 25 percent. (Ex. A at p. 9; Ex. B at p. 1.) Low NO_x burners and flue gas recirculation will also be used. (Ex. A at p. 9.) Sulfur dioxide (SO_2) and particulate matter (PM_{10}) will be controlled through inlet air filtering, combustion control and inherent fuel quality. *(Ibid.)* Additional air emission control strategy includes Emission Reduction Credits as discussed in the Air Quality Section of this Decision.

Water will be supplied by the City of Sacramento. The project's water treatment equipment will be used to demineralize and decontaminate water fed into the project's circulating water system. (Ex. 2 at pp. 30-31.)

Wastewater from the project includes blowdown from the circulating water system and the HRSGs, area washdown, sanitary waters, and neutralized chemical wastes. The sanitary wastewaters will be discharged into the County of Sacramento's sewer system. Storm water

[1] For purposes of this Decision, there is no alternative gas supply contemplated for the project in the event the SMUD gas pipeline is not available at the time of project start-up. (7/19/94 RT 20.) If it is necessary for the project owner to obtain natural gas from other sources, the project owner must file a request to amend the project's certification.

runoff and remaining wastewater will be discharged to Morrison Creek. (Ex. A at p. 12; Ex. B at p. 1.)

2. Location

The project will be built on a 10-acre site adjacent to the existing Procter & Gamble manufacturing facility near the intersection of Power Inn and Fruitridge Roads in a highly industrialized area of the City of Sacramento. The Central California Traction Company rail line borders the site on the north, and 83rd Street borders on the east. Power Inn Road is approximately 0.4 mile to the west, and Fruitridge Road is approximately 0.35 mile to the south. The site is approximately 5 miles east of the Sacramento Executive Airport and 6 miles southeast of downtown Sacramento. (Ex. A at p. 6; Ex. 2 at pp. 3-9.) See FIGURES 5 and 6.

3. Project Schedule and Cost

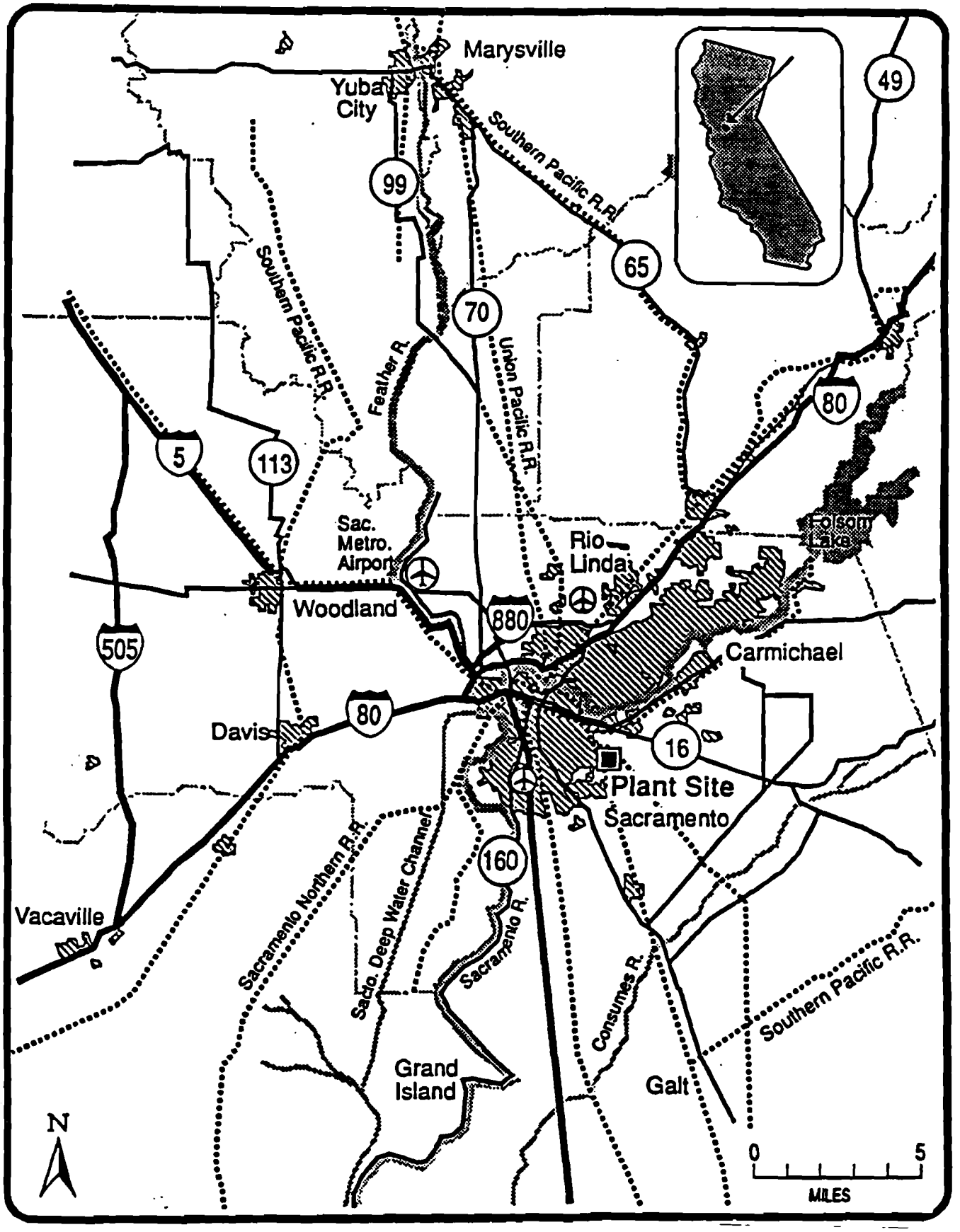
The anticipated construction start-up date is February, 1995 and the anticipated commercial operation start-up date is February, 1997. (7/19/94 RT 18; Ex. A at p. 6.) The capital cost of the project is estimated at $190 million. (Ex. A at p. 6.)

4. Process Steam Production

During combined cycle power block operation, process steam to Procter & Gamble will be extracted from the steam turbine generator. Procter & Gamble's process steam demand is estimated at 65,000 pounds per hour on a 24-hour-a-day basis during 85 percent of the year, with a peak demand at 80,000 pounds per hour. The steam extraction process is designed to produce a maximum steam supply of 120,000 pounds per hour. (Ex. 2 at pp. 3-9.) When the combined cycle power block is not operating, process steam will be supplied by the auxiliary boiler which can produce 80,000 pounds of steam per hour. *(Ibid.;* 7/19/94 RT 14.)

PROCTER & GAMBLE COGENERATION PROJECT

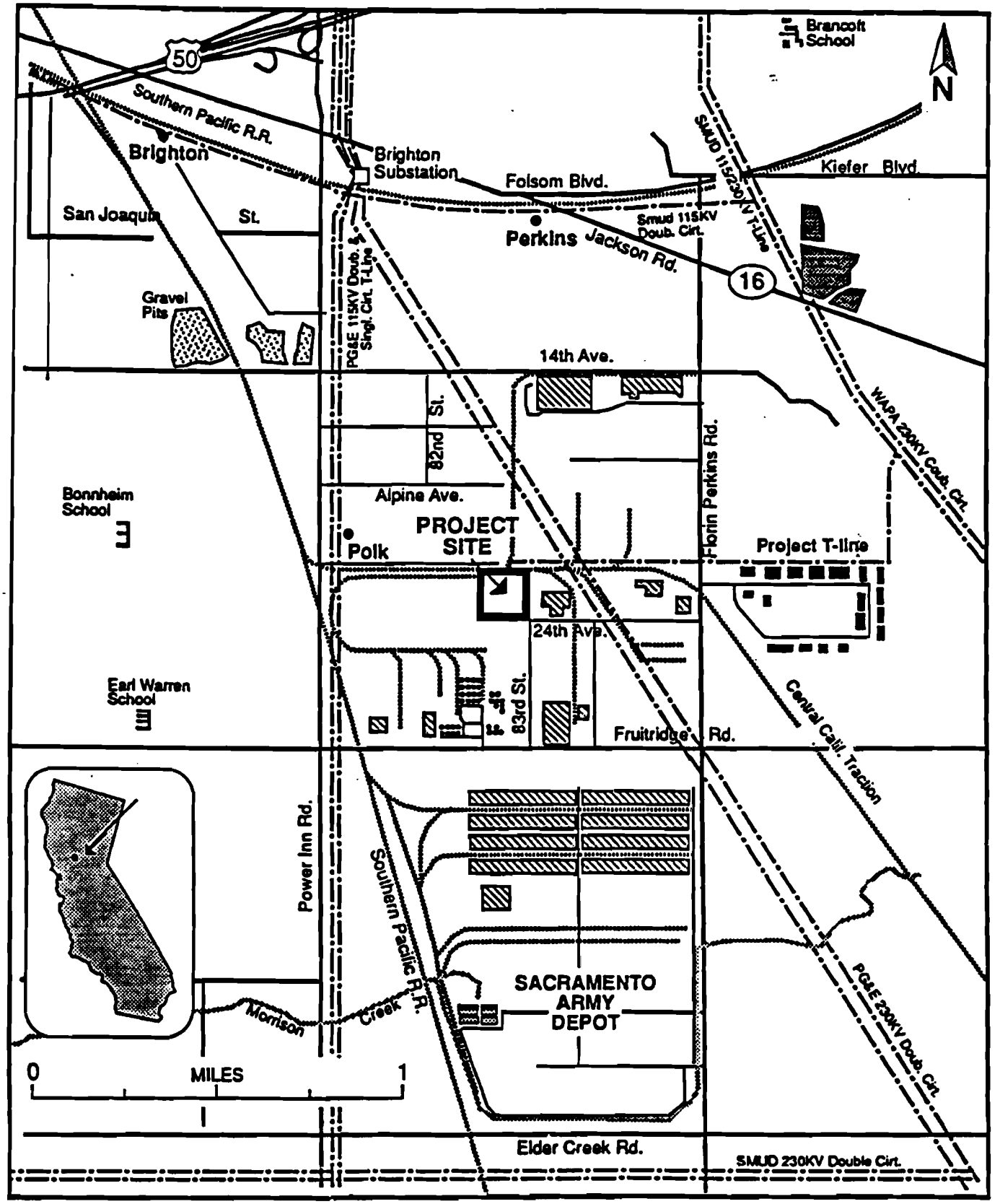
REGIONAL SETTING



Source: Final Staff Assessment (Ex. A, p. PROJECT DESCRIPTION - 6.

FIGURE 6

Procter & Gamble Cogeneration Project
Local Setting



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from USGS Sacramento East, Ca. 7.5 Minute. Photorevised 1980.

Source: Ex. A, p. PROJECT DESCRIPTION - 8.

5. Electric Transmission System

The project will have an overall availability of 90 percent or more and may produce electricity up to 8,760 hours per year. SMUD's electric load conditions change during the year and will require various combinations of operating the combined cycle power block and the simple cycle CTG. (Ex. 2 at pp. 3-9.)

The project will be interconnected with SMUD's existing transmission system by looping into the Hedge to Hurley 230 kV transmission line which runs southeast to northwest approximately 1.3 miles from the site. (Ex. A at p. 10.) The route for loop-in goes north from the site before turning east to intersect with the Hedge to Hurley line. *(Ibid.;* Ex. 47.) See FIGURE 7. The project will also interconnect with SMUD's existing 12 kV distribution system to provide a secondary power source in the event that the 230 kV system is not available. (Ex. A at p. 10; Ex. 1: Larsen at p. 3-4.)

A fiber optic cable will be installed on the new transmission poles between the site and the loop-in with the Hedge to Hurley line. The fiber optic cable will be used for system protection and communication. (Ex. 2 at p. 10.)

A new 230 kV switchyard will be built on the northern portion of the site. (7/19/94 RT 14-17.) The switchyard will consist of a "ring" bus with two transformer positions and two-line positions, an arrangement that will provide two generation outlets to the SMUD system. (Ex. A at p. 10.)

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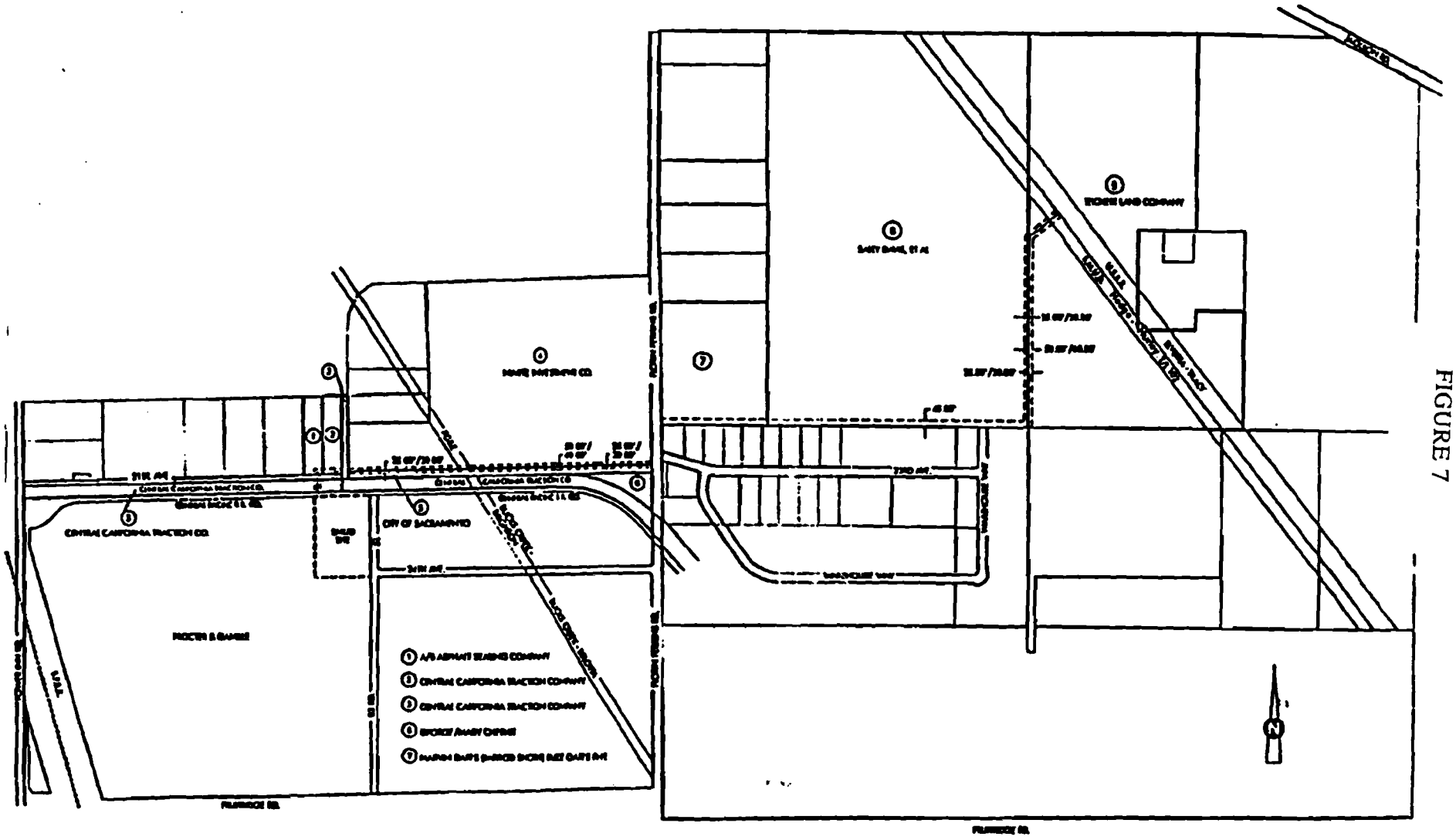
Source: Ex. A, p. PROJECT DESCRIPTION - 11.)

FIGURE 7

Proposed Transmission Line



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from Land Use Data Response LU-2 '93-APC-2.

FIGURE 7

6. Project Objectives

Project objectives include the construction and operation of a cogeneration facility to provide needed generating capacity for SMUD as well as process steam for Procter & Gamble. The project also provides diversification and power to SMUD at a reasonable cost from a reliable and efficient facility. Further objectives include the location of a generating facility near SMUD's high load center in Sacramento, the creation of new employment in the area, sales tax revenue and socioeconomic benefits for the City and County of Sacramento. (7/19/94 RT 17-8; Ex. 2 at p. 2-1.)

B. Project Ownership

Sacramento Cogeneration Authority (SCA) is the project owner of the proposed Procter & Gamble Cogeneration Project. (Ex. 1: Testimony of Colin Taylor at pp. 6 et seq.; 7/19/94 RT 123 et seq.) SCA was formed under a Joint Powers Agreement[2] (JPA) between the Sacramento Municipal Utility District (SMUD) and a Joint Powers Authority known as the Sacramento Municipal Utility District Financing Authority (SMUDFA). *(Ibid.*; Ex. 53.)

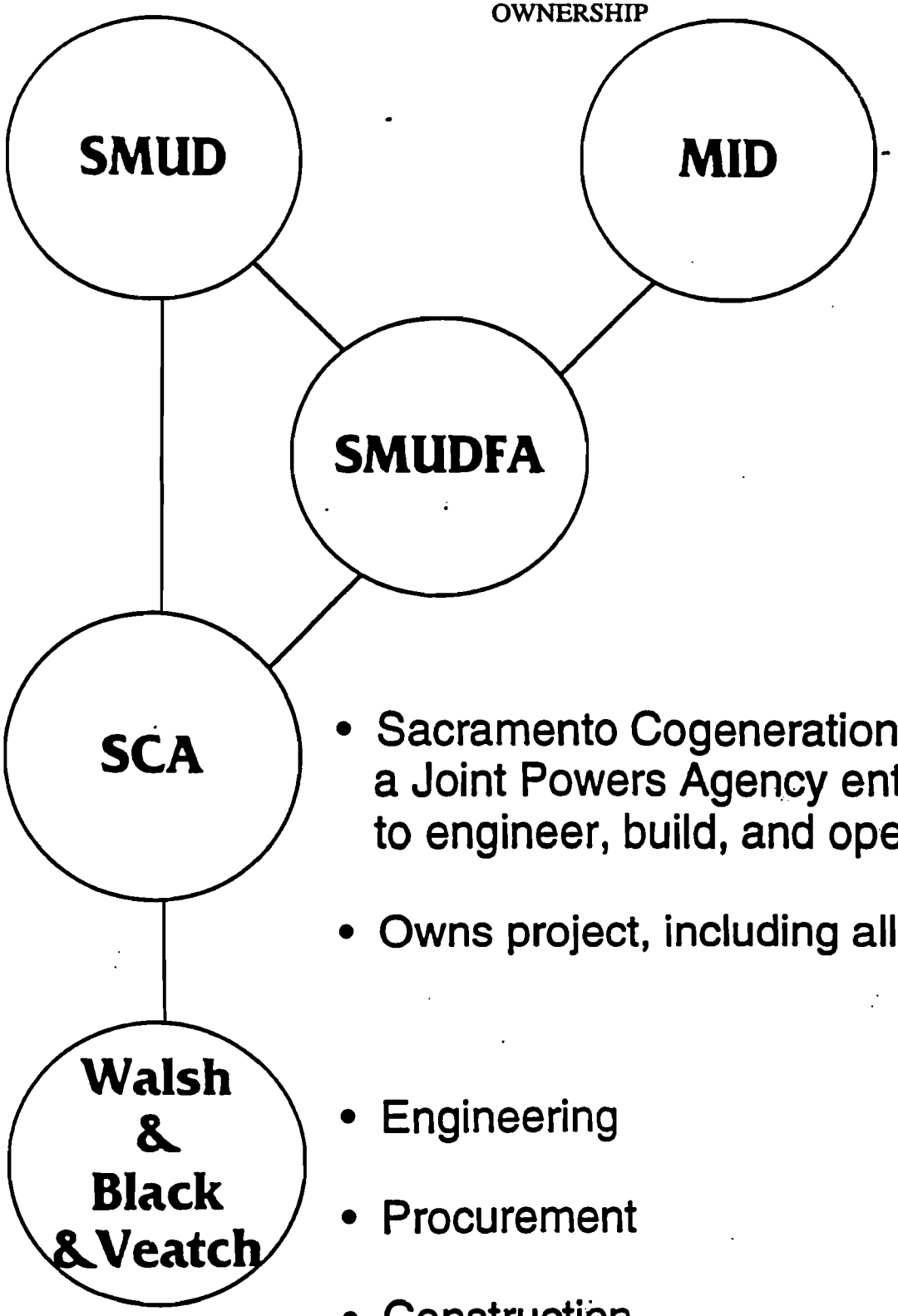
SMUDFA consists of SMUD and the Modesto Irrigation District (MID). *(Ibid.)* SMUD and MID are partners in several generation and transmission ventures and regularly cooperate for the mutual benefit of their ratepayers. (Ex. 1: Taylor at p. 7.) In this case, SMUD has assumed all responsibility for payments and duties of SCA under the JPA between SMUD and SMUDFA. *(Ibid.)* These relationships are shown in FIGURE 8.

SMUD'S purpose in creating the "single purpose" entity known as SCA was to finance the proposed project with tax-exempt project revenue bonds without recourse to SMUD's ratepayers. (Ex. 1: Taylor p. 6; 7/19/94 RT 123-124 [Testimony of Taylor]; 7/20/94 RT 51-52; 62-64 [Testimony of Scott Blaising].) The obligations of SCA do not extend to other entities except by contract. (7/20/94 RT 62.) Accordingly, the single purpose entity serves two purposes by protecting ratepayers from increased costs in the event of project failure and by shielding investors from increased debt coverage in the event that other SMUD projects fail. *(Ibid.)* Non-recourse financing is used extensively to fund development of gas-fired projects. (7/20/94 RT 62-66.)

[2] Government Code section 6500 et seq., governs the creation and administration of Joint Powers Agreements. The statute allows two or more public agencies to enter an agreement to jointly exercise any powers common to them and to delegate those powers to a separate joint agency responsible for administration of the agreement. (Govt. Code, §§ 6502-6503.5, 6507 et seq.) The administrator of the joint agency may be one of the parties to the agreement. (Govt. Code, § 6506.) The parties may contribute funds, personnel, equipment and property. (Govt. Code, § 6504.) A joint agency established to construct a facility for the generation or transmission of electrical energy may issue revenue bonds to finance the project. (Govt. Code, §§ 6546(e), 6547.)

FIGURE 8

OWNERSHIP



- Sacramento Cogeneration Authority, a Joint Powers Agency entity funded to engineer, build, and operate the project
- Owns project, including all permits

- Engineering
- Procurement
- Construction
- Start - Up

P&G CEC
12/14/93

Source: Ex. 1: Attachment to Testimony of Colin Taylor

SCA is governed by a commission consisting of the five members of the SMUD Board of Directors. SCA is responsible for obtaining financing and securing power sales and interconnection agreements, supplying fuel to the powerplant, acquiring the site, arranging contracts for permitting, building and starting up the powerplant, negotiating all thermal sales, operation and maintenance agreements, and obtaining all appropriate permits for the project in its name. SCA utilizes SMUD staff to perform its obligations. (Ex. 1: Taylor at p. 7.)

The other key participants in the powerplant project include Black & Veatch, engineering and environmental consultants; Walsh Construction Company which will construct the facility; and Stewart & Stevenson Operators, Inc. which will operate and maintain the facility. (7/19/94 RT 123, 125.) Procter & Gamble will sell the 10-acre site for the project to SMUD and serve as the thermal host by purchasing steam from the facility. (7/19/94 RT 124-5, 134-5.) The relationships and agreements among these entities are shown in FIGURES 9 and 10.

The several contracts and agreements between SCA, SMUD, and Procter & Gamble help to shed light on the rather complex arrangements among the three entities. An Interim Power Purchase Agreement (IPPA) between SMUD and Procter & Gamble was the first in a series of these agreements. The IPPA provides that SMUD will purchase electricity at a premium price from Procter & Gamble's existing LM2500 cogenerator[3] during the course of the certification process in exchange for Procter & Gamble's Agreement to be the thermal host. (7/20/94 RT 47-8, 56-7.) Additional consideration to Procter & Gamble includes SMUD's agreement to purchase and decommission the LM2500 when the proposed project begins commercial operation. *(Ibid.*; Ex. 50 at p. 2.)

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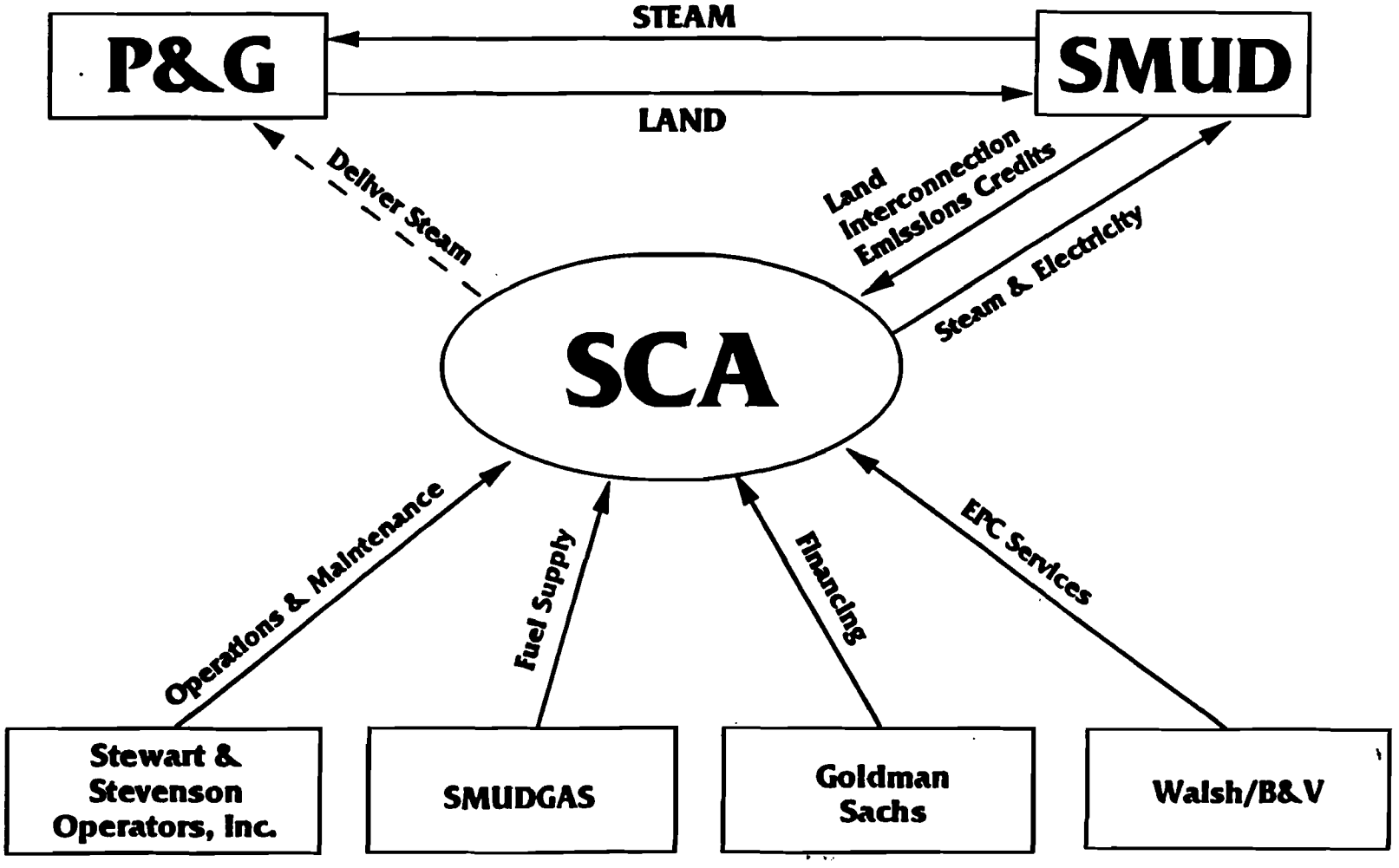
[3] Procter & Gamble had a Standard Offer 2 Agreement with Pacific Gas & Electric Company (PG&E) that expired in 1993 for the sale of capacity and energy from Procter & Gamble's existing LM2500 generator. SMUD agreed to assume the power purchase obligation at the same premium price during the interim period until project start-up. (7/20/94 RT 47-8.) The LM2500 produces approximately 20 MW of electricity. (7/20/94 RT 56.)

FIGURE 9

Procter & Gamble Project Agreements



Source: Ex. 1: Attachment to Testimony of Colin Taylor

Procter & Gamble Cogeneration Project

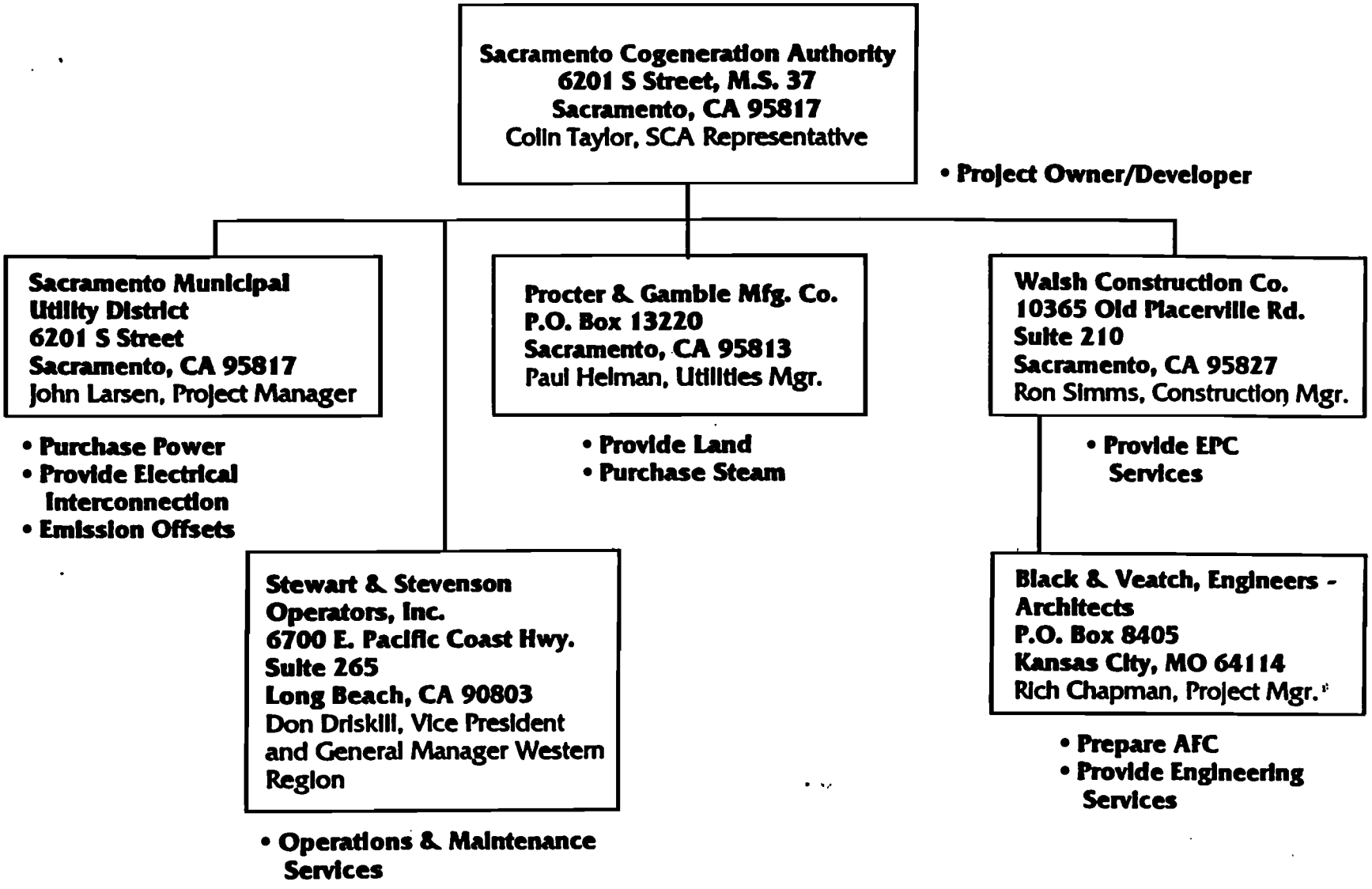


FIGURE 10

Source: Ex. 1: Attachment to Testimony of Colin Taylor

The Steam Sales Agreement (SSA) between SMUD and Procter & Gamble provides that SMUD will supply all of Procter & Gamble's steam and electricity needs for a period of 25 years. (Ex. 50 at pp. 5-6; 7/19/94 RT 124-5.) The draft Steam Services Agreement between SMUD and SCA assigns all the rights and obligations of SMUD under the SSA to SCA. (Ex. 52; 7/20/94 RT pp. 50-51.)

The SSA sets forth the essential agreements between SMUD and Procter & Gamble. The terms of termination are of concern to the Commission should Procter & Gamble elect to terminate its role as thermal host. In the event of termination prior to project start-up, Procter & Gamble must provide thirty days written notice from its corporate headquarters that it intends to close the Chemical Division of its Sacramento plant and pay a sum to SMUD based on a formula using $2 million as the base amount. (Ex. 50 at p. 19.)

During the first ten-year period after start-up, the SSA requires Procter & Gamble to provide 18 months written notice of termination from corporate headquarters and to provide payment to SMUD based on a formula using $5 million as the base amount. (Ex. 50 at p. 20.) The payment is sized to accommodate the loss of steam sales revenue. (7/19/94 RT 129.) After the first ten-year period, Procter & Gamble need only comply with the notice requirements. (Ex. 50 at p. 20.)

During Evidentiary Hearings, much testimony was devoted to contingency plans in the event of termination by Procter & Gamble. SMUD's witnesses admitted that from a strictly financial perspective it is more lucrative to transform steam into electrical energy, i.e., the revenue from lost steam sales translates into greater electrical revenue.[4] (7/20/94 RT 58-60.) Nevertheless, the project is bound to operate in a cogeneration mode since SMUD's Board of Directors has adopted a policy to promote and operate cogeneration projects whenever feasible. (7/20/94 RT

[4] The annual value of steam sales to Procter & Gamble is $5 per 1,000 lbs. which amounts to approximately $3 million a year. The value of electricity sales from SCA to SMUD is estimated at $24 million per year for capacity or roughly eight times the value of steam sales and an additional $40 million for electricity. (7/19/94 RT 144-5; 7/20/94 RT 55.)

59, 62, 66). SMUD is committed to developing 600 MW of local cogeneration to provide operating flexibility and contribute to economic development in the Sacramento area. (Ex. 1: Taylor at pp. 2-3.)

SMUD's cursory review of the immediate area near the project site has shown there are two companies nearby with very small steam requirements. (7/19/94 RT 168 [Testimony of John Larsen].) However, SMUD staff believes that after the powerplant is built and if Procter & Gamble terminates the SSA, it is highly likely that another enterprise will be found to purchase the existing Procter & Gamble facility and to serve as a steam host for the cogeneration project. (7/20/94 RT 59.) In any event, the Commission has expressly conditioned operation of the proposed project as a cogenerator under the terms of the present certification. Should the Applicant wish to alter this status in the future, it must then seek a modification or amendment of its license.

Two other agreements between SMUD and Procter & Gamble include the Land Purchase Agreement by which SMUD secures an option to purchase the 10-acre site from Procter & Gamble and the Gas Turbine Purchase Agreement by which SMUD agrees to purchase the LM2500 cogenerator from Procter & Gamble. (Ex. 50 at p. 2; 7/20/94 RT 48.)

Several prospective agreements are also crucial to the cogeneration project. Under the draft Power Purchase and Operating Agreement (Ex. 51), SMUD agrees to purchase capacity and energy generated by the project and SCA agrees to deliver that power to SMUD. (7/20/94 RT 48.) Under the Contribution Agreement, SCA acts as a surety for certain obligations of SMUD with respect to Walsh Construction. (*Id.* at 49.) The Interconnection Agreement commits SMUD to build the transmission facilities and to interconnect the project to SMUD's electric system. (*Id.* at 49-50.) Under the Fuel Supply and Transportation Agreement, SMUD will supply natural gas to the project. (*Id.* at 50.) Under the Asset Contribution Agreement, SMUD agrees to convey to SCA certain assets, primarily land, emission reduction credits, and labor contributions in exchange for certain reimbursement obligations required of SCA. (*Ibid.*) None

of these agreements have been executed yet because they are primarily financing agreements subject to modification through negotiations with the underwriter. (*Id.* at 53.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. Sacramento Cogeneration Authority (SCA) is the project owner.

2. SCA, a Joint Powers Authority consisting of SMUD and SMUDFA, was established pursuant to Government Code section 6500 et seq.

3. SCA is a single purpose entity created to finance the cogeneration project without recourse to SMUD's ratepayers.

4. The Steam Sales Agreement between SMUD and Procter & Gamble establishes the relationship whereby Procter & Gamble serves as steam host and agrees to purchase steam and electricity produced by the cogeneration project for a 25-year period.

5. The Steam Services Agreement between SMUD and SCA, when it is executed, will assign, transfer, and convey all rights and obligations of SMUD under the Steam Sales Agreement to SCA.

6. In the event that Procter & Gamble elects to terminate the Steam Sales Agreement, SMUD must then seek an alternative steam host for the Procter & Gamble Cogeneration Project.

7. Upon execution, the Steam Services Agreement, the Power Purchase and Operating Agreement, the Contribution Agreement, the Interconnection Agreement, the Fuel Supply Transportation Agreement, and the Asset Contribution Agreement between SMUD and SCA will in concert establish the financial viability of SCA as the project owner.

8. The present Decision considers only the existing Procter & Gamble industrial facility as the steam host for the Procter & Gamble Cogeneration Project.

C. Site Alternatives

The Commission reviews both the project and the site to determine whether there are feasible alternative means to achieve project objectives. (Cal. Code of Regs., tit. 14, § 1765.) CEQA requires identification of project alternatives to eliminate or reduce adverse environmental impacts. (Cal. Code of Regs., tit. 14, § 15126(d).) The following sections of this Decision discuss the project's potential environmental impacts. This section reviews the feasibility of alternative sites and configurations for the project, including the "no project" alternative required by CEQA. (Cal. Code of Regs., tit. 14, § 15126(d)(2).)

The "no project" alternative compares the potential environmental impacts of the project with the overall goals and objectives of the project. As stated in the Section on Need Conformance, project objectives include the construction and operation of a local-area cogeneration facility as identified in SMUD's 1990 resource procurement process and approved by the Commission in its May 13, 1992 Order. The goal is to produce additional generating capacity for SMUD as well as reliable and economical process steam to Procter & Gamble, an existing industrial facility. (Ex. 2 at p. 8.1 et seq.; Testimony of Diana Parker 7/19/94 RT 4-5.) The parties concur that a "no project" alternative would not accomplish the project's goals and objectives. (Ex. A at p. 375; Ex. 2 at p. 8.1.)

The Applicant provided an analysis of site alternatives and considered a variety of factors in selecting an appropriate site for the project including: space requirements, proximity to Procter & Gamble; reliability of steam production; distance to utility interconnections; access to and from the site during construction and operation; impacts on surrounding residential areas; and potential disruption of Procter & Gamble operations. (Ex. 2 at pp. 8.1 and 8.2.)

The selection of the 10-acre site in the eastern section of the vacant property adjacent to Procter & Gamble provides economic, land use, and engineering advantages.[5] (Ex. 2 at p. 8-2.) It provides direct access from 83rd Street for vehicular traffic, sewer and water connections and is also the closest point for electrical interconnection. *(Ibid.)* Environmental impacts will be limited since the proposed site is severely degraded from industrial development. *(Id.* at pp. 8-3 and 8-4.) Site specific impacts will be mitigated. *(Ibid.*; Ex. 1: Parker at p. 5.)

Numerous project configurations were evaluated for construction, maintenance, environmental impacts, and effects on Procter & Gamble operations. The GE LM6000 unit offers the best efficiency during turndown or part load conditions while providing sufficient waste heat and redundancy to meet Procter & Gamble's steam requirements. (Ex. 1: Testimony of Diana Parker at p. 5.) The proposed transmission line route was selected for its high reliability (two circuits to maintain power transfer during maintenance or outage) and flexibility due to the availability of two circuits. (Ex. A at p. 375; Ex. 1: Parker at p. 5.) No significant environmental impacts are associated with the preferred route. *(Ibid.)*

Thus, the evidence of record does not indicate that other project locations or configurations are preferable to the project site proposal.

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[5] The adjacent property located north of the Procter & Gamble facility is approximately 50 acres. The cogeneration project could be located anywhere on this site; however, vernal pool fairy shrimp are less prevalent in the eastern portion than on the western and central portions. (See Section on Biological Resources in this Decision). Also, the eastern portion is removed from residential areas and closest to the Procter & Gamble facility which allows construction of a shorter steam line. Finally, it is the least expensive site to purchase. (Ex. 2 at p. 8-4.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. A "no project" alternative would not accomplish the project's goals and objectives to develop a local area cogeneration project to provide electricity for SMUD's electrical system and to supply process steam to the existing Procter & Gamble facility.

2. The adjacent 50-acre property located north of the Procter & Gamble facility was evaluated for engineering and environmental feasibility by dividing the parcel into western, central, and eastern sections for comparison.

3. The proposed project is located on the eastern portion of the parcel mentioned above.

4. The eastern section of the property provides economic, engineering, and environmental advantages over the western and central portions of the property due to its proximity to the Procter & Gamble facility, its access for vehicular traffic, sewer and water connections, its proximity to interconnection facilities, and its potential for minimal environmental impacts.

5. The potential for adverse environmental impacts is limited because the proposed site is severely degraded from industrial development in the area and as discussed in the other portions of this Decision, any potential adverse impacts will be mitigated.

6. Implementation of the mitigation measures and Conditions of Certification set forth in this Decision will reduce site specific environmental and public health and safety impacts to insignificance.

III. PROJECT NEED CONFORMANCE

In order to certify the proposed project, the Commission must find that it conforms with the 12-year forecast of statewide and service area electrical energy demand adopted pursuant to Public Resources Code section 25308 in the Commission's most recent Electricity Report. (See, Pub. Resources Code, §§ 25305(e), 25523(f), and 25524.) In this case, the 1992 Electricity Report (ER 92) is applicable. ER 92 extends Commission policy contained in the 1990 Electricity Report (ER 90) which established need conformance guidelines for projects selected through a municipal utility's competitive procurement process. (ER 90 at 94; ER 92 at 106.)

In 1990, SMUD issued a request for proposals (RFP) for new power sources to facilitate replacement of lost capacity after ratepayers voted in 1989 to shut down the Rancho Seco Nuclear Plant. As a result of the RFP process, SMUD selected five local cogeneration projects for a total capacity of 600 MW and applied to the Energy Commission for approval. (Ex. 2 at p. 2-2.)

The Commission's ER 90 Standing Committee reviewed SMUD's resource procurement policy and determined that SMUD needed additional capacity and that the selection process utilized by SMUD substantially incorporated the policies for municipal utility RFPs identified in ER 90. The Commission adopted the Standing Committee's Determination on May 13, 1992. (Commission Order No. 92-0513-02.)

ER 92 states that any combination of five of the cogeneration projects selected through SMUD's 1990 RFP process and approved by the ER 90 Standing Committee shall be exempt from case-specific need conformance determinations so long as SMUD does not significantly change the sizes, attributes, or timing of the proposed projects. (ER 92 at 106.)

The Procter & Gamble Cogeneration Project is one of the five cogeneration projects approved by the Standing Committee. (Ex. 2 at p. 2-3; Ex. 1: Taylor at p. 5.) The Commission finds the Application for Certification contains sufficient information to confirm that

the proposed project is, in fact, one of the local area projects resulting from SMUD's procurement process, with substantially the same size, attributes, and timing as described in SMUD's original proposal. (Ex. A at p. 14.) Therefore, no further need conformance tests are necessary in this proceeding. *(Ibid.;* Commission Order No. 92-0513-02 at p. 2.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Procter & Gamble Cogeneration Project is one of the five local cogeneration powerplant projects identified in SMUD's integrated resource procurement plan approved in Commission Order No. 92-053-02.

2. The Commission has determined that SMUD requires additional generation capacity in conformance with findings and policies contained in both the 1990 and 1992 Electricity Reports.

3. The Procter & Gamble Cogeneration Project is deemed needed under both the 1990 and 1992 Electricity Reports.

4. The Commission therefore finds and concludes that the Procter & Gamble Cogeneration Project conforms with the 12-year forecast of statewide and service area electric power demands contained in the 1992 Electricity Report adopted pursuant to Public Resources Code section 25308.

IV. ENVIRONMENTAL DISCUSSION

The Commission must determine whether construction and/or operation of the proposed project will cause any adverse impacts to the environment and if so, whether mitigation measures can be imposed to reduce any impacts to levels of insignificance. The following discussion addresses the environmental topics of concern in conformance with the requirements of the California Environmental Quality Act (CEQA; Pub. Resources Code, §§ 21000 et seq.) and the Warren-Alquist Act. (Pub. Resources Code, §§ 25000 et seq.)

A. Air Quality

The combustion of natural gas by the proposed project will result in the emission of several air pollutants that are regulated by federal and state law.

Pollutants for which ambient air quality standards have been established are generally referred to as criteria pollutants. The criteria pollutants include: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), suspended particulate matter less than 10 microns in diameter (PM_{10}), sulfates (SO_4), carbon monoxide (CO), ozone (O_3), and lead (Pb). Pollutants for which no ambient air quality standards have been established are generally referred to as non-criteria pollutants. Impacts from non-criteria pollutants are discussed in the Public Health Section of this Decision.

1. Ambient Air Quality. The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) to protect public health with an adequate margin of safety. The California Air Resources Board (CARB) has established California ambient air quality standards (CAAQS) which are, in general, more stringent than the national standards. (Ex. F [Air] at p. 2.) The national and state ambient air quality standards are identified in AIR QUALITY: Table 1.

AIR QUALITY: Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	National Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 $\mu g/m^3$)	0.09 ppm (180 $\mu g/m^3$)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	—
	1 Hour	—	0.25 ppm (470 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual Average	80 $\mu g/m^3$ (0.03 ppm)	—
	24 Hour	365 $\mu g/m^3$ (0.14 ppm)	0.04 ppm (105 $\mu g/m^3$)
	3 Hour	1300 $\mu g/m^3$ * (0.5 ppm)	—
	1 Hour	—	0.25 ppm (655 $\mu g/m^3$)
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	—	30 $\mu g/m^3$
	24 Hour	150 $\mu g/m^3$	50$\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	—
Sulfates (SO_4)	24 Hour	—	25 $\mu g/m^3$
Lead	30 Day Average	—	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42$\mu g/m^3$)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 $\mu g/m^3$)
Visibility Reducing Particulates	1 Observation	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.
Applicable Only in The Lake Tahoe Air Basin			
Carbon Monoxide (CO)	8 Hour	—	6 ppm (7 mg/m^3)
Visibility Reducing Particulates	1 Observation	—	In sufficient amount to produce an extinction coefficient of 0.07 per kilometer due to particles when the relative humidity is less than 70%.

* Secondary Standard

Source: Ex. A, Table 1, p. 8.

The EPA has designated all areas of the United States as attainment, nonattainment or unclassified for specific pollutants. The project site is located in that portion of the Sacramento air basin which has been designated nonattainment for the federal ozone, PM_{10}, and CO standards. The air basin is considered an attainment or an unclassified area for federal SO_2, NO_2, SO_4, and lead standards. (Ex. F at p. 2.)

The CARB has designated Sacramento County as nonattainment for the state ozone, CO, and PM_{10} standards, and attainment for the state SO_2, NO_2, SO_4, and Pb standards. Sacramento County is unclassified for the state hydrogen sulfide (H_2S) and visibility reducing particles standards. (Ex. F at p. 9.)

Most violations of the federal and state 1-hour ozone standards occur during the late summer through fall months, when clear, sunny conditions are common. Fall and winter months show numerous violations of the federal and state 24-hour PM_{10} standards. Both ozone and PM_{10} are regional pollutants caused by the emission of precursor pollutants and complex time, light, and chemical dependent reactions. (Ex. F at p. 9.)

The project will emit oxides of nitrogen (NO_x) and volatile organic compounds (VOC) which are precursor pollutants for ozone and PM_{10}, as well as direct PM_{10}, CO, and SO_2. (Ex. F at pp. 42-46.)

2. Determination of Compliance. The Energy Commission may not find that a proposed powerplant conforms with applicable air quality standards *unless* the local air quality management district has determined that all necessary emissions offsets will be obtained prior to project certification. (Pub. Resources Code, § 25523(d)(2).) The Sacramento Metropolitan Air Quality Management District (District) filed its final Determination of Compliance (DOC) for this project on August 19, 1994. (Ex. AA.) In the DOC, the District approved the Applicant's proposed emission offset package which will be credited to the project under the District's banking rules. (Ex. AA at pp. 14-17; 9/13/94 RT 42-44; 55-56.)

In evaluating the project's potential air quality impacts, the Commission relied on the District's rules and regulatory procedures[6] as well as the Commission staff's independent analysis based on CEQA requirements.

3. Project Emissions. The District evaluates a proposed project based on two factors: 1) use of the best available control technologies (BACT), and 2) whether adequate offsets have been provided. (Joint Hearing [JH] 9/13/94 RT 41:17-21 [Testimony of Aleta Kennard].)[7]

BACT. The proposed project incorporates the use of BACT to minimize the amount of pollutants emitted by the project. (9/13/94 RT 16:15-25, 17:1-18 [Testimony of Brian Petermann].) Since the project will be located in a nonattainment area for ozone and PM_{10}, the parties were particularly concerned with reducing project emissions of NO_x and VOC, precursors to ozone, and emissions of PM_{10} caused by fugitive dust and other particulate matter. (*Ibid.*)

To control NO_x emissions,[8] a selective catalytic reduction (SCR) system will be installed on each of the three combustion turbines. The SCR system reduces NO_x emissions from 40 parts per million down to five parts per million, which is considered close to 90 percent removal. (9/13/94 RT 16:21-25, 17:1-3.) The project will also include oxidation catalysts on each combustion turbine to reduce CO emissions by 90 percent. The oxidation catalysts have the added benefit of reducing VOC emissions by approximately 10 percent. (Ex. 55 at p. 3; 9/13/94 RT 17:4-15.)

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[6] The CARB has delegated regulatory authority to the local air districts for enforcement of both the federal and state Clean Air Acts.

[7] The Committee assigned to this project conducted a Joint Evidentiary Hearing with the Committee assigned to the Campbell cogeneration project on September 13, 1994 to take evidence on issues common to the DOCs for both projects. References to the joint hearing are cited as (Joint Hearing [JH] 9/13/94 RT [page]).

[8] The project's NO_x emissions consist primarily of NO and NO_2. Thermal NO_x is the product of the oxidation of N_2 in the air at high temperatures used in the combustion process. (Ex. F at p. 58.) The Applicant presented a conservative approach in its cumulative NO_2 analysis, assuming that all NO_x emissions from the project are NO_2 although only ten percent of fresh NO_x emissions consist of NO_2. (*Id.* at p. 55.) Since the conversion of NO_2 in a photochemical reaction to ozone is the crucial factor, the reduction of all NO_x emissions is necessary to ensure that project impacts to ozone formation are not significant. The District's rules require reduction of NO_x to zero through a combination of BACT and offsets. (Ex. AA.)

The auxiliary boiler also uses a combination of low-NO_x burners, flue gas recirculation, and SCR to limit NO_x emissions. (Ex. F at p. 35.) NO_x emissions from the auxiliary boiler will be controlled to nine parts per million (9 ppm) at 3 percent oxygen using SCR for boiler loads at or above 25 percent. (Ex. A at p. 9; Ex. B at p. 1.)

Fugitive dust emissions from project construction activities will be reduced approximately 79.5 percent by watering at the site. (Ex. A at p. 57.) Natural gas fuel contains only trace quantities of noncombustible materials. Particulate emissions will be controlled by inlet air filtering for the three CTG units to ensure complete burning of the fuel to the extent possible. The Applicant will also use high efficiency drift eliminators to control PM_{10} emissions from the cooling tower to a guaranteed level of 0.0006 percent or less of the total cooling water flow. (*Ibid.*)

Offsets. As required by the District, the Applicant performed an Air Quality Impact Analysis (AQIA) [revised] to predict what air quality impacts will result from project specific emissions and/or contribute to existing violations of federal or state standards. (9/13/94 RT 16:5-14 [Petermann]; Ex. 57; Ex. F at pp. 48-53.) The AQIA was further refined by pollution dispersion modeling which found that the project will contribute to existing violations of the state 24-hour PM_{10} standard. (Ex. F at p. 49; 9/13/94 RT 17:19-23.) The project will not cause or contribute to new violations of federal or state standards for NO_2, SO_2 or CO. (*Ibid.*) The project may contribute to violations of the federal or state ozone standards.[9] See AIR QUALITY: Table 2.

The District's regulations require mitigation when the maximum *daily* emissions from a proposed project will exceed federal or state standards. Once it is determined that mitigation is required, the District evaluates the adequacy of the project's proposed mitigation based on

[9] While the project has the potential to contribute to existing violations of the federal and state ozone standards, this impact was not be modeled. (Ex. F at p. 52.) However, due to ozone nonattainment status, ozone precursor emissions from the project will be fully mitigated. (JH 9/13/94 RT 41:22-24.) See discussion below, especially footnote 11.

AIR QUALITY: Table 2

Summary of Refined Level Modeling Project Impacts

Pollutant	Project Impact[a d] ($\mu g/m^3$)	Highest Background Baseline[b] ($\mu g/m^3$)	Total Project Impact[d] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2					
1 hour	23.0	245[c]	268	None	470
SO_2					
1 hour	0.37	105	105	None	655
3 hour	0.15	41.9	42	1,300	None
24 hour	0.06	7.85	8	365	105
CO					
1 hour	16.0	10,307[c]	10,323	40,000	23,000
8 hour	8.6	6,070[c]	6,079	10,000	10,000
PM_{10}					
24 hour	2.51	113	116	150	50

a. Impacts at one of the receptors, using worst case operating load and ambient air temperatures, operating scenarios, and 1985 to 1989 meteorological conditions.
b. Maximum monitored ambient levels, 1990 to 1992.
c. Staff is using the maximum measured 1990 to 1992 NO_2 and CO levels at North Highlands as the most representative of the project site.

Source: Ex. A, Table 23 at p. 51.

quarterly emissions and emission reduction measures. (9/13/94 RT 42:16-25 [Kennard]; Ex. 54 at p. 19.) The District imposes pollutant emissions limits on each emissions unit. (Ex. F at p. 57.) Even though BACT will be employed, emissions will still be generated by the cogeneration facility from its three combustion turbine generators, the two HRSG duct burners, and the auxiliary boiler. (*Id.* at pp. 40-41.)

SMUD has contracted with four sources for emission reduction credits (ERC) for this project: Grace Industries (NO_x), Unocal Oil and Gas Division (NO_x), Formica Corporation (VOC), and SierraPine (PM_{10}). (Ex. 56 at p. 3; 9/13/94 RT 18:14-25 [Testimony of Stuart Husband].) The following AIR QUALITY: Table 3 shows the proposed ERC sources and quantities of offsets.

The District assumes that emissions reductions from sources at a distance from the project provide less effective mitigation than those closer to the project. Therefore, the District requires that distance ratios be factored into the offsets package. (JH 9/13/94 RT 42: 19-23.) The District uses a minimum ratio of 1.2:1 for the first fifteen miles; a ratio of 2:1 is required for distances of 15 to 50 miles. (JH 9/13/94 RT 45:20-25.)

Interpollutant Trading. As stated above, both VOCs and NO_x are precursors to the formation of ozone in the atmosphere. In this case, a portion of the project's NO_x emissions will be offset by interpollutant trading of VOCs provided by the Formica ERCs. (JH 9/13/94 RT 42:5-11; 57:6-7.) The premise of the interpollutant trading proposal is based on "interprecursor offsets" which are limited to exchanges between pollutants which are both precursors to the same air quality problem.[10] (Ex. 54: Testimony of Gary Rubenstein at p. 8.)

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[10] This concept does not apply when a pollutant is a precursor to a nonattainment pollutant but would also contribute to existing violations of a state or federal standard. (Ex. 54 at p. 8.) For example, emissions of VOCs, NO_x, SO_x and directly emitted particulate matter are all precursors to the formation of PM_{10}. While reductions in SO_x might mitigate the effect of VOC emissions on the formation of PM_{10}, they would not mitigate the effect those same emissions have on ozone levels; thus, SO_x could not be used to compensate for VOC increases in an area where ozone air quality standards are exceeded. (*Id.* at p. 9.) Further, interprecursor offsets cannot be used when the emissions of one pollutant which are used to compensate for another pollutant would cause an air quality (continued...)

AIR QUALITY: Table 3

Proposed Project Offsets Sources and Quantities

Offset Source	Location (relative to the project)	Pollutant	Quarter	QTR 1	QTR 2	QTR 3	QTR 4
			Days	90	91	92	92
Grace Industries	7 miles SW	NO_x	lbs/qtr	20,080	19,171	19,542	19,760
			lbs/day	223	211	212	215
Unocal Oil and Gas Operations	25 miles SW	NO_x	lbs/qtr	41,616	41,616	41,616	41,616
			lbs/day	462	457	452	452
Formica Corporation	19 miles NE	VOC	lbs/qtr	36,177	41,251	42,058	41,331
			lbs/day	402	453	457	449
SierraPine, Ltd.[a]	22 miles NE	PM_{10}	lbs/qtr	32,775	33,139	33,503	33,503
			lbs/day	364	364	364	364

a. Pending completion of modifications and approval of the ERC.

Source: Ex. F [AIR] p. 62, Table 27; SCA 1994d and B&V 1994b

The CARB has endorsed the use of interpollutant offset trading as long as the proposed ratio has a *sound technical basis*. (Ex. 54 at p. 10.) The time and photochemical dependent reaction of NO_x and VOC conversions to ozone is complex, making the determination of the proportions of VOC to NO_x difficult. (*Id.* at p. 13.) The District used a regional planning model to evaluate alternative interpollutant offset ratios for ozone. Applying seven different photochemical modeling strategies, the District developed a curve showing the various

[10](...continued)
problem on their own; e.g., reductions in NO_x cannot be used to compensate for increased SO_x emissions if the SO_x emissions would contribute to existing violations. (*Ibid.*)

combinations of VOC and NO_x reductions which would achieve the federal ozone standard.[11] (*Ibid.*) Based on the overall slope of the curve, the District concluded that an interpollutant offset ratio of 2:1 (VOCs for NO_x) is appropriate for the Sacramento region under current air quality regulations and modeling regimes.[12] (Ex. 54 at p. 13; JH 9/13/94 RT 56:20-23.)

The District believes this ratio recognizes that NO_x is a more important contributor than hydrocarbons to ozone formation. (JH 9/13/94 RT 56:22-23.) While the Commission staff would have preferred a NO_x for NO_x offset exchange, Staff has agreed that the interpollutant offset ratio is appropriate given the EPA's support of the District's methodology. (Ex. F at pp. 64, 66; JH 9/13/94 RT 86:19-25, 87:1-8 [Testimony of Chris Tooker].)

Based on the offset proposals described above, the District has determined that the offsets package, calculated on a quarterly basis, fully mitigates the project's emissions under District rules and regulations. (JH 9/13/94 RT 41:22-24.)

4. CEQA Review. Commission staff conducted an independent analysis of potential air quality impacts based on CEQA requirements. Staff reviewed the project's environmental setting and area meteorology, as well as characterizing the status of regulated pollutants. (JH 9/13/94 RT 84:19-25.) Staff also looked at the state and federal attainment plans being developed for the region and applicable law. (*Id.* at 85:1-5.)

Staff identified project emissions during construction and operations, primarily for contributions to existing PM_{10} and ozone violations. (JH 9/13/94 RT 85:11-21.) Staff also analyzed the potential cumulative impacts of this project in conjunction with the three other

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[11] The District used the EPA Federal Implementation Plan (FIP) Urban Airshed Modeling (UAM) results for attainment of the federal ozone standard in Sacramento which is based on target NO_x and VOC inventory reductions. (Ex. F at p. 65.) The 2:1 ratio is an estimation of the ratio based on the FIP UAM isopleths. (*Id.* at p. 66.)

[12] The overall interpollutant trade ratio (2:1) times the District's distance ratio (minimum of 1.2:1) is effectively 3.6:1. (Ex. 54 at p. 13.) The U.S. EPA has indicated agreement with this proposal. (Ex. 54, Attachment AQ-5: August 18, 1994 letter from the EPA to the District.) The CARB filed no objections to the DOC during the thirty-day comment period. (Ex. 54 at p. 13.)

SMUD-related cogeneration projects in the area, i.e., Carson, Campbell, and SEPCO. (*Id.* at 85:21-25.)

Staff reviewed the BACT and offsets proposals and found them adequate to mitigate the project's potential impacts to air quality. (JH 9/13/94 RT 86-87.) Under CEQA, Staff typically calculates offsets on a reasonable worst-case *daily* basis rather than the *quarterly* basis used by the District.[13] While Staff assumes that the reasonable worst-case daily emissions include single start-ups for each combustion turbine and the District assumes less than daily start-ups per quarter, the project is not limited to a particular number of start-ups per day or quarter. (Ex. F at pp. 40-41.) Rather, the start-up emissions[14] are included in the daily and quarterly emissions totals, which are limited by the DOC. (Ex. F at p. 44; Ex. AA.) This provides the Applicant with flexibility to operate the project as needed within the limits. The Staff and the District used the reasonable estimates of start-up emissions to evaluate the mitigation of the project with the proposed offsets.

The project's worst-case daily NO_x, SO_2, PM_{10}, and VOC air pollutant emissions are fully mitigated on a daily pound-for-pound basis by the offset ERCs obtained by the Applicant. The project's modeled impacts of start-up and operating NO_2, SO_2, and CO emissions do not cause or contribute to an existing violation of a state or federal air quality standard. The project's modeled impacts of operating PM_{10} emissions will contribute to existing violations of the state 24-hour PM_{10} standard but the project's PM_{10} emissions are fully mitigated by BACT and offsets, calculated on a daily or quarterly basis. While the project's direct impacts on existing

[13] CEQA requires the mitigation of all potential significant impacts where feasible, whereas the District is required to assure mitigation that achieves federal and state ambient air quality standards.

[14] Pollution emission levels from NO_x, CO and VOC are often higher during equipment start-up since air emission control systems are often temperature and flow dependent and may not be effective until the specified temperatures and loads are reached. (Ex. F at p. 42.) To meet SMUD's need to respond to quickly changing electrical demandsthe three combustion turbines and the steam turbine will come on-line in increments, which requires quick and frequent start-ups of the turbines and duct burners as necessary. (*Ibid.*)

ozone violations were not modeled,[15] potential impacts on existing violations are mitigated since the project's emitted precursor pollutants (NO_x, SO_x, and VOCs) are fully offset. (Ex. F at pp. 70-71.)

The initial cumulative modeling conducted by the Applicant showed that cumulative impacts of large stationary projects with pending permits from the District, including this project and the other three SMUD-related cogeneration projects, would cause a violation of the state 1-hour NO_2 standard. However, further refined modeling and analysis by Staff determined that the cumulative impacts were just below the state 1-hour NO_2 standard. (Ex. F at p. 71.) Moreover, the evidence indicates that the contributions of this project and the other three SMUD cogeneration projects to the cumulative impacts should be minimal. (*Ibid.*) See AIR QUALITY: Table 4.

The Conditions of Certification incorporate the conditions imposed by the District to ensure that all necessary mitigation measures, including the use of BACT and offsets, will be implemented. The Commission has also imposed additional conditions, including the requirement that the project owner notify the Campbell cogeneration project owner if there are changes in project operations that would affect the ERCs surrendered to the District by SMUD for both projects. The purpose of this Condition is to allow the Campbell project to pursue alternative mitigation if changes to the Procter & Gamble project's operations should affect the

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[15] Although the EPA and CARB have the ability to model ozone impacts with the very sophisticated Urban Airshed Modeling program, the model pertains to the overall airshed so that impacts related to the Procter & Gamble cogeneration project would be very difficult to measure. Since the precursor pollutants (i.e., NO_x and VOCs) that form ozone in the atmosphere will be fully mitigated (on a pound-for-pound basis), the project's potential contributions to existing ozone violations has been reduced to insignificance. (Ex. F at pp.70-71.)

AIR QUALITY: Table 4
Summary of Project Cumulative Impacts

Pollutant/Standard		Cumulative Impact[a] ($\mu g/m^3$)	Project Contribution ($\mu g/m^3$)	Highest Background Baseline[b] ($\mu g/m^3$)	Total Cumulative Impacts ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1 hour	319	0.0	300[c]	619	---	470
	Annual	1.3	0.0	45[c]	46	100	---
SO_2	1 hour	0.4	0.4	105	106	---	655
	3 hour	0.2	0.2	105	105	1,300	---
	24 hour	0.06	0.06	41.9	42	365	105
	Annual	0.008	0.008	7.85	8	80	---
CO	1 hour	68	0.00	10,307[d]	10,375	40,000	23,000
	8 hour	18	0.00	6,070[d]	6,088	10,000	10,000
PM_{10}	24 hour	2.51	2.51	113	118	150	50
	Annual (geometric)	0.41	0.37	29.9	31	---	30
	Annual (arithmetic)	0.41	0.37	35.3	36	50	---

a. Impacts worst case operating load and ambient air temperatures, operating scenarios, and 1985 to 1989 meteorological conditions.
b. Maximum monitored ambient levels, 1990 to 1992.
c. Staff is using the maximum measured 1990 to 1992 NO_2 levels at the 13th and T Street monitoring station as most representative of the location of the cumulative impacts.
d. Staff is using the maximum measured 1990 to 1992 CO levels at North Highlands as the most representative of the site.

Source: Ex. A, Table 26 at p. 54.

mitigation assumed for the Campbell project.[16] The Condition does not affect the Procter & Gamble project mitigation. (JH 9/13/94 RT 95:14-21; Ex. 54 at p. 25.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The project site is located in that portion of the Sacramento air basin which has been designated nonattainment for particulate matter less than 10 microns in diameter (PM_{10}), ozone (O_3), and carbon monoxide (CO) under state and federal air quality standards.

2. Construction of the proposed project will result in emissions of fugitive dust which causes PM_{10} to form in the atmosphere.

3. The project emissions of PM_{10} during construction will be mitigated by watering and other measures set forth in the Conditions of Certification.

4. Operation of the proposed project will result in emissions of oxides of nitrogen (NO_x), volatile organic compounds (VOC), CO, sulfur dioxide (SO_2), and PM_{10}.

5. The Applicant will install the best available control technologies (BACT) to reduce project emissions of NO_x and PM_{10} in compliance with the Sacramento Metropolitan Air Quality Management District's (District) rules and regulations.

6. The Applicant will provide emission reduction credits (ERC) for PM_{10}, NO_x, and VOC from four sources that will provide sufficient offsets to comply with the District's rules and regulations.

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[16] At the September 13, 1994 Joint Evidentiary Hearing, Commission staff indicated that under its CEQA analysis, the Campbell cogeneration project would require additional mitigation beyond that specified in the District's DOC for Campbell because Staff's daily emissions analysis does not mirror the District's quarterly analysis in that case. The Campbell cogeneration project is offset in the DOC for only 12 start-ups per quarter (although the number of start-ups is not limited), while Staff assumes daily start-ups in its mitigation analysis. (JH 9/13/94 RT 87, 92-94.) Surplus mitigation exist for the Procter & Gamble project because the District requires distance factors to be incorporated in the offset ratio, resulting in more than a 1:1 offset. (*Id* at p. 93:15-21.) If there should be changes to Procter & Gamble, it could affect the sufficiency of Campbell offsets since the projects are considered together in Staff's cumulative impacts analysis. (*Ibid.*) Therefore, for purposes of conforming with CEQA requirements, Staff proposed Condition of Certification AQ-49 which is hereby adopted by the Commission. (*Id.* at pp. 52 and 95.)

7. The District's Determination of Compliance, which was issued on August 19, 1994, approved the project's offset package.

8. Project emissions, as mitigated in accordance with the requirements set forth in the District's Determination of Compliance and this Decision, will not cause or contribute to violations of federal or state air quality standards for nitrogen dioxide (NO_2), sulfur dioxide (SO_2), CO, PM_{10}, or ozone.

9. Project emissions, as mitigated in accordance with the requirements set forth in the District's Determination of Compliance and this Decision, will not cause or contribute to cumulative impacts associated with the other three SMUD-related cogeneration projects (Campbell, Carson, and SEPCO) that could violate federal or state air quality standards for NO_2, SO_2, CO, PM_{10}, or ozone.

10. The Conditions of Certification incorporate all the conditions imposed on the Applicant by the District in its Determination of Compliance, as well as additional conditions to assure that the proposed project will comply with all applicable laws, ordinances, regulations, and standards on air quality as identified in Appendix A of this Decision.

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GENERAL CONDITIONS

AQ-1 Facilities Operation - All equipment, facilities, or systems installed or used to achieve compliance with the Terms and Conditions of this Authority to Construct shall be maintained in good working order so as to minimize air pollution emissions and shall comply with all other applicable local, state and federal rules and regulations.

Verification: Refer to Condition AQ-2.

AQ-2 Malfunction - The Sacramento Metropolitan Air Quality Management District shall be notified of any breakdown of the emissions monitoring equipment, any engine equipment, or any process which results in an increase in emissions above the allowable emissions limits stated as a Condition of this permit or any applicable state or federal regulation which affects the ability for the emissions to be accurately determined. Such breakdowns shall be reported to the District in accordance with the procedures and reporting times specified in District Rule 602 - Breakdown Conditions; Emergency Variance.

Verification: The project owner shall provide the Commission Compliance Project Manager (CPM) with a copy of any report required by this Condition at the same time as the report is provided to the District.

AQ-3 Right of Entry - The Sacramento Metropolitan Air Quality Management District, the Executive Officer of the California Air Resources Board, the EPA Regional Administrator, and/or their authorized representatives, upon the presentation of credentials shall be permitted:

a. to enter upon the premises where the source is located or in which any records are required to be kept under the Terms and Conditions of this Determination of Compliance;

b. at reasonable times to have access to and copy any records required to be kept under Terms and Conditions of the Determination of Compliance;

c. to inspect any equipment, operation, or method required in the Determination of Compliance; and

d. to sample emissions from the source or require samples to be taken.

Verification: Within 30 days prior to first turbine roll, the project owner shall advise appropriate site personnel of this Condition, and provide the Commission CPM with a notification by letter that site personnel have been informed regarding the rights of entry described above.

AQ-4 Public Nuisance - No air contaminant shall be released into the atmosphere which causes a public nuisance.

Verification: Refer to Condition AQ-2.

AQ-5 The combustion gas turbines, duct burners, cooling tower, and auxiliary boiler shall not discharge into the atmosphere any visible air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, which is 20 percent opacity or greater.

Verification: Refer to Condition AQ-2.

AQ-6 Only natural gas may be fired in the combustion turbines, duct burners, or auxiliary boiler at the P&G Cogeneration project.

Verification: The project owner shall verify compliance by the record keeping required by Condition AQ-8.

AQ-7 The project owner shall provide District approved stack sampling ports and platforms.

Verification: Refer to Condition AQ-3.

AQ-8 The project owner shall maintain appropriate records (including but not limited to: fuel usage rates, gas turbine loading levels, hours of operation, start-up and shutdown times, etc.) to verify compliance with all listed permit conditions. The project owner shall obtain District approval, 60 days prior to start-up, of the format of the records. These records shall be continuously maintained for the most recent two year period and shall be made available to the Air Pollution Control Officer upon request.

Verification: The project owner shall obtain District approval, within 60 days of start-up, of the format of the records. The records shall be made available to the Air Pollution Control Officer and the Commission CPM upon request.

AQ-9 Severability - If any provision, clause, sentence, paragraph, section, or part of these Conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these Conditions.

No Verification

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EMISSION RATE LIMITATIONS

AQ-10 Emissions at the P&G Cogeneration facility, on a pound per hour basis, shall not exceed the following limits averaged over a three hour period, not including start-ups as defined in Conditions AQ-22 and AQ-24.

Pollutant	Units	Combined Cycle CTG (each)	CTG + Duct Burner (each)	Simple Cycle CTG	Auxiliary Boiler	Cooling Tower
NO_x	lb/hr	7.70	9.20	7.70	1.07	
*CO	lb/hr	3.60	4.20	3.30	7.12	
ROC	lb/hr	1.10	1.80	1.10	0.41	
SO_x	lb/hr	0.27	0.32	0.27	0.07	
PM_{10}	lb/hr	2.50	3.30	2.50	0.49	0.29

* The CO emissions from the combustion turbines were taken at a different temperature scenario which represented a worst case continuous operation Condition.

The District, in agreement with the project owner, may choose to decrease the above hourly emission limits to correspond to the source test results pursuant to Condition AQ-38.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8 and submit source test reports required under Condition AQ-38.

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AQ-11 Emissions at the P&G Cogeneration project from the following equipment listed below, on a pounds per calendar day basis, shall not exceed the following limits.

Pollutant	Units	Combined Cycle CTG with Supp. Fuel	Combined Cycle CTG with Supp. Fuel	Simple Cycle CTG	Cooling Tower	Auxiliary Boiler	Total Emissions
NO_x	lb/day	233.0	233.0	191.5		25.7	683.1
CO	lb/day	113.4	113.4	85.1		170.8	482.7
ROC	lb/day	43.2	43.2	26.4		9.8	122.6
SO_x	lb/day	7.7	7.7	6.5		1.6	23.5
PM_{10}	lb/day	79.2	79.2	60.0	7.0	11.7	237.1

The District in agreement with the project owner may choose to decrease the above daily emission limits to correspond to the source test results pursuant to Condition 38.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ- 12 Emissions at the entire P&G Cogeneration project shall not exceed the following limits on a quarterly basis.

Quarter	Unit	NO_x	PM_{10}
Quarter 1	lb/quarter	46,586	16,387
Quarter 2	lb/quarter	47,097	16,569
Quarter 3	lb/quarter	47,607	16,751
Quarter 4	lb/quarter	47,607	16,751

The District in agreement with the project owner may choose to decrease the above total quarterly emission limits to correspond to the source test results pursuant to Condition 38.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

EMISSION CONCENTRATION LIMITATIONS

AQ-13 The combined cycle combustion turbines and their associated duct burner HRSGs shall not emit more than 5 ppmvd nitrogen oxides at 15 percent O_2 each, averaged over any consecutive three hour period, excluding start-ups as defined in Condition 22.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-14 The simple cycle combustion turbine shall not emit more than 5 ppmvd nitrogen oxides at 15 percent O_2, averaged over any consecutive three hour period, excluding start-ups as defined in Condition 24.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-15 The auxiliary boiler shall not emit more than 30 ppmvd nitrogen oxides at 3% O_2, averaged over any consecutive three hour period for any load below 25%.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-16 The auxiliary boiler shall not emit more than 9 ppmvd nitrogen oxides at 3% O_2, averaged over any consecutive three hour period for any load equal to or greater than 25 percent.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-17 The combined cycle combustion turbines and their associated duct burner HRSGs shall not emit more than 10 ppmvd ammonia at 15 percent O_2 each, measured as NH_3, averaged over any consecutive three hour period, excluding start-ups as defined in Condition 22.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-18 The simple cycle combustion turbine shall not emit more than 10 ppmvd ammonia at 15 percent O_2, measured as NH_3, averaged over any consecutive three hour period, excluding start-ups as defined in Condition 24.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-19 The auxiliary boiler shall not emit more than 10 ppmvd ammonia at 3 percent O_2, measured as NH_3, averaged over any consecutive three hour period.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

EQUIPMENT CONDITIONS

Combined Cycle Combustion Turbines and Duct Burners (2 each)

AQ-20 The heat recovery steam generator (HRSG) duct burner shall not be operated unless the combustion turbine is operating and the selective catalytic reduction (SCR) is functional.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-21 The combined cycle combustion turbines shall not be operated without a functioning SCR and oxidizing catalyst system, excluding periods of start-ups and shutdowns.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-22 The duration of each of the combined cycle combustion turbine's start-up period shall not exceed 60 minutes. The start-up period is defined as the time when the fuel is first introduced to the turbine to the time when the emissions of NO_x are controlled to 5 ppmvd @ 15 percent O_2 or less.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8

Simple Cycle Combustion Turbine

AQ-23 The simple cycle combustion turbine shall not be operated without a functioning selective catalytic reduction and oxidizing catalyst system, excluding periods of start-ups and shutdowns.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-24 The duration of the combustion turbine's start-up period shall not exceed 30 minutes. The start-up period is defined as the time when the fuel is first introduced to the turbine to the time when the emissions of NO_x are controlled to 5 ppmvd @ 15% O_2 or less.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

Auxiliary Boiler

AQ-25 The auxiliary boiler shall not be operated without a functioning selective catalytic reduction system when the boiler is operated at a load of 25 percent or above.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-26 The auxiliary boiler shall not exceed an annual capacity factor of 80 percent based on heat input.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

Cooling Towers

AQ-27 The cooling towers shall not use any chromium-containing water treatment chemicals.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8.

AQ-28 The total dissolved solids content of the circulating cooling water shall not exceed 2000 ppmw, averaged over any consecutive three-hour period.

Verification: The project owner shall maintain appropriate emission data records as required by Condition AQ-8 and Condition AQ-29.

AQ-29 The cooling towers drift rate shall not exceed 0.0006%. The project owner shall provide a written vendor statement, prior to installation, declaring that the cooling tower's make possessive mist eliminators used meet the drift criteria stated above.

Verification: At least 30 days prior to the installation of drift eliminators on the cooling towers, the project owner shall submit to the Commission CPM and District a written vendor statement declaring that the mist eliminators to be installed meet the drift rate stated above.

NEW SOURCE PERFORMANCE STANDARDS COMPLIANCE

AQ-30 The project owner shall provide written notification to the Air Pollution Control Officer of the following:

a. The date construction is commenced, postmarked no later than 30 days after such date.

b. The anticipated date of initial start-up of the plant not more than 60 days nor less than 30 days prior to such date.

c. The actual date of initial start-up of the plant, within 15 days after such date.

d A notification of any physical or operational change to the facility which may increase the emission rate to which a standard applies except exempted modifications as defined in 40 CFR 60.14(e), postmarked 60 days or as soon as practicable before the change is commenced.

e. The date upon which the demonstration of the continuous monitoring system performance commences, postmarked not less than 30 days prior to such date.

Verification: The project owner shall submit to the District and the Commission CPM, on the schedules described above, the information contained in this Condition.

AQ-31 The following tests, reports and Conditions shall be met:

a. Within 60 days of achieving the maximum production rate but no later than 180 days after initial start-up, the owner or operator will conduct performance test(s) as per Condition 38 and furnish the Air Pollution Control Officer a written report of the results of such performance test(s).

b. The owner or operator shall provide the Air Pollution Control Officer 30 days prior notice of the performance test(s).

Verification: The project owner shall notify the District and perform the source tests described above and submit to the District and the Commission CPM the results of the source tests within 30 days from the completion of the tests, per the requirements of Condition AQ-39.

AQ-32 The following records shall be kept:

a. Maintain for a period of two years a record of the occurrence and duration of any start-up, shutdown, or malfunction in operation of any combustion turbine and a file of all measurements including continuous monitoring system, monitoring

device and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection.

b. For each calendar quarter submit to the Air Pollution Control Officer a written report of excess emissions as defined in applicable rules and the date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments. The report shall include the magnitude of excess emissions as measured by the required monitoring equipment reduced to the units of the applicable standard, the date, and time of commencement and completion of each period of excess emissions. Periods of excess emissions due to start-up, shutdown, and malfunction shall be specifically identified. The nature and cause of any malfunction (if known), the corrective action taken, or preventive measures adopted shall be reported. Each quarterly report is due by the 30th day following the end of the calendar quarter. If there were no excess emissions for a quarter a report shall be submitted indicating that there were no excess emissions.

Verification: The project owner shall submit the quarterly report described in this Condition, no later than 30 days following the end of each calendar quarter, to the District Air Pollution Control Officer and the Commission CPM.

MONITORING SYSTEMS

AQ-33 The project owner shall install an Air Pollution Control Officer approved in-stack continuous emission monitoring system in the common exhaust of each combined cycle combustion turbine and HRSG as well as in the simple cycle combustion turbine exhaust and the auxiliary boiler's exhaust.

a. The continuous emission monitoring (CEM) system shall monitor and record nitrogen oxides, carbon monoxide, ammonia, and either oxygen or carbon dioxide concentrations. The project owner shall demonstrate that compliance with the applicable emission concentrations can be achieved through the monitoring of carbon dioxide to the satisfaction of the Air Pollution Control Officer before monitoring of carbon dioxide can be used in this capacity.

b. The CEM system shall comply with the EPA Performance Specifications (Title 40, Code of Federal Regulations, Part 60, Appendix B, Performance Specifications 2, 3, and 4).

c. The project owner shall receive Air Pollution Control Officer approval before purchasing the CEM equipment.

Verification: Sixty (60) days prior to the planned purchase of the CEM system, the project owner shall submit a report to the District for approval describing the type of monitoring equipment that meet the requirements of this Condition. Prior to turbine roll, the project owner shall notify the Commission CPM in writing that the required emissions monitoring system has been installed.

AQ-34 The project owner shall install an Air Pollution Control Officer approved continuous monitoring system that either measures or calculates and records the fuel consumption in mmBTU/hr of all combustion turbines and duct burners. The project owner shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment.

Verification: Sixty (60) days prior to the planned purchase of the CEM system, the project owner shall submit a report to the District for approval describing the type of monitoring equipment that meets the requirements of this Condition. Prior to turbine roll, the project owner shall notify the Commission CPM in writing that the required emissions monitoring system has been installed.

AQ-35 The project owner shall install an Air Pollution Control Officer approved continuous monitoring system that either measures or calculates and records the fuel consumption in mmBTU/hr of the auxiliary boiler.

Verification: Sixty (60) days prior to the planned purchase of the CEM system, the project owner shall submit a report to the District for approval describing the type of monitoring equipment that meets the requirements of this Condition. Prior to ~~turbine roll~~ Aux. Boiler, the project owner shall notify the Commission CPM in writing that the required emissions monitoring system has been installed.

AQ-36 The project owner shall install an Air Pollution Control Officer approved monitoring system that measures and records the conductivity/total dissolved solids (TDS) level of the circulating water in the cooling tower. The project owner shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment.

Verification: Sixty (60) days prior to the planned purchase of the conductivity/total dissolved solids (TDS) monitoring system, the project owner shall submit a report to the District for approval describing the type of monitoring equipment that meets the requirements of this Condition. The project owner shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment. The project owner/operator shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment.

AQ-37 The project owner shall install an Air Pollution Control Officer approved continuous monitoring system that either measures or calculates and records the exhaust gas flow of each exhaust stack (i.e. the two combined cycle CTG/duct

burners, the simple cycle CTG, and the auxiliary boiler). The project owner/operator shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment.

Verification: Sixty (60) days prior to the planned purchase of the CEM system, the project owner shall submit a report to the District for approval describing the type of monitoring equipment that meets the requirements of this Condition. The project owner/operator shall receive Air Pollution Control Officer approval before purchasing the monitoring equipment.

COMPLIANCE TESTING REQUIREMENTS

AQ-38 An oxides of nitrogen (NO_x), reactive organic compounds (ROC), carbon monoxide (CO), particulate matter less than 10 microns (PM_{10}), ammonia (NH_3), and CEM accuracy source test of the auxiliary boiler, each of the combined cycle combustion turbines with duct fired HRSGs, and the simple cycle combustion turbine shall be performed during the time frame pursuant to Condition 31.

a. Submit a test plan to the Air Pollution Control Officer for approval at least 30 days before the source test is to be performed.

b. During the test(s), the turbine and HRSG are to be operated at their maximum total firing capacity. The auxiliary boiler must also be tested at its maximum firing capacity.

c. The turbines are also to be tested at 50 percent load for CO and ROC.

d. The source test results shall be submitted to the Air Pollution Control Officer within 30 days from the completion of the source test(s).

Verification: The project owner shall submit a test plan to the Air Pollution Control Officer for approval at least 30 days before the source test is to be performed. The source test results shall be submitted to the Air Pollution Control Officer and the Commission CPM within 30 days from the completion of the source test(s).

AQ-39 A NO_x, ROC, CO, PM_{10}, and ammonia source test of the auxiliary boiler, each of the combined cycle combustion turbines with duct fired HRSG, and the simple cycle combustion turbine shall be performed annually during the first calendar quarter.

a. The project owner shall submit a test plan to the Air Pollution Control Officer for approval at least 30 days before the source test is to be performed.

b. During the test(s), all of the turbines and HRSGs are to be operated at their maximum total firing capacities. The auxiliary boiler must also be tested at its maximum firing capacity.

c. The turbines are also to be tested at 50 percent load for CO and ROC.

d. The source test results shall be submitted to the Air Pollution Control Officer within 30 days from the completion of the source test(s).

e. The Air Pollution Control Officer may waive the annual PM_{10} source test requirement if, in the Air Pollution Control Officer's sole judgment, prior test results indicate an adequate compliance margin has been maintained.

Verification: The project owner shall submit a test plan to the Air Pollution Control Officer for approval at least 30 days before the source tests are to be performed. The source test results shall be submitted to the Air Pollution Control Officer and the Commission CPM within 30 days from the completion of the source tests.

EMISSION REDUCTION CREDITS

AQ-40 Prior to construction of the Procter and Gamble Cogeneration Project, the project owner shall provide to the District emission reduction credit certificates in sufficient quantity to show compliance with the quarterly emission limits by the use of the following calculation procedure.

$$QTR_q = \frac{P_{q<=15}}{1.2} + \frac{P_{q>15}}{2.0}$$

P_q	=	Emission offset credit for pollutant in lb/quarter
q	=	Quarter (1, 2, 3, or 4)
QTR	=	This is the quarterly emission limit specified in Condition 12.
<=15	=	Those emission reduction credit certificates whose point of origin was within 15 miles of the Procter and Gamble Cogeneration project.
>15	=	Those emission reduction credit certificates whose point of origin was greater than 15 miles but less than 50 miles from the Procter and Gamble Cogeneration project.

Verification: Refer to Condition 42.

AQ-41 ROC emission reduction credits may be traded for NO_x emission reduction credits at a ratio of 2 lb of ROC to 1 lb of NO_x.

Verification: Forty-five (45) days prior to the start-up of the project, the project owner shall submit to the Commission CPM copies of the District Banking Certificates that show all of ROC reductions for NO_x (interpollutant trading) for the Procter and Gamble Cogeneration Project, and the calculations that the surrendered ROC Banking Certificates were traded at an interpollutant trading ratio of 2.0 lb of ROC for 1.0 lb of NO_x.

AQ-42 The proposed NO_x ERC's and their amounts are presented below.

	Face Value Of Certificates Surrendered						Value Applied To The Emission Liability			
	Qtr1	Qtr2	Qtr3	Qtr4	I.P. Trading Ratio	Offset Ratio	Qtr1	Qtr2	Qtr3	Qtr4
Grace	20,080	19,171	19,542	19,760	1	1.2	16,733	15,976	16,285	16,467
UNOCAL	41,616	41,616	41,616	41,616	1	2.0	20,808	20,808	20,808	20,808
Formica	36,177	41,251	42,058	41,331	2	2.0	9,044	10,313	10,514	10,333
Total					Sub Total		46,586	47,097	47,607	47,607
				NO_x Liability of the Project			46,586	47,097	47,607	47,607

Verification: Forty-five (45) days prior to the start-up of the project, the project owner shall submit to the Commission CPM copies of the District Banking Certificates which show that the ROC and NO_x reductions at Grace, Unocal, and Formica equal at least as much as the amounts specified in Condition AQ-42.

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AQ-43 The proposed PM_{10} ERC's and their amounts are presented below:

	Face Value Of Certificates Surrendered						Value Applied To The Emission Liability			
	Qtr1	Qtr2	Qtr3	Qtr4	I.P. Trading Ratio	Offset Ratio	Qtr1	Qtr2	Qtr3	Qtr4
SierraPine	32,775	33,139	33,503	33,503	1	2.0	16,387	16,569	16,751	16,751
					Sub Total		16,387	16,569	16,751	16,751
				PM_{10} Liability of the Project			16,387	16,569	16,751	16,571

Verification: Forty-five (45) days prior to the start-up of the project, the project owner shall submit to the Commission CPM copies of the District Banking Certificates which show PM_{10} reductions at SierraPine equal at least the amounts specified in Condition AQ-43.

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COMMISSION CONDITIONS

AQ-44 DELETED

AQ-45 The project owner shall obtain from the Commission CPM approval for the design and operation specifications for the gas turbine, including the water injection system; the SCR system, including all control modules; and the oxidation catalyst system.

Verification: At least 120 days before construction of the facility commences, the project owner shall obtain approval from the Commission CPM of the design specifications and operation parameters for the water injection system, the selective catalytic reduction system including all control modules and the oxidation catalytic system.

AQ-46 The project owner shall obtain from the District Permits to Operate (PTO) for the facility as required by the District's rules and regulations.

Verification: Within six months after the beginning of commercial operation, the project owner shall submit a copy of the District Permits to Operate (PTO) to the Commission CPM or, if the PTOs have not been issued, the project owner shall submit a status report indicating when the PTOs are likely to be issued.

AQ-47 As part of the grading and erosion control plans to be submitted to the Commission CPM under the requirement of Condition SOILS-1, the project owner shall include, but not be limited to the following fugitive dust mitigation measures as part of the grading and erosion control plans:

a. Area of disturbance within the construction site shall be watered so that it is visibly wet, twice or more daily, as necessary. This Condition shall not apply on rainy days where precipitation exceeds 0.1 inch.

b. Except for emergency and site surveyor vehicles, and activities in transmission line construction areas, vehicular movement on unpaved and undisturbed areas is prohibited.

c. All new unpaved roads and new unpaved parking areas and laydown areas shall be graveled. Newly graded areas within the plant site where construction ceases for more than 15 days shall be treated with dust suppressant compounds.

d. Except for trucks using the transmission corridor, all truck tires shall be cleaned of dirt using water spraying or operation of equivalent effectiveness subject to Commission CPM approval, prior to entering public roadways.

e. At least 500 yards of public roadways from the construction site entrances shall be cleaned on a weekly basis, or when there are visible dirt tracks on the public roadways, with either a mechanical sweeper or water flushing.

f. A speed limit sign shall be posted at the entrance of the construction site to limit vehicle speed to no more than 15 miles per hour on unpaved areas.

Verification: Not later than 60 days prior to the start of construction, the project owner shall submit a City of Sacramento approved copy of the Grading and Erosion Control Plan to the Commission CPM for review and approval. The project owner shall maintain a daily log of water truck activities, including the number of gallons of water used to reduce the dust at the construction sites. This log shall be available for inspection by the Commission CPM during the construction period. The project owner shall submit in its monthly construction reports the area that the project owner shall cover or treat with a dust suppressant. The project owner shall make the construction site available to the District and the Commission CPM for inspection and monitoring.

AQ-48 The vehicle emissions from the facility construction activities shall be minimized by applying the following practices:

a. All construction equipment shall be properly maintained to detect and prevent mechanical problems that may cause excess emissions.

b. Only on-road vehicle diesel fuel can be used for construction equipment.

c. No construction equipment shall be kept idling when not in use for more than 30 minutes.

Verification: The project owner shall maintain records of fuel purchases for construction equipment as required in Condition AQ-48 (b). The project owner shall also allow site inspection as per Condition AQ-3.

AQ-49 The project owner shall notify the project owner of the Sacramento Power Authority at Campbell Cogeneration Project of any modifications to the P&G Cogeneration Project Decision that would affect the emission reduction credits surrendered to the District.

Verification: Within 30 days of submitting an amendment request for modifications to the P&G Cogeneration Project Decision that would affect the emission reduction credits surrendered to the District, the project owner shall notify, in writing, the project owner of the Sacramento Power Authority at Campbell Cogeneration Project of the amendment request and send a copy of the notification to the Commission CPM.

B. Public Health

The Commission must determine if emissions from normal operation of the proposed project will result in any significant public health impacts and if so, whether mitigation measures are necessary to ensure the project's conformance with all applicable laws, ordinances, standards, and regulations related to public health protection.

The major public health hazard associated with project emissions is exposure to criteria and noncriteria air pollutants resulting from the combustion of natural gas.[17] Criteria pollutants are compounds for which there are established federal and state ambient concentration standards based on assumed exposure thresholds.[18] As stated in the Air Quality Section of this Decision, the project site is located in that portion of the Sacramento area air basin that is designated nonattainment for PM_{10} and ozone. (Ex. A at p. 17.) The project will emit PM_{10}; and also NO_x and VOCs which are precursors to ozone.

Sensitive members of the public may suffer adverse health effects, including eye and throat irritation, reduction in lung function and aggravation of respiratory disease as the result of excessive exposure to PM_{10} or ozone for periods of 24 hours or less. The Applicant will implement all feasible on-site mitigation measures to reduce project emissions. Where on-site mitigation is not feasible, the use of emission reduction credits (ERCs) will be used to mitigate project contributions to short-term PM_{10} and ozone exposure as discussed in the Air Quality Section of this Decision. (See, Ex. F [Public Health Testimony].)

Transient emissions from start-up and shutdown may result in project specific downwind exposure increases causing potential impacts during ozone episodes. Thus, it is likely that members of the public who could be subject to adverse effects from project specific emissions

[17] Such emissions will be generated by the cogeneration facility from its three combustion turbine generators, the two heat recovery steam generator duct burners and the auxiliary boiler.

[18] Thresholds reflect the human body's capacity to withstand and repair small levels of injury without developing overt symptoms of disease. (Ex. A at p. 17.)

will not benefit directly from the ERCs that are distant from the site. However, from a basin-wide perspective, the Conditions of Certification on Air Quality require the Applicant to fully offset project emissions and thus assure that public exposures on balance will not be increased as the result of project emissions. (Ex. F [Public Health Testimony]; 9/13/94 RT 34-37.)

Noncriteria pollutants are those for which no ambient air quality standards have been established but to which exposure could lead to cancer or other illnesses. A project-related cancer risk is significant if exposure to the potential carcinogen results in an individual lifetime cancer risk greater than one-in-one million ($1x10^6$).[19] (Ex. A at p. 19.)

Lifetime cancer risk is determined by the concentration level of the carcinogen, the probability that it will cause cancer in exposed humans and the length of the exposure period. For the purpose of a screening risk analysis, the maximum expected ambient concentration for a particular pollutant is assumed along with constant exposure for the average life span of 70 years. (Ex. A at p. 19.)

For noncarcinogens, the potential for significance is assessed by the hazard index procedure in which the risk of short-term (acute) effects or long-term (chronic) exposure is assumed to be significant when the hazard index is 1.0 or more.[20] (Ex. A at p. 19.)

A screening-level health risk assessment (HRA) of project emissions was performed by the Applicant and verified by Commission staff. (Ex. A at p. 23.) The pollutants considered in this analysis are listed in HEALTH: Table 1 below:

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[19] Commission staff believes that the upper bound risk level of one-in-one million constitutes a de minimis level of risk. This does not mean that one in every one million people will contract cancer, but rather represents a one-in-one million increase in risk over the normal risk of developing cancer in a lifetime. (Ex. A at p. 27.) Because the risk levels calculated for the project are upper bound estimates of the maximum impacts to a critical receptor, actual risks are likely to be even lower. *(Ibid.)*

[20] Acceptable exposure levels are designed to protect the most sensitive individuals in the population by including a margin of safety. If the maximum estimated exposure is less than 1.0 for the sum of all pollutants, there should be no significant project-related health impacts from noncarcinogenic pollutants.

HEALTH: Table 1 Characterization of the Air Toxic Health Risks*			
Air Toxic	Health Risk Characterization		
	Carcinogen	Chronic Noncarcinogenic	Acute Noncarcinogenic
Acetaldehyde	X	X	
Acrolein		X	X
Ammonia		X	X
Arsenic	X	X	
Benzene	X	X	
Beryllium	X	X	
1,3, Butadiene	X		
Cadmium	X	X	
Carbon monoxide		X	X
Chlorobenzene		X	
Chromium (hex)	X	X	
Copper		X	X
Formaldehyde	X	X	X
Hydrogen chloride		X	X
Lead	X	X	X
Manganese		X	
Mercury		X	X
Naphthalene		X	
Nickel	X	X	X
Nitrogen dioxide		X	X
PAHs	X		
Particulate matter		X	X
Propylene*			
Selenium	X	X	X
Sulfur dioxide		X	X
Toluene		X	
Xylenes		X	X
Zinc		X	

*No health risk identified for propylene in the ACE2588 Risk Assessment Computer Model.
Source: Output report generated by the ACE2588 Risk Assessment Computer Model.

Source: SCA Procter & Gamble Applications for Certification Table 6.12-2; (Ex. 2; Vol. 2 at p. 6.12-7.

Health effects of the modeled pollutant concentrations were assessed with regard to: 1) potential acute effects (1 hour); 2) potential chronic non-cancer effects (annual); and, 3) potential incidence of cancer (annual). (Ex. A at p. 23-4.)

The potential for acute effects was evaluated for each pollutant by comparing the modeled emissions with established acute effect levels. Pollutants with potential for chronic effects on health were compared with established health effect levels using the hazard index approach. (Ex. A at p. 24.) The risk ratios for acute and chronic effects were less than 1.0 and found to be insignificant. *(Ibid.*; Ex. 1: Testimony of David Lefebvre at p. 9.)

Potential project-related cancer risks were estimated according to the computer models established by the California Air Pollution Control Officers Association (CAPCOA). Staff agreed with the analytical approach used by the Applicant which resulted in an excess cancer risk for the maximum exposed individual of 8.66×10^{-7}. This risk level is considered to be insignificant. See HEALTH: Table 2 below:

HEALTH: Table 2

Summary of Health Risk at
the Location of Maximum Potential Exposure

	Risk
Cancer Risk	8.66×10^{-7}
Chronic Hazard Index	0.01
Acute Hazard Index	0.52

Source: Procter & Gamble Cogeneration Project AFC, pp. 6.12-16c and 6.12-16h. (Ex. 2.)

Based on the HRA modeling results shown above, the potential health risks from noncriteria pollutants fall below the levels of significance related to exposure. Accordingly, the evidence establishes that noncriteria air pollutants emitted from the project will not pose a significant risk

of adverse impact to public health; thus no mitigation is required. (Ex. A at p. 23 ; Ex. 1: Lefebvre at pp. 9-10.)

Further, the evidence indicates that no significant cumulative impacts to public health will occur from emissions of the proposed project in combination with emissions from the three other SMUD-related cogeneration projects. (Ex. A at p. 26.) If maximum impacts from each SMUD project are added together, the total cumulative risk levels from all four projects fall below the levels of significance described above. The Commission also notes that it is physically impossible for the maximum estimated impacts from these projects to be coincident at any one location at any one time. *(Ibid.)*

Accordingly, with implementation of the mitigation measures described in the Air Quality Section of this Decision, project emissions of criteria and noncriteria pollutants will not result in significant impacts to public health.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The major public health hazard associated with project emissions is exposure to criteria and noncriteria air pollutants from the combustion of natural gas during normal operations.

2. Exposure to criteria air pollutants will be mitigated by measures described in the Air Quality Section of this Decision which require the Applicant to fully offset project emissions so that, on balance, public exposure from a basin-wide perspective will not be increased.

3. Potential risks of acute and chronic noncarcinogenic health impacts from noncriteria air pollutants emitted during project operations fall below the standard level of significance established by the hazard index ratio of 1.0.

4. Potential risks of cancer resulting from exposure to carcinogenic pollutants from project emissions fall below the standard level of significance of one-in-one million ($1x10^6$).

5. Noncriteria air pollutants emitted by the project will not pose a significant risk of adverse impact to public health and therefore no mitigation is required.

6. Based on the mitigation measures imposed to control criteria pollutant emissions in the Conditions of Certification related to air quality and on the evidence which indicates that no mitigation is necessary to control project emissions of noncriteria pollutants, the proposed project will comply with the laws, ordinances, regulations, and standards related to public health as identified in Appendix A of this Decision.

C. Hazardous Materials Handling

The Commission must determine whether the proposed project will cause adverse impacts to the public as a result of the handling or storage of hazardous materials at the site. Table 3.11-1 at the end of this Section lists the chemicals to be used at the site. Hazardous materials include the following:

- ammonium hydroxide (aqueous ammonia, 30% NH_3)
- sodium hydroxide (liquid, 50% NaOH)
- sulfuric acid (liquid, 93% H_2SO_4)
- sodium hypochlorite (liquid, 10% NaOCL)
- hydrazine (liquid, 35% N_2H_4)
- hydrochloric acid (liquid, 30% HCL)
- natural gas

Other hazardous materials, such as sodium nitrite, disodium phosphate, trisodium phosphate, and ammonium bifluoride will also be present. However, these materials pose minimal risk for off-site impacts as they will be stored in solid form or in smaller quantities. Sodium hydroxide, sulfuric acid, and sodium hypochlorite do not pose a risk of off-site impacts from direct release because they have relatively low vapor pressures or low toxicity. (*Id.* at p. 29.)

Significant off-site impacts could result from accidental spills of aqueous ammonia, hydrochloric acid, and hydrazine which evolve into toxic gases due to their relatively high vapor pressures. Accidental mixing of sodium hypochlorite with acids could also result in the evolution of toxic gases. (Ex. A at p. 29.) Improper handling of natural gas could result in fire and/or explosion. (Ex. A at pp. 29-30.)

Sensitive subgroups, including the very young, the elderly, and those with existing illnesses may be at greater risk from exposure to hazardous emissions. The closest public receptors to the proposed project are located 100 meters east of the site in adjacent commercial facilities. The nearest residential area is located about 2,500 feet (760 meters) to the west across Power Inn Road. The nearest sensitive receptor, Bonnheim School, is located approximately one mile

(1600 meters) to the northwest of the project site. See FIGURE 11 which shows the locations of all sensitive receptors within a three mile radius of the proposed facility. (Ex. A at p. 31.)

The parties analyzed the potential adverse effects of the accidental release of hazardous materials to sensitive receptors based on a conservative analysis which identified levels of concern (LOC). An LOC is defined as the concentration of a hazardous material in air, above which serious irreversible health effects may result from a single exposure for a short period of time. (Ex. 2 at p. 6.12-20.)

Aqueous Ammonia. Aqueous ammonia will be used to control the emission of oxides of nitrogen (NO_x) from the combustion of natural gas. Accidental release of aqueous ammonia could result in the evolution of ammonia gas due to its high vapor pressure under ambient conditions.[21] Direct evaporation of ammonia from a spill could result in relatively high downwind concentrations.

To reduce risks from accidental releases, the project will include a diked containment area with a floating surface cover around the aqueous ammonia storage vessel sized to hold the entire contents of the tank. The most likely spill scenario, however, is a release occurring between the delivery vehicle and the storage vessel. In such an event, the released material could form a pool with a substantially large surface area for evaporation unless spills are directed to the diked area. Therefore, the Conditions of Certification require the Applicant to install a spill containment structure between the truck loading area used for delivery and the aqueous ammonia storage vessel. (7/20/94 RT 102-3; 106-8; Ex. 2 at p. 34.)

[21] The temperature of aqueous ammonia in storage containers will exceed ambient temperatures by as much as 20°F on a sunny day. Surface temperatures of paved areas will also exceed ambient levels. To reflect these factors, a temperature of 110°F is assumed for spilled material at the site. (Ex. A at p. 34.)

FIGURE 11

Source: Ex. 2: Vol. 2, Figure 6.12-1.

SENSITIVE RECEPTOR LOCATIONS

To determine the level of significance of potential exposure, Commission staff used a value of 75 parts per million (ppm) as recommended by the National Research Council (NRC). Under the NRC short-term public emergency limit (STPEL), exposure to ammonia gas at a concentration of 75 ppm for 30 minutes represents the maximum level that would not pose a significant risk of adverse effect. (Ex. A at p. 34.)

Using EPA's SCREEN Model, Version 1.0 (EPA 1988), Commission staff determined that in the event of a spill *without* containment, vapor concentrations at the nearest public receptor, nearest residences and nearest sensitive receptor location would be 3,430 ppm, 120 ppm, and 40 ppm, respectively. If the catchment basin between the delivery vehicle and the storage tank drains into the diked area under the tank, the spill would be confined to the diked area. Under this assumption, the airborne vapor concentrations at the nearest public receptors would be 545 ppm, 16.1 ppm, and 5.18 ppm, respectively. (Ex. F [Hazardous Materials].) If a floating surface cover is provided for the diked area, the concentrations would further be reduced by a factor of 10 to 54.5 ppm, 1.61 ppm, and 0.5 ppm, respectively, thus reducing the risk of public harm to insignificance. (Ex. A at p. 34: Ex. F [Hazardous Materials].)

Since the Conditions of Certification require these mitigation measures, any accidental releases should thus be contained below any potential levels of significance. Furthermore, a detailed safety management plan will also be implemented to reduce the potential for human error and equipment failure.

Hydrochloric Acid. Hydrochloric acid (HCL) will be used for cleaning the HRSGs.[22] Approximately 10,000 pounds of HCL will be delivered by truck to the site once every 3 to 5 years (intermittent/temporary on-site storage). In case of an accidental spill, HCL would form a pool having a surface area of 1,470 square feet (presumably the surface area within the temporary barricades). (Ex. A at p. 35.)

[22] HCL will be reduced to a 30 percent solution. (7/20/94 RT 83:3-4 and 84:3-6.)

Using EPA's SCREEN Model, Version 1.0 (EPA 1988), Staff determined that concentrations at the nearest public receptor, nearest residences, and nearest sensitive receptor would be approximately 47 ppm, 1.5 ppm, and 0.5 ppm, respectively. Staff used a concentration of 2 ppm (NRC STPEL for HCL) to determine the potential for adverse impacts.[23] Under this analysis, the project would pose a risk of significant adverse impacts to off-site workers at adjacent commercial facilities. (Ex. A at p. 35.)

To mitigate the impacts, the Conditions of Certification require the Applicant to: (1) install a temporary containment structure having an effective surface area no greater than 268 square feet around the HCL storage vessel as soon as the vessel is placed within the facility; and, (2) provide trained personnel to ensure that the structure is erected and maintained properly while the HCL storage vessel is within the facility. The safety management plan will significantly reduce the risk of an HCL spill by minimizing the potential for human error and equipment failure. (Ex. A at p. 35.)

Sodium Hypochlorite. Sodium Hypochlorite will be used for water treatment to control algae and other biological growth and to control pH. The storage, handling, and use of sodium hypochlorite could cause a release of chlorine gas if it is accidentally mixed with acids. The safety management plan requires separate storage facilities for incompatible materials to minimize the opportunities for accidental mixing and reduce the risk of potential impacts to insignificant levels. (Ex. A at p. 36; Ex. 1: Lefebvre at p. 4.)

Hydrazine. The Applicant will use an aqueous solution containing less than 35 percent hydrazine for use as a feed water oxygen scavenger to reduce scaling in the boiler tubes. If hydrazine is volatized out of solution by a fire or the solution is vaporized, the resultant fumes

[23] The EPA estimates levels of concern (LOC) by using one-tenth of the immediately dangerous to life and health (IDLH) levels published by the National Institute for Occupational Safety and Health. The IDLH level for HCL is 100 ppm. At one-tenth of this level under EPA guidance, the LOC for HCL is 10 ppm. (Ex. 2 at p. 6.12-20.) The parties used the more conservative 2 ppm recommended by the NRC to model the worst-case scenarios. The parties also assumed the worst-case vulnerable zone size for an HCL spill in a non-contained area would cover 1,470 square feet. (*Ibid*; Ex. 2, Table 6.12-12.)

are very toxic. (Ex. A at p. 36.) One 55-gallon plastic drum containing the aqueous solution of hydrazine will be delivered once a month except during start-up and once again every five years when four 55-gallon drums will be delivered for HRSG cleaning. (7/20/94 RT 90:7-11; Ex. A at p. 38.)

Commission staff used the AFTOX model to analyze impacts under five worst case scenarios involving spills from one to four 55-gallon drums. All five scenarios indicated a significant hazard exists to workers at the nearest public receptor at 100 meters if only one 55-gallon drum were to spill in an open area and remain uncontained and unremedied for one hour. The model predicts that a one-drum spill would not impact residential areas but if all four drums were to spill, the nearest residential receptors would be impacted in two of the five scenarios. (Ex. A at p. 37.)

Staff also modeled five scenarios to analyze potential impacts from the rupture of only one 55-gallon drum during a fire event. Staff assumed that 90 percent of the hydrazine would be destroyed and only ten percent would be dispersed. Even under this assumption, both off-site workers at the nearest commercial locations and the nearest residential receptors would be at risk of adverse impacts in two scenarios; only off-site workers would be impacted under the other three scenarios.

To mitigate potential impacts, the Conditions of Certification impose restrictions on the amount of hydrazine which can be delivered at any one time and limits the times for delivery, the method of unloading deliveries, the location and design of storage facilities, and require the training of personnel and specific procedures addressing emergency response to a spill. (Ex. A at p. 38-9.)

Natural Gas. Natural gas, which will be used as a fuel for the cogeneration facility, poses a fire and/or explosion risk as a result of its flammability. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of fire and/or explosion can be reduced to insignificant levels through adherence to applicable laws, ordinances, regulations, and

standards and implementation of effective safety management practices including: (1) the use of double block and bleed valves for gas shut-off; (2) automated combustion controls; and (3) burner management systems. (Ex. A at p. 39.)

These measures will significantly reduce the likelihood of an explosion in the HRSGs. Additionally, start-up procedures will require air purging of fire boxes prior to start-up to preclude the presence of an explosive mixture. The safety management plan will address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. (Ex. A at p. 39.) The evidence of record indicates that these measures will reduce risks from natural gas fires and/or explosions to acceptable levels.

The mitigation measures described above are incorporated in the Conditions of Certification to ensure that delivery, storage, and handling of hazardous materials on-site will conform with applicable laws, ordinances, regulations, and standards and that potential impacts to public health and safety will be reduced to insignificance.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. Several hazardous materials will be delivered, stored, and handled at the project site, including aqueous ammonia, hydrochloric acid, sodium hypochlorite, an aqueous solution of less than 35 percent hydrazine, and natural gas.

2. The major types of hazards associated with the delivery, storage, and handling of the materials identified above in Finding 1 could result in toxic gas release from accidental spills and/or accidental mixing of incompatible materials or fires/explosions.

3. Mitigation measures include diked containment areas surrounding storage facilities and catchment basins between the delivery vehicles and storage vessel; location and design of storage vessels; limitations on the time, method and frequency of delivery; training of personnel in proper safety and emergency handling of hazardous materials, and the development of a safety management plan to minimize the potential for human error and

equipment failure.

4. Implementation of the mitigation measures which are incorporated in the Conditions of Certification will ensure that the proposed project does not pose a significant risk of adverse impact to public health and safety.

5. Implementation of the mitigation measures which are incorporated in the Conditions of Certification will ensure that the proposed project complies with all applicable laws, ordinances, regulations, and standards related to hazardous materials handling as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities that is not listed in Table 3.11-1 (attached) unless approved by the California Energy Commission's (CEC) Compliance Project Manager (CPM).

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

HAZ-2 The project owner shall construct a spill containment structure between the truck loading area used for delivery and the ammonia storage facility prior to any delivery of ammonia to the project site.

Verification: At least sixty (60) days prior to construction of the structure, the project owner shall provide design drawings and specifications for spill containment structures to the CEC CPM for review and approval.

HAZ-3 The project owner shall provide a detailed Safety Management Plan (Safety Plan) including:

(1) a description of how each element of the Safety Plan applies to the proposed facility;

(2) an explicit chain of command (by job title on final organization chart) for each specific objective identified in the plan (for example, under "Accountability", list who will be responsible for the preparation of the specific statement of expectations, objectives, and goals by senior management, daily shift logs and reports of abnormal conditions);

(3) a description of how corporate management will ensure proper implementation of the

Safety Plan and ensure that production and safety are properly balanced;

(4) methods that will be used to motivate employees to accomplish safety objectives; and

(5) detailed procedures to address the hazards associated with human error during storage and transfer of hazardous materials.

Verification: At least sixty (60) days prior to operation, the project owner shall provide the detailed Safety Plan to the CEC CPM for review and approval.

HAZ-4 The project owner shall provide an Emergency Response Plan (plan) which includes emergency response training for Plant Managers, Supervisors, Operators, and Auxiliary Operators. The plan shall also address evacuation planning for adjacent commercial facilities.

Verification: At least sixty (60) days prior to construction, the project owner shall provide a complete plan to the CEC CPM for review and approval.

HAZ-5 The project owner shall submit a Business Plan and Risk Management Prevention Plan (Risk Management Plan) as required by California Health and Safety Code Chapter 6.95 to the Sacramento County Environmental Management Department (the county) and to the CEC CPM for approval.

Verification: Ninety (90) days prior to operation the project owner shall submit: (1) a copy of the project's Business Plan and Risk Management Plan and any revised copies, if modified at a later date; and (2) copies of written comments and proposed revisions from the county on the project's Business Plan and Risk Management Plan.

HAZ-6 The project owner shall include in the project Safety Plan a safety program which ensures that the storage vessel containing hydrochloric acid used to clean the Heat Recovery Steam Generator (HRSG) is surrounded by a temporary spill containment structure consisting of a surface area no greater than 268 sq. feet. This safety program shall also ensure that the facility staff shall monitor the containment structure to ensure its effectiveness as long as the HCL storage vessel is located at the facility.

Verification: Prior to the delivery of HCL on site for the purpose of cleaning the HRSG, the project owner shall submit a copy of the spill containment safety program to the CEC CPM for review and approval.

HAZ-7 The project owner shall develop and maintain a hydrazine delivery, handling, and storage safety plan which the project owner shall implement and which shall contain the following requirements:

1. Only one 55-gallon plastic drum of 35 percent aqueous solution of hydrazine shall be delivered at any one time and each delivery will occur approximately once each month. This will be the normal delivery schedule except during start-up and once again every 5 years when the HRSG is cleaned. On these occasions, four 55-gallon plastic drums may be delivered at one time.

2. The use of a fork-lift to unload hydrazine solutions is expressly prohibited.

3. To the extent feasible, all deliveries shall take place between 10 a.m. and 3 p.m.

4. The delivery vehicle shall be equipped with a working vertical lift gate for ease in unloading. All delivery trucks will be brought within close proximity (not to exceed 20 feet) to the cycle chemical feed building. The unloading site shall be clearly marked with placards or pavement markings, and kept free of clutter, other vehicles, and other chemicals when unloading and transferring hydrazine.

5. Only one drum shall be unloaded at any time. Each drum shall be unloaded from the delivery vehicle by first lashing the drum to a two-wheeled cart, then lowering the cart to ground level via the vertical lift gate, and then wheeling the cart into the cycle chemical feed building.

6. All drums containing hydrazine shall be stored on-site only within the cycle chemical feed building, kept segregated from other chemicals, and stored in a curbed area. Other than hydrazine, only phosphate and amine may be stored within this building. No other chemicals are allowed.

7. The cycle chemical feed building shall be ventilated to maintain acceptable temperature and to avoid the buildup of hydrazine vapors in the building. Ventilation shall be achieved by installing roof level and floor level power ventilators. Transfer lines and piping in the cycle chemical feed building shall be electrically grounded as recommended by the manufacturer.

8. The unloading and transfer to the cycle chemical feed building shall be performed by the delivery vehicle driver and shall be supervised and monitored by at least one facility staff person who shall stand by with a pressurized water hose to dilute any spilled hydrazine.

9. In the event of a spill of hydrazine, the spill will be contained, diluted with water, and neutralized with sodium hypochlorite. Neutralized hydrazine shall be absorbed with materials such as clay, sand, or a commercial absorbent, and disposed of in an

appropriate manner.

10. Neutralization chemicals and adsorbents shall be stored in close proximity to the unloading site.

11. The project owner shall to the extent feasible ensure that the delivery truck operator is trained and equipped with appropriate personal protective equipment by the commercial supplier. The facility staff person shall be trained and equipped with personal protective equipment as recommended by the manufacturer which shall consist of, at a minimum, butyl rubber gloves, boots, hard hat, apron or splash suit, and a face shield with safety glasses or goggles. Chemically impermeable suits and National Institute for Occupational Safety and Health approved full-face positive pressure supplied air respirators will also be available at the unloading site and at the facility control room.

12. Facility staff shall be trained in the safety procedures which will be implemented during the unloading, transfer, and storage of aqueous hydrazine drums and these procedures will be posted at the cycle chemical feed building and will be fully described in the facility Safety Management Plan, the Business Plan, and the RMPP.

Verification: At least sixty (60) days prior to delivery of hydrazine to the site, the project owner shall submit a copy of the hydrazine delivery, handling, and storage safety plan, complete with diagrams describing the exact location of the safety features, to the CEC CPM for review and approval. The owner shall also provide in the monthly compliance report to the CEC CPM a written explanation for any deliveries that are not as specified in item 3 above.

Table 3.11-1
Power Project Plant Chemicals

Chemical	Use	Quantity Stored Onsite	Form/Type
Ammonium hydroxide (NH_4OH)	Selective catalytic reduction	10,000 gallon bulk storage tanks (Approx. 7 days storage)	Liquid aqueous ammonia, 30 percent NH_3
Sodium hydroxide (NaOH)	Demineralizer resin regeneration and neutralization, boiler pH control	6,000 gallon bulk storage tank (Approx. 30 days storage)	Liquid, 50 percent NaOH
Sulfuric acid (H_2SO_4)	Demineralizer resin regeneration and neutralization, circulating water pH control	6,000 gallon bulk storage tank (Approx. 30 days storage)	Liquid, 93 percent H2SO4
Disodium phosphate (Na_2HPO_4)	Boiler water pH and scale control	500 lbs. (Approx. 30 days storage)	Granular
Trisodium phosphate (Na_3HPO_4)	Boiler water pH and scale control	500 lbs. (Approx. 30 days storage)	Granular
Aqueous ammonia	Feedwater pH control	200 gallons (55 gallon drums) (Approx. 30 days storage)	Liquid, 35 percent solution
Sodium hypochlorite (NaOCL)	Biocide for condenser cooling water system	7,000 gallons (estimated maximum) (Approx. 30 days storage)	Liquid, 10 percent NaOCl
Hydrazine	Feedwater oxygen scavenger	200 gallons (55 gallon drums) (Approx. 30 day storage	Liquid
Laboratory reagents	Various	Small amounts, generally less than 5 lbs.	Liquid and granular
Hydrochloric acid (HCL)* (Temporarily onsite)	Chemical cleaning of HRSG (Acid cleaning)	10,000 lbs. (used for initial chemical cleaning and may be used for future chemical cleaning approximately every 3 to 5 years)	Liquid, 30 percent HCl
Ammonium bifluoride (NH_4HD_2)* (Temporarily onsite)	Chemical cleaning of HRSG (Acid cleaning)	200 lbs. (used for initial chemical cleaning and may be used for future chemical cleaning approximately every 3 to 5 years)	Crystals

Table 3.11-1 (Continued)
Power Project Plant Chemicals

Chemical	Use	Quantity Stored Onsite	Form/Type
Citric Acid* (Temporarily onsite)	Chemical cleaning of HRSG (Acid cleaning)	100 lbs. (used for initial chemical cleaning and may be used for future chemical cleaning approx. every 3 to 5 years)	Powder
Hydroxyacetic acid* (Temporarily onsite)	Chemical cleaning of HRSG feedwater system (Acid cleaning)	1,000 lbs. (used for initial chemical cleaning	Crystals
Formic acid* (Temporarily onsite)	Chemical cleaning of HRSG feedwater system (Acid cleaning)	600 lbs. (used for initial chemical cleaning	Liquid
Sodium carbonate Na_2CO_3* (Temporarily onsite)	Chemical cleaning of HRSG (Neutralization)	500 lbs. (used for initial chemical cleaning and may be used for future chemical cleaning approx. every 3 to 5 years)	Powder
Sodium nitrite $NaNO_3$* (Temporarily onsite)	Chemical cleaning of HRSG (Passivation)	500 lbs. (used for initial chemical cleaning and may be usad for future chemical cleaning approx. every 3 to 5 years)	Crystals
Scale inhibitors, various	Reduce scale formation in the circulating water system	200 gallons (55 gallon drums) (Approx. 30 days storage)	Liquid
Mineral insulating oil	Transformer systems	39,000 gallons	Insulating fluid
Lubrication oil	Rotating equipment	4,000 gallons	Gas turbine bearing lubricating oil for 500°F bearing conditions
Various detergents	Combustion turbine compressor cleaning	900 lbs. (for periodic cleaning)	Liquid or granular

D. Waste Management

This section evaluates the Applicant's proposals to mitigate the risks and environmental impacts associated with the handling, storage, and disposal of project-related hazardous and non-hazardous wastes. The Commission must find that:

- Wastes generated during construction and operation of the proposed project will be managed in an environmentally safe manner;
- Disposal of project wastes will not result in significant adverse impacts to existing waste disposal facilities; and
- The management of the wastes will be in compliance with all applicable laws, ordinances, regulations, and standards.

Construction. Construction of the proposed project will generate about 40 cubic yards (20 tons) per week of various non-hazardous wastes including excess concrete, packing materials, lumber, scrap metal, office trash, and empty containers. In addition, about 22,000 gallons of non-hazardous preoperational chemical cleaning waste will be generated during a one-time cleaning of the boiler and preboiler systems. Non-hazardous solid wastes will be collected by a contractor for disposal at an approved facility while the boiler contractor will dispose of the boiler chemical cleaning waste. (Ex. A at p. 88.)

Hazardous wastes generated during construction include waste oil and grease, spent solvent, welding materials, and materials from cleaning up spills, if any, of hazardous materials. The small quantities of hazardous wastes will be collected by a licensed operator and taken to one of the two hazardous waste transfer stations located in the County. (Ex. A at p. 88.)

Operation. The following hazardous and non-hazardous wastes will be generated during routine operation of the proposed project:

- Non-hazardous Solid Wastes. Trash, office wastes, and other nonhazardous wastes will be collected in storage bins, picked up regularly by a hauler, and transported to a Class III landfill for disposal.

- Boiler Cleaning Waste. Approximately every five years, the boiler system will be cleaned, generating about 60,000 gallons of acid and alkaline cleaning solutions and flushing waters. This waste may be classified as hazardous due to dissolved metals, and will be collected and disposed of by a licensed contractor in compliance with regulatory requirements.

- Spent Catalyst. Selective catalytic reduction catalyst, used for NO_x emissions control, must be replaced every 6 to 10 years as it becomes contaminated. The spent catalyst is classified as hazardous due to heavy metals content and will be sent back to the manufacturer for recycling.

- Waste Oil. Approximately 1300 gallons of waste oil will be generated annually. This will be stored in approved containers and removed by a licensed contractor for recycling.

Disposal sites for non-hazardous wastes include the Sacramento County landfill and the L and D landfill. The Sacramento County landfill has a permitted capacity of about 3,800 tons per day. The L and D landfill is currently receiving about 470 tons per day and has about four years of remaining life; an anticipated expansion would allow the facility to receive waste until about 2010. (Ex. A at p. 89.) The evidence of record establishes that the amounts of non-hazardous wastes generated during project construction and operation are minimal compared with existing disposal capacity, and would result in insignificant impacts to local landfills. *(Ibid.)*

The Applicant is required to dispose of hazardous wastes at facilities approved by the Central Valley Regional Water Quality Control Board or the CAL EPA Department of Toxic Substances Control. The Conditions of Certification require the Applicant to acquire and maintain an EPA identification number as a hazardous waste generator, and to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, and keep detailed records. (Ex. A at p. 89.)

Much of the hazardous wastes generated during construction and operation will be recycled, such as used oil and spent catalysts. The remaining hazardous wastes, such as operating and maintenance (O&M) waste and treated boiler cleaning waste, do not constitute significant

amounts and will not significantly impact the capacity of any of the Class I landfills in California, such as Kettleman Hills or Imperial Valley. (Ex. A at p. 89.)

The cumulative impacts of this project in combination with the four other SMUD-sponsored cogeneration projects on individual disposal facilities for waste disposal will be insignificant due to the minimal amounts of waste generated by this project and the availability of additional regional landfills. (Ex. A at p. 89.)

Finally, the evidence establishes that implementation of the Conditions of Certification will ensure that the proposed project will comply with all applicable laws, ordinances, regulations, and standards regulating the management of hazardous and non-hazardous wastes as identified in Appendix A of this Decision; no significant environmental impacts will result from the management and disposal of project-related waste.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. Construction and operation of the proposed project will produce hazardous and non-hazardous wastes.

2. Non-hazardous solid wastes will be collected by a contractor for disposal at an approved facility such the Sacramento County Class III Landfill or the L and D Landfill.

3. Hazardous wastes will be handled, stored, collected, transported, treated, and disposed of in accordance with all applicable laws, ordinances, regulations, and standards.

4. Much of the hazardous wastes, such as used oil and spent catalysts, will be removed by a licensed contractor for recycling.

5. Remaining hazardous wastes, such as operation and maintenance (O&M) waste and treated boiler cleaning waste, will be collected and transported by a licensed operator to one of the two hazardous waste transfer stations in Sacramento County and subsequently to an appropriate California Class I Landfill.

6. Wastes generated during construction and operation of the proposed project will be managed in an environmentally safe manner.

7. Implementation of the Conditions of Certification will ensure that project wastes will be managed in compliance with all applicable laws, ordinances, regulations, and standards pertaining to waste management as identified in Appendix A of this Decision.

8. Implementation of the Conditions of Certification will ensure that disposal of project wastes will not result in significant adverse impact to existing waste disposal capacity.

CONDITIONS OF CERTIFICATION

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

Verification: The project owner shall keep its copies of the identification number and County license on file at the Project site and notify the California Energy Commission (CEC) Compliance Project Manager (CPM) via the monthly compliance report of their receipt.

WASTE-2 The project owner shall notify the CEC CPM of any waste management-related enforcement action taken or proposed to be taken against it, or against any waste hauler or disposal facility operator (that the owner has knowledge of) with which the owner contracts.

Verification: The project owner shall notify the CEC CPM, in writing within ten (10) working days, of becoming aware of an impending enforcement action.

WASTE-3 The project owner shall prepare a waste management plan for all wastes generated during construction and operation of the facility. The plan shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling plans.

Verification: Two months prior to the beginning of construction, the project owner shall submit waste management plans for the cogeneration power plant to the CEC CPM for review and approval. At the project owner's discretion, management plans for construction and operation wastes may be prepared separately. If so, the construction waste plan shall be submitted two months prior to the start of construction, and the operation waste management plan shall be submitted to the CEC CPM for review and approval at least two months prior to the start of project operation. In the Annual Compliance Reports, the project owner shall document how actual waste management methods compared to planned management methods during the year.

E. Biological Resources.

This analysis examines the project's potential impacts to sensitive species including threatened or endangered species, species of special concern, wetlands and other sensitive habitat.[24]

The 50-acre parcel, where the proposed site is located,[25] supports non-native annual grassland with some degraded vernal pools. A system of drainage ditches is used to drain standing water which occurs on the lot. The lot has been disked annually for fifty years to reduce fire hazard. Most of the site's original native species and naturally occurring plant communities have been displaced by the disking, and filling and grading from industrial and agricultural uses of the area. (Ex. 2 at sec. 6.4.2.1.) Open cropland and annual grassland occur approximately one mile to the east and south. Large open areas still occur at the Sacramento Army Depot, one-quarter mile to the south. (Ex. A at p. 187.) Due to the disturbed nature of the site and the absence of protected species, no Biological Opinion from the California Department of Fish and Game was required.

1. Vegetation. The vegetation on the proposed site is dominated by introduced annual grasses including soft brome (Bromus hordeaceus), slender wild oat (Avena barbata), yellow star thistle (Centaurea solstitialis), Russian thistle (Salsola sp.), common tarweed (Hemizonia pungens), and California burclover (Medicago polymorpha). See Tables 1 and 2.

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[24] These include species listed as Federal Endangered or Threatened and species proposed for those categories; State Endangered or Threatened, species proposed for those categories and Species of Special Concern which have been identified as eligible for state-listing in the future; species protected by the California Fish and Game Code; species protected by federal laws such as the Eagle Act and Migratory Bird Act; species on the Audubon Society's Blue List; and species on the California Native Plant Society's lists.

The U.S. Fish and Wildlife Service (USFWS) is responsible for federal listings; the California Department of Fish and Game (CDFG) administers state listings. Sensitive species that are not officially listed may be considered rare, threatened or endangered under CEQA Guidelines. (See, Cal. Code of Regs., tit.14, § 15380.) The USFWS administers federal policy on the preservation of wetlands which is enforced by the U.S. Army Corps of Engineers. The CDFG administers state policy on wetlands.

[25] The proposed 10-acre project site and temporary 5-acre laydown area are located at the eastern portion of the 50-acre parcel. The inventory of biological resources includes the site, the 50-acre parcel and the transmission/fiber optic line corridor.

BIOLOGY: TABLE 1

Plants Observed on the Procter & Gamble Cogeneration Project Study Area, Sacramento, California[a]

Scientific Name[b]	Common Name[c]	USFWS Wetland Status[d]	Habitat	
			Northern Hardpan Vernal Pools	Nonnative Grasslands
Juncus bufonius L.	Toad rush	FACW+	X	
Juncus capitatus Weigel	Capped rush	FACU	X	
Lepidium densiflorum Schrad.	Pepper-grass	FAC		X
Lilaea Scilloides (Poir.) Haum.	Flowering quillwort	OBL	X	
Limnathes douglassii R. Br. ssp. rosea (Benth.) C. Mason	White meadowfoam	OBL[e]	X	
Limnanthes douglassii R. Br. ssp. rosea (Benth.) C. Mason	Douglas' meadowfoam	OBL	X	
Lolium multiflorum Lam.	Italian ryegrass	NL		X
Lupinus bicolor Linkley	Miniature lupine	NL		X
Lythrum hyssopifolia L.	Hyssop loosestrife	FACW	X	
Lythrum tribractatum Spreng.	Three-bract loosestrife	OBL	X	
Madia elegans Don	Tarweed	NL	X	X
Medicago polymorpha L.	California burclover	NL		X
Mimulus tricolor Loud.	Tricolor monkeyflower	OBL	X	
Plagiobotrys stipitatus (Greene) Johnson var. micranthus (Piper) Johnson	Slender popcorn flower	OBL	X	
Psilocarphus oregonus Nutt.	Oregon woolly-heads	FAC	X	
Psilocarphus tenellus Nutt.	Slender woolly-heads	OBL	X	
Ranunculus bonariensis Poir. var. trisepalus (Gill) Lourt.	Carter's buttercup	OBL	X	
Ranunculus muricatus L.	Spring-fruiting buttercup	FACW+	X	

Source: Ex. A, p. 189

BIOLOGY: TABLE 1 (CONTINUED)

Plants Observed on the Procter & Gamble Cogeneration Project Study Area, Sacramento, California[a]

Scientific Name[b]	Common Name[c]	USFWS Wetland Status[d]	Habitat	
			Northern Hardpan Vernal Pools	Nonnative Grasslands
Amsinckia menziecii (Ichm.) Nels. & Macbr. var. intermedia (Fisch. & Mey.) Ganders	Rancher's fireweed	NL	X	X
Anagallis arvensis L.	Scarlet pimpernel	FAC	X	X
Avena barbata Link	Slender wild oat	NL		X
Brizia minor L.	Little quaking grass	FACW-	X	
Bromus hordeaceus L. (synonym: B. mollis)	Soft brome	FACU-		X
Calandrinia ciliata (R. & P.) DC.	Red maids	FACU*	X	X
Capsella bursa-pastoris (L.) Medic.	Shepard's purse	FAC-		X
Crassula aquatica (L.) Schonl.	Water pygmyweed	OBL	X	
Centaurea solstitialis L.	Yellow star-thistle	NL		X
Collinsia sparsiflora Fischer & Mey.		NL	X	
Convolvulus arvensis L.	Field bindweed	NL		X
Dichelostemma capitatum Wood. (synonym: Brodiaea pulchella)	Blue dicks	NL	X	
Downingia pulchella (Lindley) Torr.	Flat-face downingia	OBL	X	
Erodium botrys (Cav.) Bertol.	Storksbill	FACU	X	X
Galium aparine L.	Catchweed bedstraw	FAC		X
Hemizonia pungens (H. & A.) T. & G. ssp. pungens	Common tarweed	NL	X	X
Hordeum leporinum Link	Barley	NI	X	X
Hordeum murinum Hudson	Barley	NL	X	X

Source: Ex. A, p. 190

BIOLOGY: TABLE 1 (CONTINUED)

Plants Observed on the Procter & Gamble Cogeneration Project Study Area, Sacramento, California[a]

Scientific Name[b]	Common Name[c]	USFWS Wetland Status[d]	Habitat	
			Northern Hardpan Vernal Pools	Nonnative Grasslands
Raphanus sativus L.	Wild radish	NL		X
Salsola sp.	Russian thistle	–		X
Senecio vulgaris L.	Common groundsel	NI*	X	X
Sidalcea calycosa M. E. Jones ssp. calycosa	Annual checker mallow	OBL	X	
Triphysaria eriantha (Benth) Chuang & Heckard (synonym: Orthocarpus e.)	Butter and eggs	NL	X	
Triteleia hyacinthina (Lindley) Greene (synonym: Brodiaea h.)	White brodiaea	FACW*	X	
Veronica peregrina L. ssp. xalapensis (Kunth) Pennell	Purselane speedwell	OBL	X	
Vicia sativa L.	Common Vetch	FACU		X
Vulpia myuros (L.) Gmel.	Rat-tail fescue	FACU*		X

[a]No plants found on the project site are currently listed or proposed for listing as protected under federal, state, or other legislation.

[b]Scientific nomenclature follows The Jepson Manual: Higher Plants of California (Hickman et al., 1993).

[c]Common names are taken from the National List of Plant Species that Occur in Wetlands: California (Region O) (Reed 1988).

[d]Categories are taken from the National List of Plant Species that Occur in Wetlands: California (Region O) (Reed 1988). Acronyms are the following: OBL = obligate wetland plant; FACW = facultative wetland plant; FAC = facultative plant; FACU = facultative upland plant; NL = not listed, usually presumed to be upland; NI = insufficient data for listing. A positive sign (+) indicates a frequency toward the higher end of the category, and a negative sign (-) indicates a frequency toward the lower end of the category. An asterisk (*) indicates that the species may belong in another category and that more information is needed.

Source: Ex. A, p. 191

BIOLOGY: TABLE 2
Plant Species of Special Concern Occurring in Sacramento County, California*

Species	Federal Status**	California Code of Regulations	California Native Plant Society***
Aster chilensis var. lentus	Category 2	None	List 1B
Cuscuta howelliana	Category 3C	None	List 4
Dichelostemma lacuna-vernalis	Category 3C	None	List 4
Downingia humilis	Category 3C	None	List 1B
Eryngium pinnatisectum	Category 2	None	List 4
Gratiola heterosepala	Category 2	Endangered	List 1B
Hibiscus californicus	Category 2	None	List 1B
Juglans hindsii	Category 2	None	List 1B
Lathyrus jepsonii ssp jepsonii	Category 2	None	List 1B
Legenere limosa	Category 2	None	List 1B
Lilaeopsis masonii	Category 2	Rare	List 1B
Navarretia eriocephala	None	None	List 4
Oenothera deltoides ssp. howellii	Endangered	Endangered	List 1B
Orcuttia tenuis	Category 1	Endangered	List 1B
Orcuttia viscida	Category 1	Endangered	List 1B
Plagiobothrys hystriculus	Category 2	None	List 1B
Quercus lobatus	None	None	List 4
Sagittaria sanfordii	Category 2	None	List 3

*No Species of Special Concern were found in the study area or project site.

**Federal Status

Category 1 = Currently listed.

Category 2 = Federal status, threat and/or distribution data are insufficient to support federal listing.

Category 3 = Federal status: withdrawn from federal listing; too widespread and/or not threatened.

***California Native Plant Society

List 1B = Rare, threatened, or endangered in California and elsewhere.

List 3 = More information is needed about plant; under review.

List 4 = Limited distribution; watch list.

Source: Ex. A at p. 192

No listed plant species or species of special concern were found on-site or along the transmission/fiber optic line during botanical surveys. (Ex. A at pp. 193 and 196.)

Two species of vernal pool obligate plants[26] were found in a degraded pool area in the southwest corner of the proposed site. (Ex. A at p. 188; Ex. C at p. 11.) At the eastern end of the site are several small depressions (less than 3 inches) that collect rain water but remain clear of vegetation because they are regularly traversed by vehicles. *(Ibid.*; Ex. 1: Testimony of Lonn Maier re: Biology at p. 3.) The parties disagree on whether these areas should be designated as vernal pools.

Vernal pools and wetlands are found in the vicinity of the transmission/fiber optic line and along the existing Hedge/Hurley transmission corridor. (Ex. 1: Maier at p. 3-4; Ex. A at p. 196.)

2. Fish and Wildlife. The City of Sacramento will pump water to the project from the Fairbairn Water Treatment Facility on the American River, which operates with screened intakes to protect valuable fish species from being diverted from their river migration routes. (Ex. A at p. 193, 200.) Project use of river water is not expected to result in significant loss to fish resources.

Wildlife diversity on-site is low due to the proximity of surrounding developed areas. Wildlife observed in the area include California quail (Callipela california), greater yellow-legs (Tringa melanoleuca), western meadowlark (Sturnella neglecta), black tailed jackrabbit (Lepus californicus), opossum (Didelphis marsupialis), red-tailed hawk (Buteo jamaicensis), and American kestrel (Falco sparverius). Raccoon (Procyon lotor) tracks were observed on-site. (Ex. A at p. 193.)

The Swainson's hawk (Buteo swainsoni) and burrowing owl (Athene cunicularia) are two sensitive species which could occur on-site. Sensitive wildlife species are listed in Table 3; the Swainson's hawk is designated by the CDFG as a threatened species and the burrowing owl is

[26] The species identified were the Downingia concolor and the Mimulus tricolor. (Ex. C at p. 11.)

BIOLOGY: TABLE 3
Sensitive Terrestrial Wildlife Species Potentially Occurring in the Procter & Gamble Cogeneration Project Area, Sacramento County, California*

Species	Federal Status**	California Status***
Invertebrates		
Valley elderberry longhorn beetle (Desmocerus californicus dimorphus)	T	None
Amphibians		
California tiger salamander (Ambystoma californiense)	Category 2	CSC
Western spadefoot toad (Caphiopus hammondi hammondi)	Category 2	CSC
Reptiles		
Northwestern pond turtle (Clemmys marmorata marmorata)	Category 2	CSC
Birds		
Swainson's hawk (Buteo swainsoni)	None	ST
Northern harrier (Circus cyaneus)	None	CSC
Cooper's hawk (Accipiter cooperi)	None	CSC
Burrowing owl (Speotyto cunicularia)	None	CSC
Bank swallow (nesting colony) (Riparia riparia)	None	ST
Tri-colored blackbird (Agelaius tricolor)	Category 2	CSC
Mammals		
Pacific western big-eared bat (Plecotus townsendii townsendii)	Category 2	CSC

*No Species of Special Concern were found in the study area or project site.

**Federal status.

T = Threatened.

Category 2 = Federal status, threat and/or distribution data are insufficient to support federal listing.

***California status.

ST = Threatened.

CSC = California Department of Fish and Game Species of Special Concern.

Source: Ex. A at p. 194

designated by the CDFG as a species of special concern. The CDFG did not file a Biological Opinion in this case due to the disturbed nature of the proposed project site and the absence of protected species on-site.

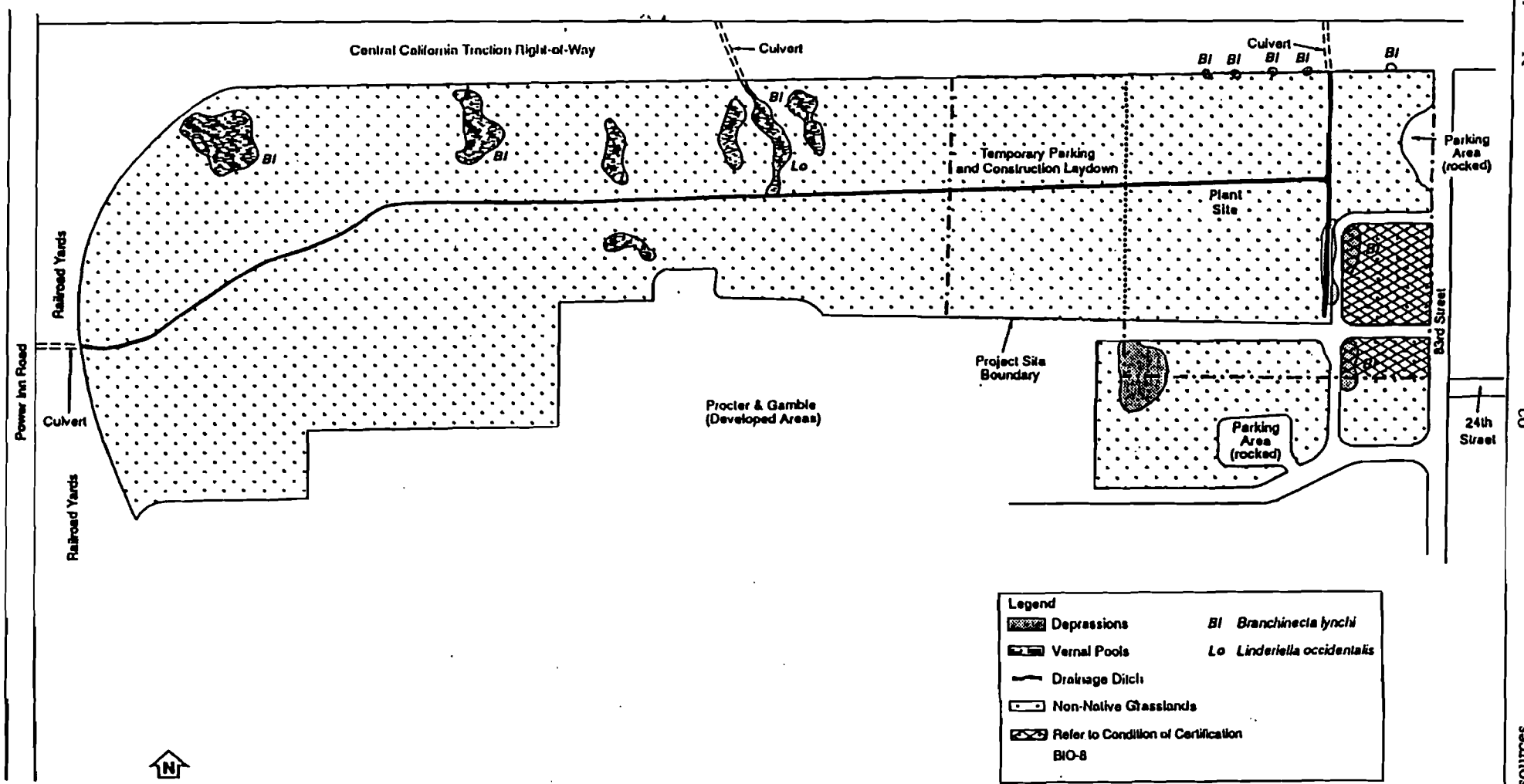
Swainson's hawks historically nested and foraged throughout this area in the type of habitat occurring on-site. Numerous Swainson's hawks nests are known to occur within 10 miles of the project site. No Swainson's hawks were observed foraging on-site or along the transmission/fiber optic line, nor were any nests identified within 1/4 mile of the site. (Ex. A at pp. 195-196.)

Burrowing owl pellets and white wash were observed on the 50-acre lot (not on the proposed project site) in front of a hole of adequate size for a burrowing owl, in a series of mounds occupied by numerous California ground squirrels (Spermophilus beechyi). Burrowing owls are known to occur just south of the Procter & Gamble facility at the Sacramento Army Depot, but no burrowing owls were observed on-site or along the transmission/fiber optic line. (Ex. A at pp. 193, 195-196.)

A species of vernal pool fairy shrimp[27] (Branchinecta lynchi) was found on the proposed project site in two roadside ditches on the east side of the site and in five pools of water along the railroad tracks on the northern boundary of the site. Vernal pool invertebrates were also found in a variety of *non-vernal pool* habitats containing water including roadside ditches, bulldozer scrapes, and muddy tire tracks. (Ex. A at p. 195.) FIGURE 12 shows the locations of vernal pool fairy shrimp on the 50-acre lot; the on-site locations of the vernal pool fairy shrimp are within a portion of the area designated by cross-hatching. The vernal pool tadpole shrimp (Lepidurus packardi) was identified along the transmission line corridor.

[27] The Commission takes administrative notice that the vernal pool fairy shrimp species was recently added to the USFWS list of threatened species and the vernal pool tadpole shrimp was added to the list of endangered species. (59 Fed.Reg. 48136 et seq. [Sept. 19, 1994].)

FIGURE 12



Source: Ex. A at p. 199

LOCATIONS OF FAIRY SHRIMP IN THE STUDY AREA

Figure 6.4-3

3. Mitigation Plan. Under applicable laws, ordinances, regulations, and standards, loss of habitat resulting from construction and operation of a proposed project must be mitigated to prevent further diminishment of sensitive species. Commission staff's proposed mitigation plan includes the following components:[28]

- Avoidance of sensitive wetland areas found along the proposed transmission/fiber optic line;

- Revegetation of the temporary 5-acre laydown area and transmission/fiber optic line, marking and avoiding sensitive biological resources during construction activities, and a biological resources education program for project employees; mitigation measures to be compiled in a Biological Resources Mitigation Implementation and Monitoring Plan;

- Off-site compensation for lost habitat on a "no-net-loss" basis;[29] Applicant to pay the sum of $103,000 ($5,000 per acre) in compensation for 20.6 acres of lost habitat calculated as follows:[30]

  - the 10-acre project footprint to be mitigated at a 1:1 ratio (9.6 acres required);

  - the 5-acre laydown area to be mitigated at a 0.5:1 ratio (2.5 acres required);

  - the 0.4 acres of depressions (pools of water) to be mitigated at a 10:1 ratio (4 acres required);

  - the 2 acres of transmission/fiber optic line to be mitigated at a 1:1 ratio (2 acres required);

  - 5 acres of indirectly affected area to be mitigated at a 0.5:1 ratio (2.5 acres required);

  - additional funds to be sought in the event of unexpected disturbance not considered in this plan;

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[28] Ex. C at pp. 2-4.

[29] This approach is consistent with CDFG policy. (Ex. C at p. 4.) Staff proposed a 1:1 replacement ratio because the area is degraded; typically, Staff would require a 3:1 replacement ratio for higher quality habitat. (7/19/94 RT 64.)

[30] Applicant agreed to pay the compensation amount but disagreed with the methodology used to evaluate the lost habitat.

- Conditions of Certification to ensure compliance with the mitigation measures and applicable law; aerial photography component to require Applicant to take aerial photos before and after construction to record any disturbances.[31]

Applicant disagreed with two elements of the mitigation package proposed by Commission staff. These issues are discussed below:

4. Habitat Value. The Applicant offered to mitigate at a ratio of 1.5:1 for direct project impacts to provide 15 acres of replacement habitat as compared with Staff's proposed total of 20.6 acres. The difference in opinion between the two parties resulted in an additional 5.6 acres in compensation habitat requested by Staff. Although the Applicant agreed to pay the sum of $103,000 in compensation for lost habitat,[32] the Committee requested testimony on the methodology used to calculate that amount. At the Evidentiary Hearings, the parties offered different views on the value of the displaced habitat.

Staff asserted that a degraded vernal pool, not a mere depression, exists at the southwest corner of the project site. (Ex. C at pp. 8-9.) Staff believed its position was supported by the USFWS definition of wetlands which includes vernal pools:

> Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes;[33] (2) the substrate is predominantly undrained hydric soil; and, (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. (Classification of Wetlands and Deepwater Habitats of the United States, FWS/OBS 79/31 (December 1979).

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[31] Applicant contested this requirement.

[32] Applicant agreed to pay the amount calculated by Staff but disagreed with Staff's view on the replacement value of lost habitat and the methodology used to determine the amount of compensation. (7/19/94 RT 26:5-13; 37:25-38:1-5.)

[33] Hydrophytes are plants which grow in and are adapted to very wet or aquatic environments.

Vernal pool obligate plants such as those identified at the southwest pool area require standing water for an undetermined period of time followed by a water receding period and eventually a dry period. (Ex. C at pp. 8-9; 7/19/94 RT 70.) Vernal pool fairy shrimp did not occur in the southwest pool area, but were found in other areas or depressions on the site that held standing water for weeks to months. (7/19/94 RT 71.)

Staff asserted that the southwest pool area meets two criteria of the USFWS definition, i.e., standing water and hydrophilic plants; the other areas of pooled water meet the standing water criterion. (Ex. C at p. 11.) According to Staff, these habitats would be considered problem wetlands under both the USFWS definition and the U. S. Army Corps of Engineers policy. *(Ibid.)* Staff estimated these areas constitute approximately 0.4 acre. (7/19/94 RT 65:6-11.)

The Applicant relied on the definition of wetlands applied by the U.S. Army Corps of Engineers[34] which requires that all three criteria of the USFWS definition be met: 1) hydric soils; 2) hydrophilic vegetation; and 3) surface water saturation. (7/19/94 RT 39-40.)

The Applicant argued that the criterion of hydric soils is not found at the site. Hydric soils are characterized by the ability to contain water. Although there is some surface hydrology at the site, pooled water is conveyed away by the drainage system. The water may drain slowly because drainage ditches contain industrial debris which clogs the system, but the soil does not keep a consolidated bottom to contain water due to the annual disking. (7/19/94 RT 46, 50-51.) When the water is drained, there is little vegetation due to the industrial nature of the site. (7/19/94 RT 49-52.)

[34] The U. S. Army Corps of Engineers determines whether an area qualifies as a wetland but does not require mitigation for wetlands covering less than one acre. (7/19/94 RT 40, 45.) The Applicant states that a Corps of Engineers representative has indicated the agency does not have jurisdiction over the project site as the site does not meet wetland requirements. (Ex. 1: Maier at pp. 3-4.)

The Applicant also contended that although vernal pool fairy shrimp were found in some pools of water on the site, fairy shrimp are hardy species that can be found in all sorts of habitat including chemically-laden areas by railroad tracks and other industrial areas. (7/19/94 RT 29-30.) The Applicant questioned whether the presence of fairy shrimp in depressions on the site is a fair indicator of the existence of wetlands. (7/19/94 RT 41-3.)

The Applicant further asserted that the mitigation requested by Staff over-estimates the value of the on-site biological resources based on perceived, rather than actual impacts.[35] In particular, the Applicant disagreed with the 10:1 compensation ratio for wetlands. (Ex. 1: Maier at pp. 5-6.) The Applicant argued that the appropriate ratio for wetlands replacement is the one used by the U. S. Army Corps of Engineers, i.e., 1.3 to 2.5:1.[36] (Ex. 1: Maier at p. 5-6.) Staff contended that a ratio of 10:1 is necessary to compensate for the upland or watershed area necessary to support vernal pools since the entire project site could be characterized as watershed. (7/19/94 RT 72-73.) Staff asserted that the disturbance will require long-term recovery and should be compensated. (Ex. A at p. 201.)

The Commission finds the evidence does not persuasively establish the existence of viable vernal pools on the project site even though there are degraded pools on remaining portions of the 50-acre parcel.

Although there were hydrophilic plants found in the southwest area of the site and vernal pool fairy shrimp found in other depressions on the site, these appear to be random discoveries in an otherwise highly disturbed area. Further, the appearance of fairy shrimp is not conclusive since they can be found in areas not related to wetlands. While Staff asserts that vernal pools

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[35] The USFWS and other agencies use the Habitat Evaluation Procedure (HEP) which documents Habitat Value (HV). A 10-acre site with very low quality habitat (HV = 0.2) would require 2 replacement acres in mitigation (10 acres x 0.2). The Applicant contended that Commission staff was proposing mitigation of the site's low quality habitat with high-value habitat. (Ex. 1: Maier at p. 6.)

[36] The California Native Plant Society requires 2:1 to 3:1 for vernal pool replacement.

would reappear on the project site if left alone over time, further development in this industrialized area appears inevitable. The likelihood that the site would remain undisturbed into the future simply does not seem realistic.

However, the existing site supports the existence of the vernal pool fairy shrimp, a federally listed threatened species. Thus, potentially, construction and operation of the project could affect on-site fairy shrimp habitat. The Commission believes that the mitigation imposed by this Decision to require compensation for lost habitat will adequately provide replacement habitat for the fairy shrimp. Moreover, at the November 1, 1994 Committee Conference, the Applicant indicated its intent to avoid on-site fairy shrimp locations during construction as indicated in Figure 12, until the USFWS issues a Biological Opinion or other official written determination regarding the potential take of on-site vernal pool fairy shrimp. Condition of Certification BIO-2 requires the presence of an approved biologist on-site during construction to monitor sensitive habitat areas.

When this Decision was issued, the U.S. Fish and Wildlife Service had not yet adopted guidelines on mitigation requirements regarding the taking of vernal pool fairy shrimp. In the event that unforeseen disturbance to fairy shrimp habitat results from project construction activities, the parties agreed that mitigation for such additional disturbance will be calculated in accordance with ratios specified by the U.S. Fish and Wildlife Service at that time. (November 1, 1994 Committee Conference [11/1/94 RT 28:19-20].) Condition of Certification BIO-7 incorporates this agreement as part of the mitigation plan. Further, the Applicant will comply with all applicable provisions of the Federal Endangered Species Act regarding a potential take prior to the start of any project ground disturbance activities in the areas where vernal pool fairy shrimp have been identified by cross-hatching in Figure 12. Condition of Certification BIO-8 incorporates this proviso as part of the mitigation plan.

The Commission also notes that the Applicant disagreed with Staff's recommendation to provide off-site compensation for the 5-acre laydown area since the disturbance will be

temporary and the area will be revegetated after construction of the project has been completed. (Ex. 1: Maier at pp. 5-6.)

Since the Conditions of Certification require the disturbance of the lay-down area to be mitigated by revegetation, additional replacement habitat for the laydown area is not warranted because the site is presently disturbed and of low habitat value. The compensation requested by Staff does not appear to be supported by a rational nexus between the value of the laydown area and the potential disturbance during project construction.

The Commission concludes that the Applicant's proposal of habitat replacement at a 1.5:1 ratio for 10 acres (i.e., 15 acres) is reasonable under the circumstances.[37] The purchase of 15 acres to replace the 10 acres dedicated to the project should adequately provide vernal pool fairy shrimp habitat and other habitat values that would likely be of higher value than the habitat found at the existing site. Mitigation for indirect impacts at a ratio of 0.5:1 for the 10-acre site (5 acres) as proposed by Staff also appears reasonable to account for unpredicted changes that may occur as a result of project activities. The Applicant did not contest the proposal to compensate for indirect impacts. The Applicant's offer of 15 acres plus the 5 acres for indirect impacts proposed by Staff amounts to 20 acres at $5,000 an acre for a total of $100,000 in habitat compensation.

5. Aerial Photography. Staff's proposal for black-and-white aerial photography before and after construction is based on previous experience with powerplant projects which covered large and often inaccessible areas. (Ex. D; 7/19/94 RT 100-102.) Staff asserted that aerial photography is worthwhile as an historical record of any disturbances; it pinpoints specific disturbances, thus making field surveys more efficient; and, it essentially serves to protect the

[37] Eliminating 4 acres for watershed replacement and 2.5 acres for the 5-acre laydown area removes 6.5 acres from Staff's proposal of 20.6 acres, resulting in a total of 14.1 acres. Applicant has offered 15 acres at $5,000 an acre.

Applicant from liability for post-construction disturbance caused by entities other than the Applicant. (7/19/94 RT 87.)

The Applicant objected to this proposal arguing that interpretation would be subjective because aerial photographs lack resolution of a sufficient degree to make accurate assessments of actual impacts and further, there is no way to judge whether a disturbance that appears in a photo would have been caused by project activities.[38] (7/19/94 RT 107-110, 113; Ex. 1: Maier at p. 7.) Moreover, the Applicant plans to conduct its own field surveys as close in time as possible to any project activity to identify any disturbance resulting from that activity. *(Ibid.)*

The Commission is not persuaded by either the Applicant's argument regarding the subjectivity of aerial photographs or by Staff's argument that aerial photography ensures that disturbances attributable to the Applicant will be recorded more accurately. The Commission also notes that direct and indirect disturbances resulting from activity at the 10-acre site and the 5-acre laydown area are already mitigated as is disturbance to grassland along the transmission/fiber optic corridor.

Nevertheless, the Commission recognizes that aerial photography may be more efficient than ground surveys under certain circumstances where there is a large area or difficult terrain to survey or if other impediments to accessibility are apparent. In this case, the area of concern regarding unexpected disturbances would be more likely to occur along the transmission line corridor rather than at the project site itself. While there was no issue raised regarding the length or ruggedness of the transmission line corridor as an obstacle to ground surveys, there is evidence of difficulty in obtaining access to some areas. (7/19/94 RT 97-98.) Therefore, the Commission believes that aerial photography would be appropriate to monitor unexpected disturbances to the transmission/fiber optic corridor under limited circumstances *only* in the event that access is not available for ground surveys and accordingly, the Conditions of Certification include this limited option for aerial photography.

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[38] The cost of aerial photography is not an issue in Applicant's opposition to this measure. (7/19/94 RT 105:25-106:1-5.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. No listed plant species or plant species of special concern are found on-site or along the transmission/fiber optic line.

2. The Swainson's hawk and the burrowing owl are two sensitive wildlife species protected by the California Department of Fish and Game that could occur on-site, but neither of these species have been found on-site or along the transmission/fiber optic line.

3. Due to the disturbed nature of the proposed project site and the absence of protected species on-site, no Biological Opinion from the California Department of Fish and Game was required.

4. Federally listed vernal pool fairy shrimp (Branchinecta lynchi) were found on-site and both the vernal pool fairy shrimp and the federally listed vernal pool tadpole shrimp (Lepidurus packardi) were found in vernal pools and wetland areas along the transmission/fiber optic line.

5. Vernal pools and wetland areas that are found in the vicinity of the transmission/fiber optic line and along the existing Hedge/Hurley transmission corridor will be avoided during construction activities.

6. The evidence of record is not persuasive regarding the existence of viable vernal pools or wetlands on the project site.

7. The Applicant's proposal to mitigate permanently lost habitat at a 1.5:1 ratio at $5,000 an acre for the 10-acre project site is reasonable and should provide adequate compensation for loss of vernal pool fairy shrimp habitat and other habitat values since replacement habitat is likely to be of higher value than that of the existing degraded site.

8. Staff's proposal of a 0.5:1 ratio at $5,000 an acre to compensate for indirect impacts to habitat resulting from permanent removal of the 10-acre project site is reasonable.

9. The Applicant will pay a sum of $100,000 in compensation for direct and indirect impacts to biological resources resulting from project construction and operation. Additional compensation may be sought for unforeseen disturbances caused by project activities as set forth in Condition of Certification BIO-7.

construction activities and a biological resources education program for project employees.

11. Aerial photography is appropriate to monitor unforeseen disturbances along the transmission/fiber optic line *only* in the event that access is not available for ground surveys.

12. Implementation of the Conditions of Certification which incorporate the mitigation measures ensure that construction and operation of the proposed project will not result in significant adverse impacts to biological resources.

13. Implementation of the Conditions of Certification ensures that the proposed project will conform with all applicable laws, ordinances, regulations, and standards related to biological resources as identified in Appendix A of this Decision.

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CONDITIONS OF CERTIFICATION

BIO-1 Prior to the start of any ground disturbance activities, the project owner shall obtain California Energy Commission (CEC) Compliance Project Manager (CPM) approval of a designated biologist for the project.

Protocol: The project owner shall ensure that the designated biologist meets the following minimum qualifications: (1) a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field and (2) current certification of a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society, or a minimum of three (3) years experience in field biology. Additionally, the biologist shall be able to demonstrate to the satisfaction of the CEC biological resources staff that he or she has appropriate species and other experience for the biological resources tasks that must be addressed during project construction and operation.

If the CEC CPM determines the proposed designated biologist to be unacceptable, the project owner shall submit another individual's name for consideration.

If the project owner needs to replace the approved designated biologist, the project owner shall obtain approval of the new biologist by submitting to the CEC CPM the name, qualifications, address, and telephone number of the proposed replacement within five (5) working days of the termination or release of the preceding designated biologist.

Verification: Sixty (60) days or more prior to the start of any ground disturbance activities, the project owner will submit to the CEC CPM for approval the name, qualifications, address, and telephone number of the individual selected as the designated biologist. An oral determination may be given, and a written approval must be provided within ten (10) days of receipt of information.

BIO-2 The CEC CPM approved designated biologist shall perform the following duties: 1) advise the project owner's supervising construction or operations engineer on the implementation of the biological resource Conditions of Certification, 2) supervise or conduct mitigation, monitoring, and other biological resource compliance efforts, particularly in areas containing wetlands and special status species.

Verification: The designated biologist shall maintain written records of the tasks described above which shall be submitted along with the monthly Compliance Reports to the CEC CPM.

BIO-3 The project owner's supervising construction and operating engineer shall act on the advice of the designated biologists to ensure conformance with the biological resources Conditions of Certification.

Protocol: The project owner shall: 1) notify the CEC CPM of any non-compliance with this Condition; 2) halt all construction activities in areas specifically identified by the designated biologist to assure that potential significant biological resource impacts are avoided; and 3) advise the CEC CPM if any corrective actions are needed.

For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CEC CPM within three (3) working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CEC CPM that coordination with other agencies will require additional time before a determination can be made.

Verification: Within one (1) working day of non-compliance with Condition Bio-3, the project owner shall notify the CEC CPM by telephone of the circumstances and actions being taken to resolve the problem.

BIO-4 The project owner shall develop and implement a CEC CPM approved program in which each of its own employees, as well as employees of contractors and subcontractors who work on the project site (including transmission lines) during construction and operation, are informed about biological resource sensitivities associated with the project.

Protocol: This program shall be developed by the designated biologist and consist of on-site or classroom presentations in which supporting written materials are made available to all participants.

The program must discuss the locations/types of sensitive species and habitats on the project site and adjacent areas, the reasons for protecting these resources, the meaning of various temporary and permanent habitat protection measures, and who to contact if there are further comments and questions. This specific program can be administered by a competent individual acceptable to the designated biologist.

Each participant shall sign a statement declaring that the individual understands and will abide by the guidelines set forth in the program material. Each statement will also be signed by the person administering the natural resources awareness program.

The signed statements for the construction phase shall be kept on site and made available for examination by the CEC CPM for a period of at least six (6) months after the start of commercial operation.

Verification: No later than thirty (30) days prior to the start of construction, the project owner will provide copies of the program prepared by the designated biologist to the CEC CPM for approval. The project owner shall submit to the CEC CPM for approval the name and qualifications of the person administering the program. Prior to and during project construction and operation the CEC CPM will determine via telephone or through site visits, as deemed necessary, whether or not the project owner is complying with this Condition.

BIO-5 The project owner will prepare and submit to the CEC CPM for approval a Biological Resources Mitigation Implementation and Monitoring Plan which includes all the project owner's proposed mitigation measures as well as biological resources and soils mitigation measures contained in the Commission Decision. This plan will be submitted for acceptability and approval no later than sixty (60) days prior to the start of construction. This plan must be approved by the CEC CPM prior to any earth disturbance activities. This plan will include measures, as appropriate, to be implemented prior to construction, during construction, prior to operation, during operation and during long-term shutdown and/or facility closure.

Verification: Sixty (60) days prior to construction, the project owner will submit to the CEC CPM, for approval by CEC staff, a Biological Resources Mitigation and Monitoring Plan. Prior to and during the project's construction and operation, the CEC CPM will determine via telephone or site visits, as deemed necessary, whether or not the project owner is complying with the terms of the approved Biological Resources Mitigation and Monitoring Plan.

BIO-6 To mitigate for all determined project impacts, the project owner will provide a non-refundable $100,000. This will provide compensation for direct, indirect habitat losses and degradation resulting from the construction and operation of the power plant, transmission line and fiber optic line associated with the Procter and Gamble Cogeneration Project and will be used to protect off-site habitat. The $100,000 will be provided to the CEC within sixty (60) days of the Final Commission Decision.

Protocol:

- The Commission staff will establish and have the funds deposited in an interest bearing Special Deposit Fund account.

- The Special Deposit Fund account will be used by a non-profit land trust, or local, state or federal agency to protect off-site mitigation lands which may include one or more of the following: vernal pools with fairy shrimp, Swainson's hawk habitat, burrowing owl habitat, wetland habitat, and/or other sensitive species and natural communities occurring in the middle and southern Sacramento Valley.

- Use of the funds will include: mitigation habitat protection, protection related administrative and closing costs, habitat improvements, an endowment for long-term management and monitoring of the protected parcels.

- At least $25,000 will be used for the long-term endowment.

- The CEC CPM, after consultation with CEC biology staff, and following consultation with the California Department of Fish and Game and the project owner, will provide a recommendation for habitat protection to the CEC Executive Director who will have authority to release the Special Deposit funds.

- The details of protection, management and monitoring of the protected habitat parcel(s) will be determined at the time a parcel(s) is deemed protected and will be based on site-specific and species-specific needs.

- The CEC will provide the project owner with an annual accounting of compensation funds.

These details will be worked out between CEC biology staff and the nonprofit land trust, local, state or federal agency, as appropriate, prior to any parcel(s) approval and following consultation with the California Department of Fish and Game and the project owner.

Verification: Within sixty (60) calendar days after the Commission Decision is issued, the project owner will provide a copy of the deposit receipt (or other evidence that the funds have been turned over to the CEC) to the CEC CPM. The CEC CPM will arrange for the interest bearing State Special Deposit Fund account and deposit the $100,000 into the account.

BIO-7 The project owner will provide to the CEC CPM any additional funds for compensating habitat disturbance within sixty (60) days of determination by the CEC CPM in consultation with the project owner and the California Department of Fish and Game. These funds will be added to the account as set forth in BIO-6 of these Conditions of Certification.

If any habitat disturbance occurs beyond that covered by the $100,000 non-refundable amount, the project owner will provide additional compensation at a 1994 current value of $5,000 per acre. The $5,000 base amount will be adjusted upward or downward using a cost of living factor as appropriate in order to maintain the 1994 current value. The extent of additional habitat disturbance will be determined by the CEC CPM in consultation with the project owner and the California Department of Fish and Game. This includes impacts that occur at the powerplant site, transmission line, fiber optic line and any other facilities associated with the project that were not addressed in the Final Staff Assessment (Ex. A) or were undetected prior to construction activities. CEC CPM approved methodology, in conjunction with appropriate field surveys, will be used to assess the extent of disturbance.

In addition, compensation and mitigation for additional habitat disturbance to fairy shrimp habitat, vernal pools, problem wetlands or wetlands habitat not already identified shall be calculated in accordance with ratios specified by the U.S. Fish and Wildlife Service.

Aerial photography may be used only in the event that access is not available for ground surveys along the transmission/fiber optic corridor.

Protocol:

If aerial photography is used:

- Black and White aerial photographs taken before and after construction, at a scale of 1" = 200', and visits to the disturbed areas will be used to evaluate areas disturbed.

- The CEC CPM (in consultation with project owner) will determine the appropriate time to take aerial photos following construction.

- The CEC CPM in consultation with representatives of the project owner and the California Department of Fish and Game will determine if any additional disturbance has occurred.

- The CEC CPM will use the same factors and formulas used in the Final Staff Assessment (Ex. A) as modified by the Commission Decision to determine compensation for disturbance areas.

- The determination of temporary or permanent impact will be made as soon as possible, but no later than five years following construction activities,

using the same criteria as used in the Final Staff Assessment (Ex. A) as modified by the Commission Decision.

- Upon the completion of the post-construction analysis of impacts, the CEC CPM will provide the project owner the analysis indicating need for, if any, the amount of any additional mitigation. If disputed, normal CEC compliance resolution procedures will be implemented.

Verification: Within ninety (90) days prior to the start of construction, the project owner will either provide the CEC CPM an aerial photo of the project or a copy of the methodology it proposes to use for review and approval by the CEC CPM. The CEC CPM will notify the project owner within 15 days whether or not the proposed methodology is acceptable.

Within one hundred eighty (180) days of the completion of the project construction or a time mutually agreed upon by the project owner and the CEC CPM, the project owner shall provide its written analysis and estimate of, if any, the amount of additional mitigation and, if appropriate, an aerial photo of the constructed project to the CEC CPM. Within sixty (60) days after receipt of the analysis and estimate the CEC CPM will notify the project owner whether or not the proposed mitigation is acceptable.

BIO-8 Prior to the start of any project site ground disturbance activities in the cross-hatched areas designated in Figure 12 of the Commission Decision that could result in the take of the federally listed vernal pool fairy shrimp (Branchinecta lynchi), the project owner shall comply with all applicable Federal Endangered Species Act provisions including, if necessary, applying for, receiving, and/or complying with a final or interim Federal Endangered Species Act (Section 7 or Section 10a) permit, determination, Biological Opinion, clearance, and/or conditions of the U.S. Fish and Wildlife Service regarding the potential take of the federally listed vernal pool fairy shrimp (Branchinecta lynchi).

Verification: The project owner shall provide the CEC CPM with a copy of the U.S. Fish and Wildlife Service's determination, permit, Biological Opinion or the agreement or letter or any other official Federal document which presents the conclusions and/or conditions regarding the take of vernal pool fairy shrimp within ten (10) days of receipt of the document.

F. Soil Resources

Analysis in this area focuses on whether the proposed project will cause wind or water induced erosion or conversion of agricultural land uses and if so, whether mitigation measures can be implemented to ensure compliance with applicable laws, ordinances, regulations, and standards.

The proposed site is located on a nearly level parcel of land that has been extensively disturbed in the past.[39] Slopes at the site are less than three percent. Elevations at the site range from 37 feet above mean sea level (msl) in the west to 42 feet above msl in the central and eastern portions. Drainage swales cross north to south while a drainage ditch running east-west bisects the site with the majority of runoff flowing to the west.

The proposed site has been cultivated in the past, but apparently not within the last five years. It is disked annually to minimize fire hazards. Existing vegetation is sparse, consisting mainly of non-native grasses and forbs. Seven small degraded vernal pools are found in the central and western portion of the 50-acre study area. (See section on Biological Resources in this Decision.)

Soils at the project site belong to the San Joaquin silt loam series, 0 to 3 percent slopes as mapped by the Soil Conservation Service (SCS). These are moderately deep (>50 inches), moderately well-drained soils with a silt loam surface texture. The texture of the soil subsurface ranges from silt loam to clay. A well developed clay pan occurs at depths of about 23 inches and a strongly cemented hardpan occurs at depths of about 28 inches. The shrink-swell potential of these soils is high. Runoff is slow and permeability is very slow. Standing water is therefore common after rainfall. The water erosion hazard is slight to moderate while the wind erosion hazard is low. Under the San Joaquin Series, the land capability of these soils, irrigated or non-

[39] For purposes of environmental review, the parties have examined the entire 50-acre vacant parcel adjacent to the existing Procter & Gamble facility. The chosen 10-acre site where the project will be constructed is in the eastern portion of the parcel.

irrigated, is classified as Class III. The suitability of Class III soil for cultivation is severely limited, reducing the choice of crops or requiring very special soil management. (Ex. A at pp. 153-4.) Soils in Classes I and II are considered prime agricultural soils; Class III is not. *(Ibid.)*

The proposed transmission line route traverses level terrain that has been significantly developed. Industrial land uses predominate along the route, but agricultural land uses are found near the final half-mile of the route. (Ex. A at p. 154.)

Site preparation will remove all debris and vegetation within the ten-acre area proposed for project construction. The surface will then be scarified about 12 inches before grading and excavation begins. The disturbed soil surface will be especially vulnerable to wind and water erosion. Excavation for foundations will be about 1.5 feet deep. The spoil material from these excavations will also be very sensitive to erosion. Appropriate grading practices, seeding of disturbed surfaces, and routing of runoff will be utilized by the Applicant to minimize erosion impacts. (Ex. A at p. 156.) Fill from project excavations will be spread around the site. (Ex. 1: Testimony of David Lefebvre at p. 8.)

To ensure sediment is not transported off-site, sediment barriers will be installed in all drainages leaving the site prior to excavation. The construction parking area will be graveled as will most of the site. (Ex. 1: Lefebvre at p. 8.) Temporary diversion ditches/berms will be used as necessary to divert runoff from crossing disturbed areas during construction. Wastewater generated during construction will be contained in the construction area or treated before discharge. (Ex. A at p. 157.)

Areas to be revegetated for erosion control and habitat enhancement include the five-acre laydown area west of the powerplant site and one transmission line tower location. These areas will be seeded with grass species. (Ex. A at p. 157; See, Biological Resources in this Decision.)

During project operation, a system of catch basins, culverts, storm sewers, ditches and swales, utilizing the natural drainages as much as possible, will be used to convey stormwater

runoff. Much of the site will be surfaced with pervious material; therefore, only a minor increase in the amount of runoff is anticipated. Drainage from land north of the project will be routed to the west along the northern boundary line. Once past the construction parking area, this off-site drainage will be directed back to the existing drainage pathways. (Ex. A at p. 157.)

Construction of the transmission line will also involve earth disturbance and vegetation removal. Minimal grading will be necessary for transmission line construction. Some excavation for tower footings will be necessary. Disturbed areas and excavation spoil piles will be subject to wind and water induced erosion. Appropriate grading practices and routing of runoff will be used by the Applicant to minimize impacts. Construction of the fiber optic line on the existing Hedge-to-Hurley transmission line structures should not cause any ground disturbance. (Ex. A at p. 157.)

The evidence of record establishes that implementation of the proposed mitigation measures will ensure that no significant erosion should result from project construction and operation. The location does not support productive farmland and therefore, the project will not cause or contribute to the conversion of agricultural land uses. (Ex. A at pp. 160-1.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. Construction and operation of the project will not cause or contribute to conversion of agricultural land uses.

2. The Applicant will use appropriate grading and excavation methods to minimize erosion and runoff from disturbed surfaces.

3. Implementation of the mitigation measures and Conditions of Certification will ensure that construction and operation of the project will not cause significant adverse impact on soil resources.

4. Implementation of the mitigation measures and Conditions of Certification will ensure that the proposed project complies with all applicable laws, ordinances, regulations, and standards related to soil resources as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

SOILS-1 Prior to initiation of site grading or earthmoving activities, the project owner will submit grading and erosion control plans for review and approval to the California Energy Commission (CEC) Compliance Project Manager (CPM) and the City of Sacramento.

The plans will incorporate the following or similar temporary and permanent measures, as well as any required by the City of Sacramento. These plans shall be submitted in written form and depicted on a construction drawing(s) following the City's Administrative and Technical Procedures Manual for Grading and Erosion and Sediment Control (1993)

Temporary Erosion Control Measures

- Temporary erosion control measures, especially sediment barriers shall be installed prior to the start of construction.
- Construction limits will be defined by fencing on-site to minimize the area of disturbance prior to construction in any given area.
- Diversion ditches and/or berms will be constructed as necessary to divert runoff away from exposed or disturbed areas.
- Erosion control barriers will undergo periodic inspection and maintenance after storms and runoff as required to assure adequate performance throughout the construction of the project.
- Temporary erosion control measures will remain in place and receive periodic maintenance until permanent measures are implemented.

Permanent Erosion Control Measures

- During project operation a system of catch basins, culverts, storm sewers, ditches and swales, utilizing the natural drainages as much as possible, will be used to

convey stormwater runoff. Catch basins, culverts, sewers, and other drainages will be properly sized to handle anticipated flows and volumes. If necessary, ditches and swales will be revegetated or otherwise armored to prevent erosion within the drainage channel.

- Site drainage facilities will be designed for the flow resulting from a 25-year, 24-hour rainfall. Site runoff ponds will be designed to retain the first half inch of runoff. Drainage facilities will be designed to prevent flooding of permanent facilities during a one in one hundred year storm.

- Drainage from land north of the project will be routed to the west along the northern boundary line. Once past the construction parking area, this off-site drainage will be directed back to the existing drainage ways.

- All disturbed areas not occupied by a structure or roadway will be permanently stabilized through paving, revegetation or another form of protection.

- The five acre laydown area and one transmission line tower location will be revegetated. Revegetation will involve preparation of the seedbed and then seeding with creeping red fescue (*Festuca rubra*) or a similar species and a commercial 16-20-0 fertilizer. The grass seed and fertilizer will be applied at an appropriate rate. For creeping red fescue, a seeding rate of 12 lbs. per acre will be used while the fertilizer will be applied at a rate of 500 lbs per acre. A straw mulch will applied evenly over the seedbed at a minimum rate of 200 lbs. per acre, preferably crimped, to limit evaporation and erosion.

Initial irrigation will follow seeding. Subsequent irrigation and seeding will occur as necessary. Revegetation success will be based upon achieving 75 percent ground cover within five years following the completion of construction.

The revegetated areas will be monitored following planting. Monitoring will include the visual inspection of the seeded areas for successful germination and establishment of grass, its health and growth, and fungal, viral, and weedy infestations. Maintenance will include resowing in unsuccessful or sparsely vegetated areas, and spraying to reduce fungal, viral or weedy infestations.

Verification: Sixty (60) days prior to the start of grading on the project the project owner shall submit to the CEC CPM, in writing and with construction drawings, a City of Sacramento approved erosion and sediment control plan. This plan shall include the temporary and permanent erosion control measures required by this Condition.

SOILS-2 The project owner shall implement the measures identified in the CEC and City of Sacramento approved grading and erosion and sediment control plan.

Verification: Thirty (30) days after completion of the final grading and erosion measures, the project owner shall submit to the CEC CPM a final grading, erosion and sediment control report to verify that the measures in the approved plan have been implemented. This report shall be submitted in written form and depicted on a construction drawing(s) following the City's Administrative and Technical Procedures Manual for Grading and Erosion and Sediment Control (1993). Status of the revegetation efforts shall be reported to the CPM each year in the Annual Compliance Report.

SOILS-3 The project owner shall notify the CEC CPM two weeks in advance of the following activities: 1) start of rough site grading for the power plant site; 2) start of construction of the transmission line; and 3) completion of implementing erosion control measures.

Verification: In the monthly compliance reports the project owner shall notify the CEC CPM in advance of the schedule for the start of these activities. If the schedule changes less than a month prior to the start of these activities, the project owner shall notify the CEC CPM by phone or letter of the changes. The CEC CPM will verify the completion of erosion control measures by a site visit.

SOILS-4 Prior to the start of construction, the project owner must submit a notice of intention to the State Water Resources Control Board to indicate that the project will operate under provisions of the General Construction Activity Storm Water Permit.

Verification: Two weeks prior to the start of construction, the project owner will submit to the CEC CPM a copy of the notice of intention that was submitted to the State Water Resources Control Board.

G. Water Resources and Water Quality

The Commission must determine whether the proposed project will comply with applicable laws, ordinances, regulations, and standards related to water resources. This section addresses the adequacy and reliability of water supply to the project, the potential for flooding, the adequacy of proposed flood-flow routing and control measures, as well as the adequacy of proposed waste treatment and disposal methods to protect local surface and groundwater quality.

1. Water Supply. Project water needs will be supplied by the City of Sacramento with surface water diverted from the lower American River and treated at the Fairbairn Water Treatment Plant (WTP). (Ex. A at p. 121.) The city has provided a "will serve" letter indicating it will supply up to 2,500 acre feet per year (AFY) of surface water to the project.[40] (*Id.* at p. 136.)

The interconnected nature of the city's water distribution system allows water to be diverted from either the Sacramento or American Rivers and delivered to virtually any city customer so that some water to the project may be diverted at times from the Sacramento River. The Sacramento River WTP and the Fairbairn WTP have reliable capacities of 135 million gallons per day (mgd) or 151,274 AFY, and 100 mgd or 112,055 AFY, respectively, for a total capacity of 235 mgd or 263,329 AFY. (Ex. A at p. 122.)

The city currently uses approximately 110,000 AFY of surface and groundwater. This amount is well below the city's combined surface water rights to 326,800 AFY from both the

[40]The City of Sacramento holds four water rights permits for diversion of American River water that are fixed by a permanent contract with the U.S. Bureau of Reclamation (USBR) in conjunction with the Central Valley Project (CVP). Two of the permits authorize rediversion and consumption of water stored at the SMUD upper river development reservoirs located in the Crystal Basin area in El Dorado County. The proposed project is located within the 96,000 acre area of use designated by the city's permits. (Ex. A at p. 124.)

Sacramento and American Rivers and falls within the treatment capacity of both the Sacramento River and Fairbairn WTPs.[41] (Ex. A at p. 122.)

Although the City of Sacramento has agreed to provide up to 2,500 AFY, the project's estimated maximum demand will be only 2,111 AFY. Withdrawal of 2,500 AFY from the Fairbairn WTP will not result in a perceptible decrease in lower American River flows between the Fairbairn WTP point of diversion and the mouth of the American River. The Fairbairn WTP can easily accommodate the project's peak daily demand of 1.9 million gallons per day (mgd).[42] No new pumps, diversion structures, or water treatment facilities will be required to serve the project. (Ex. A at p. 136.) The city's surface water resources appear sufficient to meet the project's daily and annual needs over the life of the project.[43] (Ex. A at p. 129.)

The City of Sacramento will also supply surface water from the American River to the Campbell cogeneration project sponsored by SMUD. The city has agreed to supply a total of up to 5,000 AFY to both projects.

WATER RESOURCES: Table 1 compares the peak water demands of the Procter & Gamble and Campbell cogeneration projects to peak citywide demands. Staff comments

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[41] The 110,000 AFY of surface and groundwater currently used by the city is 85 percent surface water and 15 percent groundwater. (Ex. A at p. 122.) Under the City of Sacramento General Plan, city water demand in the year 2030 is estimated at 217,000 AFY of which 92 percent will be surface water. Therefore, the city's surface water entitlement will adequately cover the project's water needs for the life of the project. (*Id.* at p. 124.)

[42] The daily demand for water in Sacramento varies due to climate and conservation measures imposed by the city. The project's peak daily demand is estimated to be 1,309 gallons per minute (gpm) or 1.9 mgd. (Ex. A at p. 136.) Operational variability of the city's water supply system will mask the 1.9 mgd required by the project, and thus impacts to lower American River flows should be insignificant. (*Ibid.*)

[43] The groundwater basin underlying southern Sacramento County is overdrafted. (Ex. A at p. 129.) Industrial steam demand at the existing Procter & Gamble facility is currently met by on-site boilers which use groundwater. When the cogeneration project is operational, the boilers will be shut down and the need for groundwater will cease. Thus, the project's use of surface water has the salutary effect of reducing the groundwater overdraft without adversely impacting surface water resources. (*Ibid.* at p. 138.)

submitted at the November 1, 1994 Committee Conference indicate that Table 1 is representative of city peak water demands, and reflects demand that occurred over the course of approximately one day on August 16, 1990. (Ex. G at p. 8.) Peak water demand for cogeneration facilities is typically measured in gallons per minute (gpm), while water treatment system capacity is measured in mgd, river flow and diversion rates in cubic feet per second (cfs), and annual supply demand in AFY. The last column in Table 1 includes the percent change in peak daily citywide demand that would occur with either or both projects.

WATER RESOURCES: Table 1
Comparison of Peak Daily Water Demands

	gpm	mgd	cfs	% Change in Peak Water Demand
Citywide Demand	129,375[a]	186.3[b]	288.2	
SPAC Cogeneration Project	873[e]	1.17	1.9[c]	0.7
Procter & Gamble Cogeneration Project	1,309[d]	1.9	2.9[c]	1.0
Total	131,556	189.5	293.0	1.7

Source: Ex. A, Table 1 at p. 129.
Batha 1994, SMUD 1993, 1994, Montgomery Watson 1994, and Environmental Science Associates 1994.
a: calculated from peak demand
b: Peak day demand (August 16, 1990) from Montgomery Watson 1994
c: Surface water diversion necessary to meet peak day demand.
d: Based on SCA 1994
e: Based on SPAC 1994

The combined daily peak demand of the two projects will be approximately 3.07 mgd. Utilizing the full 5,000 AFY would increase the daily peak demand on city surface water to 4.07 mgd. (Ex. A at p. 142.)

Variability due to conservation and meter error constitutes ± 9.9 mgd of the American River's average daily flow rate of 50 mgd. Since the 4.07 mgd required to deliver 5,000 AFY falls within the range of measurement uncertainty, the daily and annual flow rates, and total volume on local water resources are considered to be insignificant in terms of measuring impacts to surface water resources. (Ex. A at p. 142.) Further, the use of surface water from the American River will not adversely impact river water supply because the withdrawal represents additional releases from the Folsom Reservoir on the upper American River. (*Id*. at pp. 142-143.)

2. Wastewater. Wastewater will be directly discharged into Morrison Creek under terms of a National Pollutant Discharge Elimination System (NPDES) permit. At the Evidentiary Hearing on July 19, 1994, the Applicant indicated that an application for an NPDES permit had been filed with the Central Valley Regional Water Quality Control Board (CVRWQCB). (Ex. 1: Testimony of James O'Connor at p. 3; 7/19/94 RT 188.) At the November 1, 1994 Committee Conference, the Applicant informed the Committee that the CVRWQCB granted the NPDES permit to the Applicant on October 28, 1994. A copy of the tentative NPDES permit was identified for the record as Exhibit 62. The final NPDES permit will be submitted to the CEC Compliance Project Manager in conformance with Condition of Certification WATER-1.

Compared with other alternatives, direct discharge of project wastewater is least likely to degrade local surface and/or groundwater and should not result in significant adverse impacts to either surface or groundwater. Chemicals, fuels, oil, and other hazardous materials stored on-site will be prevented from commingling with and contaminating local surface and/or groundwater by installing impervious containment berms. (Ex. A at p. 139.)

Precipitation at the site drains west into existing road drainage facilities. Other surface drainage is controlled by existing storm drainage facilities on local city streets. (Ex. A at p. 119.)

3. Cumulative Impacts on Morrison Creek. At the joint Evidentiary Hearing on September 13, 1994, the parties presented testimony on the potential cumulative impacts to Morrison Creek if both the Procter & Gamble and the Campbell cogeneration projects discharge wastewater into Morrison Creek pursuant to NPDES permits. In the event that both projects simultaneously discharge wastewater into Morrison Creek, the evidence of record indicates that the projects will not individually or cumulatively impact significant beneficial uses or biological resources associated with Morrison Creek. (Ex. F [Water] at p. 10.)

The discharge from the two proposed projects will be several miles upstream from areas where beneficial uses or associated biological resources could be affected. See FIGURE 13. Morrison Creek water is not used for drinking water or industrial uses but rather for irrigation purposes. (Ex. F [Water] at p. 10.) Commission staff found that salinity represented by total dissolved solids (TDS) and hot temperatures were the pollutants of concern in the wastewater stream from both projects. (Ex. F at p 7.) However, the evidence indicates that the level of TDS contained in the wastewater stream expected to be discharged by both projects into Morrison Creek will not impact beneficial uses or biological resources associated with Morrison Creek.[44] (JH 9/13/94 RT 13-15.)

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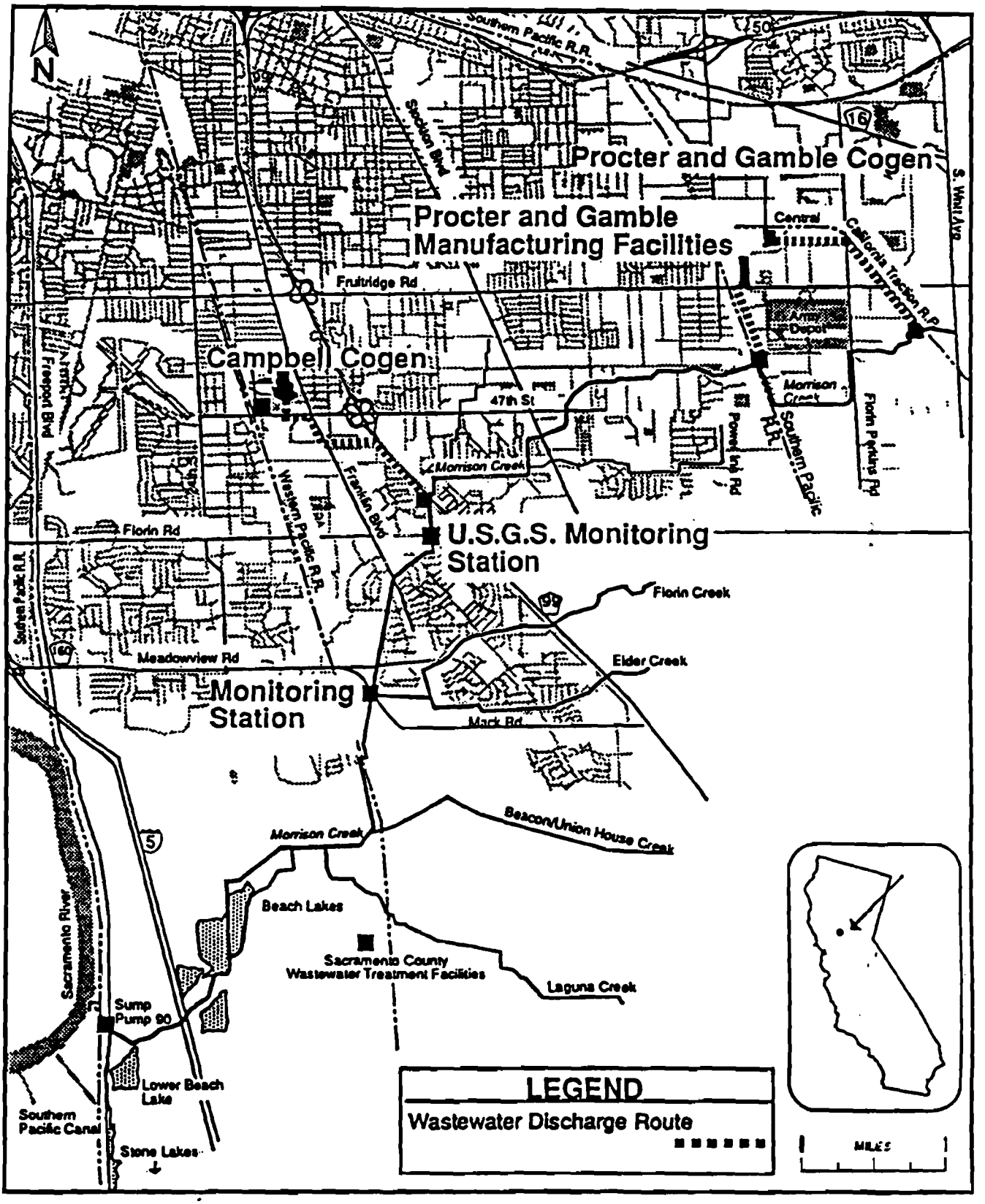
[44]At the November 1, 1994 Committee Conference, the Commission staff submitted comments regarding the anticipated wastewater discharge flows from both the Procter & Gamble and Campbell projects based on new information regarding the Procter & Gamble Manufacturing facility's wastewater discharge flows, which occur downstream from the Procter & Gamble cogeneration project, and on data developed in the Campbell project's NPDES permit application. (Ex. G at pp. 9-11.) Staff recalculated the maximum average flows from the projects (including the Procter & Gamble Manufacturing facility) and the resulting TDS concentrations. (*Id.* at p. 9.) The combined wastewater flows will be equal to 4.83 mgd with a TDS concentration level of 626 mg/l which is above the EPA's threshold TDS concentration level of 500 mg/l for impacts to crops sensitive to salinity. (*Id.* at p. 10.) Notably, the Central Valley Regional Water Quality Board uses a TDS concentration level of 2,000 mg/l as a rule of thumb for discharges into Morrison Creek. (Ex. F [Water] at p. 9.)

Crops sensitive to salinity include fruit and vegetables such as strawberries and lettuce which are not grown in fields irrigated with Morrison Creek water. Crops grown in the area include corn, safflower, Sudan grass and alfalfa, which tolerate salinity levels significantly above 626 mg/l. (Ex. G at pp. 10-11.) Therefore, the revised testimony does not change our conclusion that the total TDS concentration of the projects' combined discharges will not impact beneficial uses associated with Morrison Creek. Further, aquatic organisms found in Morrison Creek have adapted to highly variable flows and temperatures and will not be adversely affected by the TDS levels. (*Id.* at p. 11.)

Water Supplemental and Biological Resource
Morrison Creek - FIGURE 13



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, SEPTEMBER 1994.
SOURCE: Adapted from USGS Sacramento East, Sacramento West, Florin, Clarksburg and Carmichael Ca. 7.5 Minute, photorevised 1980.

Source: Ex. F (Water Resources)

Although wastewater discharge from the projects will elevate the water temperature of Morrison Creek, the water temperature is expected to return to ambient temperature by the time creek flow reaches the area below the Mack Road overcrossing where significant wildlife values and beneficial uses of the water begins. (JH 9/13/94 RT 18:4-15.) Moreover, evidence suggests that the wildlife habitat in the lower portion of Morrison Creek may actually benefit from the increased flows in the creek as a result of discharges from the two cogeneration projects . (JH 9/13/94 RT 19:13-17; Ex. F [Water] at p. 10.)

4. Flood Control. The project is located within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) A99 Zone.[45] Under the present status of local flood protective works, the project must be elevated one foot above the base flood elevation of 41.7 feet. This elevation has not yet been finalized by FEMA and is presently subject to public comment and potential modification. However, since 41.7 feet is the currently estimated elevation of the one-in-one hundred years flood, the powerplant and accessory facilities necessary for its operation must be located above 42.7 feet, mean sea level. (Ex. A at p. 139.)

Proper earthwork and site grading can elevate the site above one-in-one hundred year floods without increasing the flood hazard to adjacent properties. (Ex. A at p. 134.) The majority of the new transmission line and fiber optic line lies outside the 100 year flood plain. Locating transmission line towers within the A99 Zone will not enlarge the flood plain. *(Ibid.* at p. 139.)

The proposed project will increase impervious areas within the area drained by Morrison Creek; however, existing storm drains surrounding the project have adequate capacity to contain the additional runoff generated due to site development. (Ex. A at p. 146.) The evidence of record indicates that implementation of the Conditions of Certification will adequately ensure that project construction and operation will cause no significant adverse impacts to the area's water quality or resources.

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[45] The A99 zone is defined by FEMA as "...protected from 100 year flood by Federal flood protection system under construction; no base flood elevations determined." (Ex. A at p. 134.)

FINDINGS and CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The proposed project's water needs of 2,111 acre feet per year will be supplied by the City of Sacramento with surface water diverted from the American River at the Fairbairn Water Treatment Plant.

2. The City of Sacramento has provided a "will serve" letter to supply up to 2,500 acre feet per year of surface water to the proposed project.

3. The City of Sacramento's surface water resources are sufficient to meet the proposed project's daily and annual needs over the life of the project.

4. The City of Sacramento will provide up to 5,000 acre feet per year of surface water from the American River for both this project and the Campbell cogeneration project also sponsored by the Sacramento Municipal Utility District (SMUD).

5. The proposed project's use of surface water, by itself, and cumulatively in combination with the Campbell cogeneration project, will not adversely impact local surface water resources.

6. The proposed project will discharge wastewater into Morrison Creek under terms of a National Pollutant Discharge Elimination System (NPDES) permit.

7. Direct discharge of wastewater is the least likely alternative to degrade local surface and/or groundwater, and should not result in significant adverse impacts to either surface or groundwater.

8. Potential cumulative impacts to Morrison Creek resulting from wastewater discharges by both the Procter & Gamble and Campbell cogeneration projects into the creek under NPDES permits will be insignificant and may benefit downstream wildlife due to increased flows.

9. Chemicals, fuels, and other hazardous materials stored on-site will be stored in a manner to prevent commingling with and contaminating local surface and groundwater by installing impervious containment berms.

10. Appropriate earthwork and site grading will elevate the project facilities one foot above the 100 year flood plain level to 42.7 feet, mean sea level, without increasing the flood hazard to adjacent properties.

11. Implementation of the following Conditions of Certification ensures that the proposed project will comply with all applicable laws, ordinances, regulations, and standards related to water resources, and water quality as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

WATER-1: The project owner shall procure from the Central Valley Regional Water Quality Board a valid National Pollutant Discharge Elimination System (NPDES) permit governing the discharge of project wastewater into Morrison Creek and thence the Sacramento River. The project owner shall comply with all provisions of the National Pollutant Discharge Elimination System Permit. The project owner shall notify the California Energy Commission Compliance Project Manager (CEC CPM) of any proposed changes to the permit, including any application for permit renewal.

Verification: Thirty (30) days prior to commercial operation, the project owner shall provide the CEC Compliance Project Manager (CPM) via the Monthly Compliance Report with an approved and valid NPDES permit. The project owner shall submit to the CEC CPM in the annual compliance report a copy of the annual monitoring report submitted to the Central Valley Regional Water Quality Control Board. The project owner shall notify in writing the CEC CPM of any changes and/or renewal of the permit.

WATER-2 Diked chemical storage tank areas shall be sized to contain one hundred percent (100%) of the largest tank's capacity plus the maximum, anticipated 24-hour precipitation with a 1-in-10 chance of occurrence.

Verification: As part of the final grading, erosion, and sediment control report required by the **Soils-2** Condition of Certification of this Decision, the project owner shall verify that this measure has been implemented.

H. Geological Hazards and Resources

Applicable law requires the Commission to assess the geologic features of the project area, including the transmission line corridor, to determine whether:

- geologic/seismic conditions and hazards that affect the design, construction, and operation of the proposed facility are adequately considered to ensure safe and reliable operation;
- the potential impacts on geologic resources, such as disturbing or limiting access to mineral or gem deposits are adequately considered to ensure appropriate protection of these resources; and,
- compliance requirements are established which assure mitigation of geological hazards and impacts and ensure that the proposed project will be designed and constructed in accordance with applicable laws, ordinances, regulations, and standards resulting in a safe and reliable facility.

The site is located on nearly level ground underlain by sedimentary materials of the Pleistocene-age Riverbank Formation. At the site, the Riverbank Formation consists of interbedded silts, clays, and sands to a depth of about 35 feet where dense gravels are encountered. The gravels are about 20 feet thick and are underlain by interbedded silts and clays to the maximum depth of the exploratory borings of about 70 feet. (Ex. A at p. 467.) The potential for liquefaction appears remote since ground water was not encountered in any of the borings. *(Id.* at p. 468.)

The site and associated facilities are located in Uniform Building Code (UBC) Seismic "Zone 3", which is a zone where moderate earthquake shaking can be expected over the design life of the facilities. The site is underlain by UBC soil type "S2", i.e., dense or stiff soil conditions where the soil depth exceeds 200 feet. (Ex. A at p. 468.) The project will comply with Seismic Zone 3 design standards to mitigate the seismic shaking hazard. (Ex. A at p. 471; Ex. 1: Testimony of Ronald Simms at p. 3.) There are no active or potentially active faults traversing the site. (Ex. A at p. 468; Ex. 1: Simms at p. 3.)

Potentially significant mineral resources at the cogeneration site are gravel deposits of about 20 feet in thickness at a depth of about 35 feet which may contain gold and silver. The site is located in Mineral Resources Zone MRZ-3, the class for areas potentially containing mineral deposits. Such gravel resources underlie large areas of southeastern Sacramento County where they are presently being mined. The availability of these resources elsewhere and the lack of previous mining activity at the site would indicate that the potential for impacts to economically valuable mineral resources is low. Further, mining is not compatible with the industrial land use at the site. (Ex. A at p. 470.) Therefore, no adverse impacts to mineral resources will occur because of the project.

Thus, the evidence establishes that implementation of the Conditions of Certification as set forth below will ensure appropriate mitigation of potential geologic hazards.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The potential geologic/seismic conditions of the proposed site and project area, including the transmission line corridor, have been adequately considered to ensure safe and reliable construction and operation of the proposed project.

2. The seismic shaking hazard will be mitigated by designing the project to meet Seismic Zone 3 design standards of the Uniform Building Code.

3. No significant impacts to geological resources will result from construction and operation of the proposed project.

4. The Conditions of Certification will ensure mitigation of geological hazards and compliance with design and construction requirements established by the applicable laws, ordinances, regulations, and standards related to geological hazards and resources as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the Uniform Building Code (UBC), section 7006(d), 1991 edition. The certified engineering geologist(s) assigned must be approved by the CEC CPM.

Verification: At least thirty (30) days prior to the start of construction, the project owner shall submit to the California Energy Commission (CEC) Compliance Project Manager (CPM) for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal shall include a statement that CPM approval is needed. The CEC CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within ten (10) days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual to the CEC CPM. The CEC CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within ten (10) days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist shall carry out the duties required by UBC (1991 edition) sections 7006(d) and 7015(a)(3):

1) Prepare the Engineering Geology Report.
2) Monitor geologic conditions during construction.
3) Prepare the Final Geologic Report.

Protocol: The Engineering Geology Report required by UBC section 7006(d) shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy of the site as affected by geologic factors.

The Final Geologic Report to be completed after completion of grading, as required by UBC Section 7015(a)(3), shall contain the following: A final description of the geology of the site, any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan, and statements that, to the best of the engineering geologist's knowledge, the actual mitigation measures used to protect the facilities from geologic hazards are adequate and that the work within his/her area of responsibility is in accordance with the approved Engineering Geology Report.

Verification: a) Within ten (10) days of submittal of the application(s) for grading permit(s) to the Chief Building Official (CBO), other designated authority or the CEC's duly authorized representative, the project owner shall submit a signed statement to the CEC CPM stating that

the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications; b) Within ninety (90) days following completion of the final grading, the project owner shall submit copies of the Final Geologic Report required by UBC section 7015(a)(3) to the CBO and to the CEC CPM.

I. Paleontologic Resources

This analysis evaluates whether construction and operation of the proposed project will result in adverse impacts to paleontologic resources. Typically, a paleontologic resource analysis focuses on the potential for project-related vegetation clearance, surface grading and sub-surface excavation or augering to disturb or damage known paleontologic resources and/or previously unknown deposits in potentially sensitive geologic formations. (Ex. A at p. 167.)

Paleontologic resources include fossilized evidence of ancient life forms and environmental conditions or the mineralized remains of prehistoric plants or animals preserved in soil or rock. Paleontologic resources provide information on evolutionary patterns and processes. They are non-renewable resources and protected by the federal Antiquities Act of 1906 and other applicable law. (Ex. A at p. 170.)

As discussed in the Geological Resources Section of this Decision, the geologic deposits underlying the proposed site belong to the Riverbank Formation. Fossils have rarely been discovered in the Riverbank Formation but one recorded fossil discovery was located a few miles southeast of the proposed site. (Ex. 1; Testimony of Lonn Maier at p. 3.) Another discovery in the Riverbank Foundation at the Sacramento sports complex produced a wealth of fossil remains. (Ex. 2, p. 6.8-10; Ex. A at p. 169.) However, literature searches as well as surveys in the 1980s indicate a low potential for paleontologic finds in the project area. (Ex. 1: Maier at p. 3.)

Two field surveys conducted at the proposed site in May and December 1993 revealed no surface evidence of fossil material. (Ex. A at p. 169-170.) Due to periodic inundation during previous flooding, paleontologic resources may be buried at some depth below the present surface. (*Id.* at p. 170.)

Although no significant impacts are expected to occur at the site, several mitigation measures will prevent disturbance in the event that paleontologic resources are discovered during

excavation and construction. (Ex. 1: Maier at p. 3.) The Conditions of Certification incorporate those measures and include the requirement that a designated paleontologist prepare and implement a monitoring and data recovery plan to protect and recover any significant resources. (Ex. A at pp. 178-179.)

FINDINGS AND CONCLUSIONS

Based on the evidience of record, the Commission makes the following findings and conclusions:

1. There is no evidence of paleontologic resources in the vicinity of the proposed project site but excavation during construction may reveal previously unknown resources.

2. Implementation of the mitigation measures contained in the Conditions of Certification will ensure that potential impacts to paleontologic resources resulting from construction and operation of the proposed project will be reduced to insignificance.

3. Implementation of the mitigation measures contained in the Conditions of Certification will ensure that the proposed project will comply with all applicable laws, ordinances, regulations and standards related to protection of paleontologic resources as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

PAL-1 Construction will not begin until the California Energy Commission (CEC) Compliance Project Manager (CPM) has approved the project owner's designated paleontologic resources specialist. Prior to the start of construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities) on the Procter & Gamble Cogeneration Project, the project owner shall provide the CEC CPM with the following information: the name, telephone number, resume, and indication of availability for its designated paleontologic resources specialist.

Protocol: The resume shall include the qualifications of the designated specialist (e.g., someone with a graduate level degree in paleontology or geology, and at least three years of paleontologic field experience in California).

The designated specialist shall be available to conduct pre-construction training and provide monitoring and mitigation, as needed, during all ground disturbing activities

associated with the project. The CEC CPM and staff shall have unrestricted access to and open communication with the designated paleontologic resources specialist(s) at any time.

Verification: Ninety (90) days prior to the start of construction on the P&G Cogeneration Project, the project owner shall submit to the CEC CPM for review and written approval, the name, resume, telephone number, and indication of availability for its designated paleontologic resources specialist.

PAL-2 Prior to the start of construction on the Procter & Gamble Cogeneration Project, and throughout the construction period, the project owner's designated paleontologic resources specialist will provide overall guidance for protection and management of any paleontologic resources encountered during ground disturbance. The project owner will ensure that all workers who operate ground disturbing equipment are instructed on how to recognize paleontologic resources in the field and will provide the workers with a set of procedures for reporting any such resources that may be discovered during project-related ground disturbance.

Verification: At least thirty (30) days prior to the start of ground disturbing activities for the Procter & Gamble project, the project owner shall submit to the CEC CPM for review and approval a description of the instruction to be provided to project construction workers and the set of procedures the workers are to follow when paleontologic resources are discovered.

In the first compliance report after the start of project construction, the project owner shall provide the CEC CPM with a signed letter stating that the instruction has been provided to the construction workers (those who started on the first day of construction) during the general worker orientation. The letter shall include a list of the workers who received the paleontologic resources training. For subsequent project construction phases, the project owner shall list in the monthly compliance report any additional workers who have received the paleontologic resources training.

PAL-3 Prior to the start of construction and throughout the construction period, the project owner's designated paleontologic resources specialist shall be available and prepared to implement as needed the following monitoring and mitigation measures to minimize potential impacts to fossil resources.

Protocol: The monitoring and mitigation measures shall include the following elements:

If known or previously unknown paleontologic resources are encountered during construction activities, the designated paleontologic resource specialist shall have the authority to halt or redirect construction at any time necessary to protect the resources and their locational context.

Work in the immediate vicinity of the find shall be halted until the designated paleontologic resources specialist can determine the significance and sensitivity of the find; how the resources will be protected if construction resumes, and how the mitigation measures will be implemented for recovery of fossil materials;

The project owner, or its designated representative, shall inform the CEC CPM within one working day of the discovery of any potentially significant paleontologic resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources.

The designated paleontologic resources specialist, representatives of the project owner, and the CEC CPM shall meet within five working days of the notification of the CEC CPM, if necessary, to discuss the disposition of any finds and any mitigation measures already implemented or to be implemented.

All necessary and required data recovery and mitigation shall be completed within ten days after discovery of the previously unknown paleontologic resources.

All fossil materials found shall be mapped and all significant paleontologic resources shall be removed for analysis, prepared, identified, and delivered for curation into retrievable storage in a public repository or museum.

If any paleontologic resources are found, the project owner shall ensure preparation and filing of paleontologic resources report(s) with the repository or museum and CEC CPM. The report(s) shall be prepared by the designated paleontologic resources specialist and shall document all steps of the mitigation process, analyses of the importance of the recovered specimens, and an inventory of all recovered fossil materials.

Verification: Thirty (30) days prior to the start of construction, the project owner shall notify the CEC CPM in writing that the designated paleontologic resources specialist is available and prepared to implement any necessary monitoring and mitigation measures for fossil resources.

J. Cultural Resources

Applicable law requires the Applicant to mitigate any potential adverse impacts to cultural resources resulting from project construction and operation. This section addresses three aspects of cultural resources: prehistoric archaeologic resources, historic resources, and ethnographic resources.

Prehistoric archaeologic resources are those materials relating to prehistoric human occupation of an area; they may include deposits, sites, structures, artifacts, trails, and other traces of prehistoric human behavior. In California, the prehistoric period began over 10,000 years ago and extended through the 1800's when the first Euro-American explorers entered California. (Ex. A at p. 317.) Historic resources are those materials more than 50 years old usually associated with Euro-American exploration and settlement of an area; they may include archaeological deposits, sites, structures, travelled ways, artifacts, and documents or other traces of human activity. Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group; they may include traditional resource collecting areas, cemeteries, ceremonial sites, shrines, or ethnic structures. (Ex. A at p. 317.)

When potential for project-related impacts to cultural resources has been identified, the significance of the resource must be evaluated. If the cultural resource sites or materials meet one or more of the criteria for nomination to the National Register of Historic Places and/or California Register of Historic Resources, the resource(s) may be of significant value.

Historic and prehistoric cultural resource sites have been discovered throughout Sacramento County but are generally found in greater concentration in the vicinity of rivers and creeks.

The project site is located about two miles south of the American River and about five miles east of the Sacramento River. Prior to construction of flood control facilities on the American and Sacramento rivers, both rivers flooded seasonally and spread over adjacent low-lying areas. Along the rivers, ground at lower elevations remained marshy throughout the year which

provided excellent habitat and resource materials for the early inhabitants of the valley. Ground at slightly higher elevations was less likely to flood. (Ex. A at p. 320.)

Research methods to determine the existence of cultural resources at the site included archival research, pedestrian field investigation, architectural reconnaissance and consultation with the Native American Heritage Foundation. (Ex. 2 at sec. 6.8.2) Records indicate that neither the project site nor transmission line corridor had previously been surveyed for cultural resources. There is also no recorded evidence of Native American sacred lands or cultural resources in the immediate project area. *(Ibid.)* No structures of potentially significant historic architecture are located near the site. *(Ibid.)*

Field surveys were conducted at the project site in May and December 1993. The survey team walked transects about 10 meters wide and conducted subsurface testing to hardpan depth at about 20-30 meter intervals on the 10-meter transects.[46] Ground visibility was excellent because of recent disking for weed control. The survey team found no significant prehistoric or historic cultural resources within areas affected by the project, including the transmission line corridor. (Ex. A at p. 322; Ex. 1: Testimony of Lonn Maier at p. 2.)

A cultural resource impact analysis also evaluates the effects of project-related vegetation clearance, surface grading, and sub-surface excavation or augering on known and/or previously unknown cultural resources. While no significant cultural resources are known to exist at the project site, the possibility remains that subsurface resources exist. Due to frequent inundation during previous flooding, archeological materials may be buried at some depth below the modern-day surface. (Ex. A at p. 322.)

The Conditions of Certification contain several contingency mitigation measures to preserve resources in the event that unexpected cultural resources are discovered during project excavation

[46] Portions of the 1.3 mile transmission line route were not surveyed because the landowner did not grant access to the property.

or construction. The Conditions of Certification incorporate these mitigation measures to ensure that no adverse impacts to cultural resources will result from project construction.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. No evidence of significant cultural resources was discovered at the proposed project site or transmission line corridor.

2. While no significant cultural resources are known to exist at the project site or transmission line corridor, there is potential for subsurface resources to be discovered during project construction.

3. Implementation of the Conditions of Certification will ensure that no adverse impacts to cultural resources will result from project construction.

4. Implementation of the Conditions of Certification will ensure compliance with all applicable laws, ordinances, regulations, and standards related to preservation of cultural resources as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities) on the Procter & Gamble project, the project owner shall provide the California Energy Commission (CEC) Compliance Project Manager (CPM) with the following information: the name, telephone number, resume, and indication of availability for its designated cultural resources specialist.

Protocol: The resume shall include the qualifications of the designated specialist (e.g., someone with a graduate degree in archaeology, anthropology, or cultural resources management, and archaeological field experience in California).

The CEC CPM will review the qualifications of, and must approve in writing, the project owner's designated cultural resources specialist prior to the start of construction on the Procter & Gamble project.

After CEC CPM approval, the designated specialist shall be available to conduct pre-construction training and provide monitoring and mitigation, as needed, during all construction activities associated with the project. The CEC CPM and staff shall have unrestricted access to and open communication with the designated cultural resources specialist(s) at any time.

Verification: Prior to the start of construction on the Procter & Gamble project, the project owner shall submit to the CEC CPM or designee for review and written approval the name, resume, telephone number, and indication of availability for its designated cultural resources specialist.

CUL-2 Prior to the start of construction on the Procter & Gamble project, and throughout the construction period, the project owner's designated cultural resources specialist will provide overall guidance for protection and management of any cultural resources encountered during ground disturbance. The project owner will ensure that all workers who operate ground disturbing equipment are instructed on how to recognize cultural resources in the field and will provide the workers with a set of procedures for reporting any such resources that may be discovered during project-related ground disturbance.

Verification: At least thirty (30) days prior to the start of ground disturbing activities, the project owner shall submit to the CEC CPM for review and approval a description of the cultural resources instruction to be provided to project construction workers and the set of procedures the workers are to follow when previously unknown cultural resources are discovered.

In the first compliance report after the start of construction, the project owner shall provide the CEC CPM with a signed letter stating that the instruction has been provided to the construction workers (those who started on the first day of construction) during the general worker orientation. The letter shall include a list of the workers who received the cultural resources training. For subsequent project construction phases, the project owner shall list in its monthly compliance report any additional workers who have received the cultural resources training.

CUL-3 Prior to the start of construction and throughout the construction period, the project owner's designated cultural resources specialist shall be prepared to implement as needed, the following monitoring and mitigation measures to minimize potential impacts to cultural resources.

Protocol: The monitoring and mitigation measures include the following elements:

If known or previously unknown cultural resources are encountered during construction activities, the designated cultural resource specialist shall have the authority to halt or

redirect construction at any time necessary to protect the resources and their locational context.

Work in the immediate vicinity of the find shall be halted until the designated cultural resources specialist can determine the significance and sensitivity of the find; how the resources will be protected if construction resumes, and how the mitigation measures will be implemented for recovery of cultural materials;

The project owner, or its designated representative, shall inform the CEC CPM within one working day of the discovery of any potentially significant cultural resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources.

The designated cultural resources specialist, representatives of the Applicant, and the CEC CPM or designee shall meet within five working days of the notification of the CEC CPM, if necessary, to discuss the disposition of any finds and any mitigation measures already implemented or to be implemented.

If human remains are encountered, the project owner will notify the county coroner's office; if the remains are identified as Native American, the project owner will consult with the California Native American Heritage Commission for appropriate disposition of the remains.

All necessary and required data recovery and mitigation shall be completed within ten days after discovery of the previously unknown cultural resources.

All cultural materials found shall be mapped and all significant cultural resources shall be removed for analysis, and prepared and delivered for curation into retrievable storage in a public repository or museum.

If any cultural resources are found, the project owner shall ensure preparation and filing of appropriate cultural resources report(s) by the designated cultural resources specialist.

Verification: Prior to the start of construction on the Procter & Gamble project, the project owner shall notify the CEC CPM in writing that the designated cultural resources specialist is available and prepared to implement any necessary monitoring and mitigation measures for cultural resources.

K. Visual Resources

Visual resources are the natural and cultural features of the visible environment. The value of visual resources is determined by cultural or public values and the visible environment's intrinsic physical properties. Visual quality is measured by such factors as viewer sensitivity, visibility of an object, viewer exposure, duration of view, distance, and the number of viewers affected. (Ex. A at p. 267.) Views of the project's physical structures and associated features may adversely impact visual resources. The project viewshed is shown in FIGURE 14.

1. Project Viewshed

The area immediately north of the site is dominated by commercial and industrial business parks characterized by warehouses and office buildings that range in height from about 30 to 50 feet. The buildings are close together, providing substantial screening of views to the south. Aggregate mining operations occupy most of the area between 14th Street on the south and Folsom Boulevard on the north, and between Power Inn Road on the west and South Watt Avenue on the east. Fences erected as visual barriers for the aggregate mining operations screen most of the view to the south for travelers on Jackson Road and Folsom Boulevard. Aggregate elevators and conveyor belts are features of the skyline. A mix of low rise commercial and residential land uses occurs adjacent to and north of Folsom Boulevard. (Ex. A at p. 271.)

Land immediately east of the site is dominated by industrial uses. Large warehouses between 30 and 50 feet in height occur between the site and Florin Perkins Road to the east. Aggregate mining operations dominate the area between Florin Perkins Road and South Watt Avenue. A portion of the mined area is used for agriculture, while another portion adjacent to Fruitridge Road is used as commercial landfill. (Ex. A at p. 271.)

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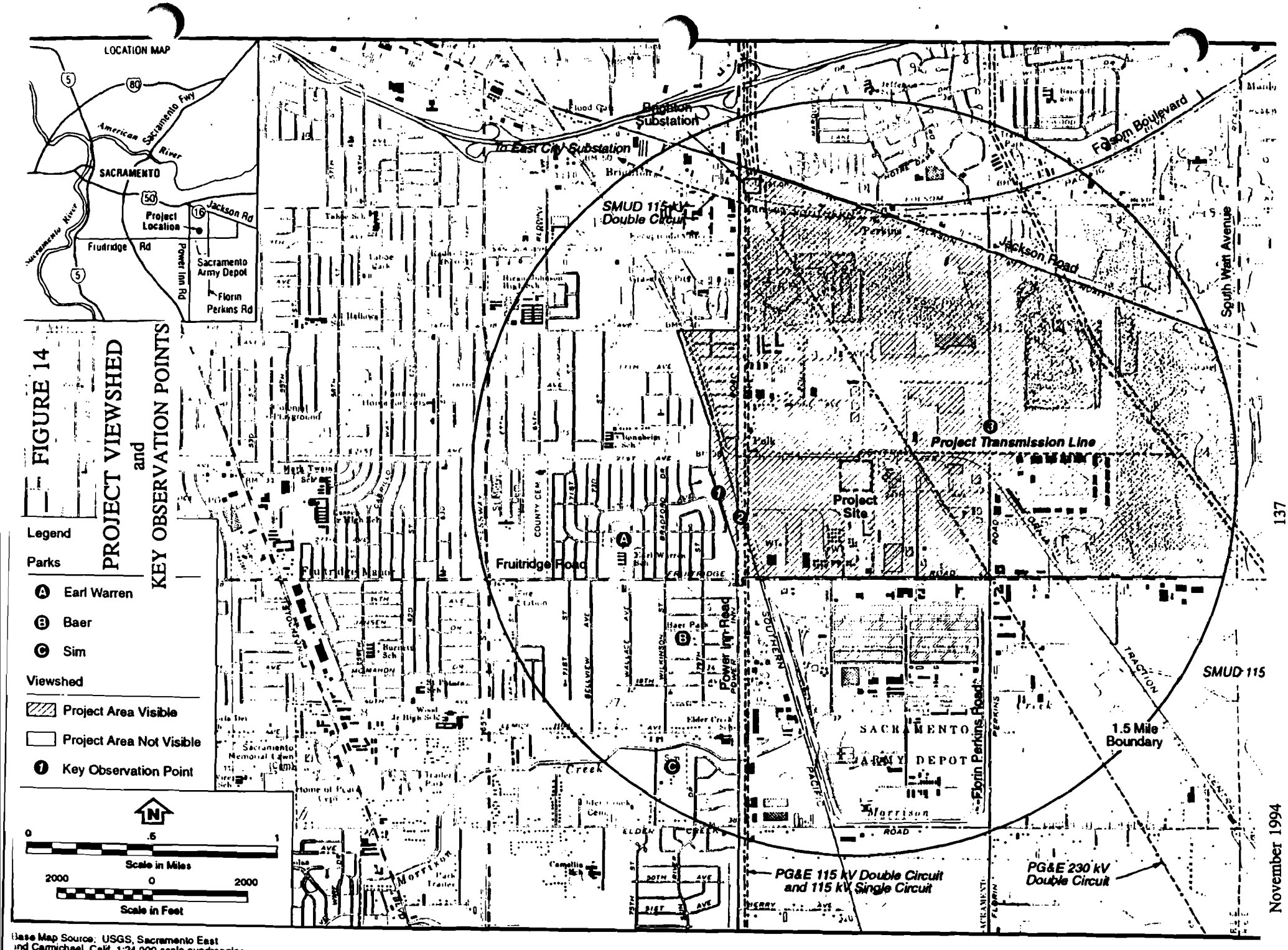

Source: Ex. 2, FIGURE 6.9-1.

The existing Procter & Gamble facility occupies approximately 110 acres and its buildings, stacks and other industrial structures form a dominant visual element in the viewshed. Some of the more prominent features include a chimney about 200 feet tall, a superstructure framework between 100 and 150 feet tall and numerous storage tanks about 80 feet tall. (Ex. A at p. 271.)

The Sacramento Army Depot occupies most of the land south of the site between Fruitridge Road and Elder Creek Road. Commercial land uses exist south of Fruitridge Road, east of Florin Perkins Road and adjacent to Power Inn Road southwest of the site. A US Army communication tower, about 200 feet tall, is near the intersection of Fruitridge and Power Inn Roads. (Ex. A at p. 274.)

Residential areas located west of Power Inn Road are characterized by several hundred small, single story homes with small, fenced yards. An undeveloped grassy field, Power Inn Road, PG&E transmission lines and Southern Pacific rail lines lie between the project site and the homes. (Ex. A at p. 274.)

Multiple transmission lines, estimated at 100 feet tall, are prominent features near the site. Land use bordering the new transmission line corridor is predominantly industrial/heavy commercial. Across Florin Perkins Road land uses include commercial warehouses, fallow fields and mined land used for agriculture and landfill. (Ex. A at p. 273.)

The dimensions of the major cogeneration powerplant features are shown in Table 1.

2. Sensitive Viewers

The powerplant will be visible to three types of viewers: viewers in areas of industrial and commercial uses to the north, east and south; viewers in residential areas to the west; and commuters.

VISUAL RESOURCES: Table 1
Dimensions of Project Facilities

Source: Ex. A at p. 286.

PROJECT FACILITY	HEIGHT (ft.)	LENGTH (ft.)	WIDTH (ft.)	DIAMETER (ft.)
Heat Recovery Steam Generators (HRSGs)	45	105	25	-
HRSG Stacks (2)	115**	-	-	10
Auxiliary Boiler Stack	80	-	-	4
Simple Cycle Exhaust Stack	60	-	-	13
Deaerator	50	20	8	-
3 Cell Cooling Tower	51	168	51	-
Water Storage Tanks	42	-	-	32
Control Building	19	100	60	-
Water Treatment/Warehouse	19	140	100	-
Substation	20	400	170	-
Transmission Line Combination Take-off Tower and Disconnect Switch	50	50	12	-
Transmission Poles	107-170*	-	-	-
Steam Pipe Rack	20	570 within plant site	varies between 4 and 15	

Sources: SCA 1993a, p. 6.9-6; SCA 1994a, Response to Energy Commission Staff Data Request Visual-4; SCA 1994e, SCA 1994f.

* Two of the transmission poles will be approximately 170 feet tall in order to pass over an existing PG&E 230 kV transmission line (SCA 1994c).

** The proposed height of the HRSG stacks has been reduced from 150 feet to 115 feet (SCA 1994j).

a. Industrial and Commercial Areas. Views in the industrial and commercial areas and in the nearby agricultural fields are dominated by industrial facilities and have low visual quality.

b. Residential Areas. The residential areas west of Power Inn Road and north of Folsom Boulevard have predominantly residential views and expert testimony considers the visual quality to be moderate. Most residences are screened from views of the site by large shade trees and other residences. (Ex. A at p. 276.)

Approximately 35 residences[47] on Toronto Way have the closest views of the project from their backyards. Wooden fences in the backyards somewhat reduce the visibility of the project. Transmission line structures and embankments for the railroad and for Power Inn Road also partially screen the site from these residences. (Ex. A at p. 276.) However, if unmitigated the addition of the project to the Procter & Gamble development would potentially create a significant cumulative visual impact on Toronto Way residences. *(Id.* at p. 301.) In mitigation, the Applicant will plant trees that grow to 75 feet along the western boundary of the site to screen the project from this residential area. *(Id.* at p. 303-4).

The residential neighborhood north of Folsom Boulevard within 1.5 miles of the site contains several hundred single family homes and one two-story apartment complex. Commercial establishments on the south side of Folsom Boulevard and adjoining houses provide substantial screening for these homes. The commercial/industrial business parks between 14th Street and the site provide additional screening. (Ex. A at p. 276.)

Housing and trees screen views of the site from Baer Park. Procter & Gamble's existing stack and part of its upper superstructure are visible from the park, and the upper portion of the project's stack and superstructure will also be visible. (Ex. A at p. 276.) Vegetation and the existing Procter & Gamble facilities are expected to screen potential views of the powerplant from other nearby parks and schools. *(Id.* at p. 277.)

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[47] These homes are about 2,500 feet from the site and parallel to the Southern Pacific Railroad.

c. Commuters. Highway 50, Power Inn Road, Fruitridge Road, Florin Perkins Road, South Watt Avenue, Folsom Boulevard and Jackson Road are the major commuter routes with potential views of the project. The evidence indicates that visual quality along these routes is low to moderate because of the intermittent pattern of residential, industrial, commercial, and some agricultural land uses. (Ex. A at pp. 277-285.)

3. Sensitive View Areas

The analysis of potential visual impacts is based upon three Key Observation Points (KOPs) chosen as representative of the view areas most sensitive to the projects visual impacts. (Ex. A at p. 284.) (See FIGURE 14, *ante*).

KOP 1 is the residential area on Toronto Way closest to the project. KOP 2 is on the eastern side of Power Inn Road near the intersection with the Southern Pacific Railroad which has the closest, least-obstructed view of the powerplant site from a public roadway. KOP 3 is on Florin Perkins Road, approximately 500 feet north of 23rd Avenue, which has the closest and least obstructed view of the transmission line route from a public roadway. (Ex. A at p. 284.)

Evidence based on observations from all KOPs indicated the cogeneration facility and the new transmission line will not present a high level of contrast in regard to form, line and, mass compared with existing structures in the viewshed. The choice of external colors to match existing structures will reduce visual impacts to insignificance. Potential visual impacts during construction are insignificant due to the low level of viewer sensitivity in the industrial area and the limited duration of the visual impacts. (Ex. A at pp. 287-89.)

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4. Lighting

Lighting will be maintained at levels necessary to meet security, operation and maintenance, and safety requirements. Steady burning red aviation lights will be required at the top of the HRSG stacks and boiler stack. Procter & Gamble's existing stack, superstructure, parking areas and security lighting are highly visible at night due to the general lack of other tall, well-lit structures in the area. The proposed project has the potential to exacerbate the high visibility of existing Procter & Gamble lighting, noticeably increasing an existing visual impact. (Ex. A at pp. 289-90.)

Mitigation measures for project lighting will minimize its contribution to the existing lighting impacts. Project lighting will be limited to areas required for safety and shielded from public view. Directional lighting will be oriented down and inward to reduce light and glare. Except for the aviation lights on top of the stacks, other tall structures will not be lit. The Conditions of Certification also include a lighting complaint process. (Ex. A at p. 302.)

5. Visible Plume

The potential exists for white vapor plumes (water vapor condensation from exhaust) to be visible from the project stacks and cooling tower. Visible plume formation is more frequent during the cooler seasons when ambient conditions are less conducive to evaporation of the condensed water droplets. (Ex. A at p. 290.) The same ambient meteorological conditions that result in a condensate plume formation (cool temperatures and high relative humidity) also cause natural conditions (fog haze and precipitation) which generally reduce visibility. *(Ibid.)* Plume visibility is more likely to occur during daylight hours.[48] The taller plumes will occur most frequently in the winter months of December through January and almost never from April through September. (Ex. A at p. 294.)

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[48] The tallest plumes will generally occur between midnight and 8 a.m. when it is dark but nighttime visibility is minimal because no bright lights of sufficient height will illuminate the plume. (Ex. A at p. 291.)

The estimated maximum plume height of 440m (1,443 ft. above the 50-ft. cooling towers) will occur for less than one percent of the year during daylight hours. A plume height of 90m (295 ft. above the cooling towers) or greater will occur approximately ten percent of the year during daylight. (Ex. A at p. 291.) When the plume is 90m or taller during daylight hours, fog will also be present about 72 percent of the time. A daytime plume 90m or taller will be present *without* fog for approximately three percent of the time, primarily early in the morning. (Ex. A at p. 294.)

The sensitivity of nearby residential viewers[49] to daytime plume is considered high, but visibility will range from mostly low to occasionally high. Considering the limited duration of plume visibility and the correlation between plume formation and foggy conditions, which mask the plume, the evidence indicates that the visual impact of the plume should be insignificant. (Ex. A at 294, 304.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The project viewshed is dominated by existing heavy industrial and commercial facilities on the north, east and south.

2. Residential areas, which represent the most sensitive viewers, occur near the western boundary of the project viewshed but are largely shielded from views of the project by trees and other residences or commercial buildings.

3. The nearest residences on Toronto Way, approximately 2,500 feet from the site, will have views of the project through back windows. The Applicant will plant trees on the western boundary of the site to mitigate cumulative impacts and screen the project from view.

4. Neither the cogeneration facility nor the transmission line will create a high level of visible contrast in regard to form, line, and mass compared with existing structures in the viewshed.

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[49] The parties assumed that threshold viewer sensitivity occurred at residences within 3/8 of a mile from the site. (Ex. A at p. 291.)

5. The choice of external colors to match existing structures will reduce visual impacts to insignificance.

6. Potential views of the project will not result in significant visual impacts to commuters traveling on nearby commuter routes because the project will blend with the surrounding viewshed.

7. Project lighting will be limited to areas required for safety and shielded from public view to the extent possible to mitigate potential cumulative impacts from existing Procter & Gamble lighting.

8. Visible plume from the project's stacks and cooling tower will occur during winter months and typically be masked by fog which should reduce visual impacts from plume formation to insignificance.

9. Implementation of the following Conditions of Certification will ensure that the project complies with all applicable laws, ordinances, regulations, and standards related to visual resources as identified in Appendix A of this Decision and that potential impacts to visual resources are mitigated to levels of insignificance.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall paint the project structures, stacks, buildings and tanks visible to the public to minimize contrast and harmonize with the surrounding environment.

Protocol: The project owner shall develop and submit a color plan for the project to the California Energy Commission Compliance Project Manager (CEC CPM) for review and approval. The color plan shall include:

- specification, and 8"x10" samples, of the colors proposed for use on project structures, including structures colored during manufacture;
- selection of the proposed Mist Gray color (Devoe Kwik-Kolor #379-K-2301) or its equivalent to be used for the stacks;
- a detailed schedule for completion of the painting; and,
- a procedure to ensure proper painting maintenance for the life of the project.

If the CEC CPM notifies the project owner that revisions of the plan are needed before the CEC CPM will approve the plan, the project owner shall prepare and submit to the CEC CPM a revised plan.

After approval of the plan by the CEC CPM, the project owner shall implement the plan according to the schedule and shall ensure that proper painting and other maintenance is performed for the life of the project.

For any structures that are colored during manufacture, the project owner shall not specify the color of such structures to the vendors until the project owner receives notification of approval of the color plan by the CEC CPM.

The project owner shall not paint the final coat on any structures until the project owner receives notification of approval of the color plan from the CEC CPM.

The project owner shall notify the CEC CPM when all precolored structures have been erected, all structures to be painted in the field have been painted, and the structures are ready for inspection.

Verification: Not later than thirty (30) days after certification of the project, the project owner shall submit its proposed plan to the CEC CPM for review and approval. The CEC CPM will respond to the project owner within fifteen (15) days of receipt of the plan.

If the CEC CPM notifies the project owner that any revisions of the plan are needed before the CEC CPM will approve the plan, within thirty (30) days of receiving that notification, the project owner shall prepare and submit to the CEC CPM a revised plan.

Prior to the scheduled start of operation of the project, the project owner shall notify the CEC CPM that all structures colored during manufacture and all structures painted in the field are ready for inspection.

In the Annual Compliance Report during operation, the project owner shall provide to the CEC CPM for review and approval a status report regarding painting maintenance.

VIS-2 The project owner shall use non-reflective fencing for the perimeter fencing for the project.

Protocol: The project owner shall submit to the CEC CPM for review and approval the specifications for the fencing documenting that such fencing will be non-reflective.

If the CEC CPM notifies the project owner that revisions of the submittal are needed before the CEC CPM will approve the submittal, the project owner shall prepare and submit to the CEC CPM a revised submittal.

The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CEC CPM.

The project owner shall notify the CEC CPM when the fencing has been installed and is ready for inspection.

Verification: Not later than one hundred and eighty (180) days after project certification and at least ninety (90) days prior to ordering the non-reflective fencing, the project owner shall submit the specifications to the CEC CPM for review and approval. The CEC CPM will respond to the project owner within fifteen (15) days of receipt of the fencing submittal.

If the CEC CPM notifies the project owner that revisions of the submittal are needed before the CEC CPM will approve the submittal, within thirty (30) days of receiving that notification, the project owner shall prepare and submit to the CEC CPM a revised submittal.

The project owner shall notify the CEC CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall plant trees to satisfy the requirements of the City of Sacramento's Parking Lot Shade Tree Regulations and Water Conserving Landscape Ordinance. The planting shall include trees along the western boundary of the project site to screen views of the project from the residential area to the west and from Power Inn Road.

Protocol: The project owner shall submit to the CEC CPM for review and approval a specific plan describing its landscaping proposal. The plan shall include but not be limited to:

- a detailed landscape plan, at a reasonable scale, which includes a list of proposed plant species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives. One objective shall be to provide year-round screening at least 75 feet tall along the entire western boundary of the project property. Another objective shall be to provide a virtually continuous screen. The plan shall propose species and spacing to achieve these objectives. Trees from 15 gallon containers shall be used;

- maintenance procedures, including any needed irrigation, and

- a procedure for replacing unsuccessful plantings.

If the CEC CPM notifies the project owner that revisions of the plan are needed before the CEC CPM will approve the plan, the project owner shall prepare and submit to the CEC CPM a revised plan.

The trees shall not be planted before the plan is approved. The project owner shall notify the CEC CPM when the trees have been planted and are ready for inspection.

Verification: At least one hundred twenty (120) days prior to the start of commercial operation of the project, the project owner shall submit the proposed landscape plan for the project to the CEC CPM for review and approval. The CEC CPM will respond to the project owner within fifteen (15) days of receipt of the landscaping plan.

If the CEC CPM notifies the project owner that any revisions of the plan are needed before the CEC CPM will approve the plan, the project owner shall prepare and submit to the CEC CPM a revised plan within thirty (30) days of receiving that notification.

The project owner shall notify the CEC CPM within seven days after completing the proposed planting that the planting is ready for inspection.

VIS-4 Prior to the start of commercial operation, the project owner shall design and install all lighting such that lights are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CEC CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass and unwanted glare visible from the residential area located to the west;

- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied;

- The HRSG stacks and auxiliary boiler stack shall not be illuminated, except to the extent required by the Federal Aviation Administration (FAA); and,

- A lighting complaint resolution form (following the general format of that in Attachment A) will be used by plant operations to record all lighting complaints received and to document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CEC CPM notifies the project owner that revisions of the plan are needed before the CEC CPM will approve the plan, the project owner shall prepare and submit to the CEC CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CEC CPM when the lighting has been installed and is ready for inspection.

Verification: At least ninety (90) days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CEC CPM for review and approval. The CEC CPM will respond to the project owner within fifteen (15) days of receipt of the lighting plan.

If the CEC CPM notifies the project owner that any revisions of the plan are needed before the CEC CPM will approve the plan, the project owner shall prepare and submit to the CEC CPM a revised plan within thirty (30) days of receiving that notification.

The project owner shall notify the CEC CPM within seven (7) days of completing lighting installation that the lighting is ready for inspection.

LIGHTING COMPLAINT RESOLUTION FORM

PROCTER & GAMBLE COGENERATION PROJECT
Sacramento, California

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of lighting complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____

Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

L. Noise

The noise analysis addresses the following concerns: (1) to identify potential noise impacts to employees and to the community that may result from construction and operation of the proposed project; (2) to ensure that feasible mitigation measures will reduce noise impacts to a level of insignificance; and (3) to ensure that the project will comply with applicable laws, ordinances, regulations and standards.

The average noise level measured in the vicinity of the project site and transmission/fiber optic line is typical of an industrial land use area. The ambient noise environment is lower at night due to decreased traffic and reduction of industrial activities. The evidence of record shows that ambient noise levels were recorded at four Noise Monitoring Locations (NMLs) around the site boundary. (Ex. A at p. 94) See FIGURE 15 below. The recorded sound levels (hourly L_{eq} values)[50] are summarized in NOISE: Table 1.

Recorded noise levels in the project vicinity show hourly L_{eq} values reached highs of 68.0, 71.0, 65.0 and 72.5 dBA[51] during the daytime hours at NMLs 1, 2, 3 and 4 respectively, while the hourly L_{eq} dropped to lows of 50.5, 55.5, 43.5 and 55.5 dBA during the nighttime hours. (Ex. A at p. 97.)

The Procter & Gamble facility, the Air Products facility (east of Procter & Gamble) and traffic on Power Inn Road are the dominant noise sources at all locations during the nighttime hours. Other noise sources in the area include: the rail lines, occasional aircraft, various businesses and industries, and natural noise sources. Natural noise includes sources such as: crickets, birds, and wind in the trees.

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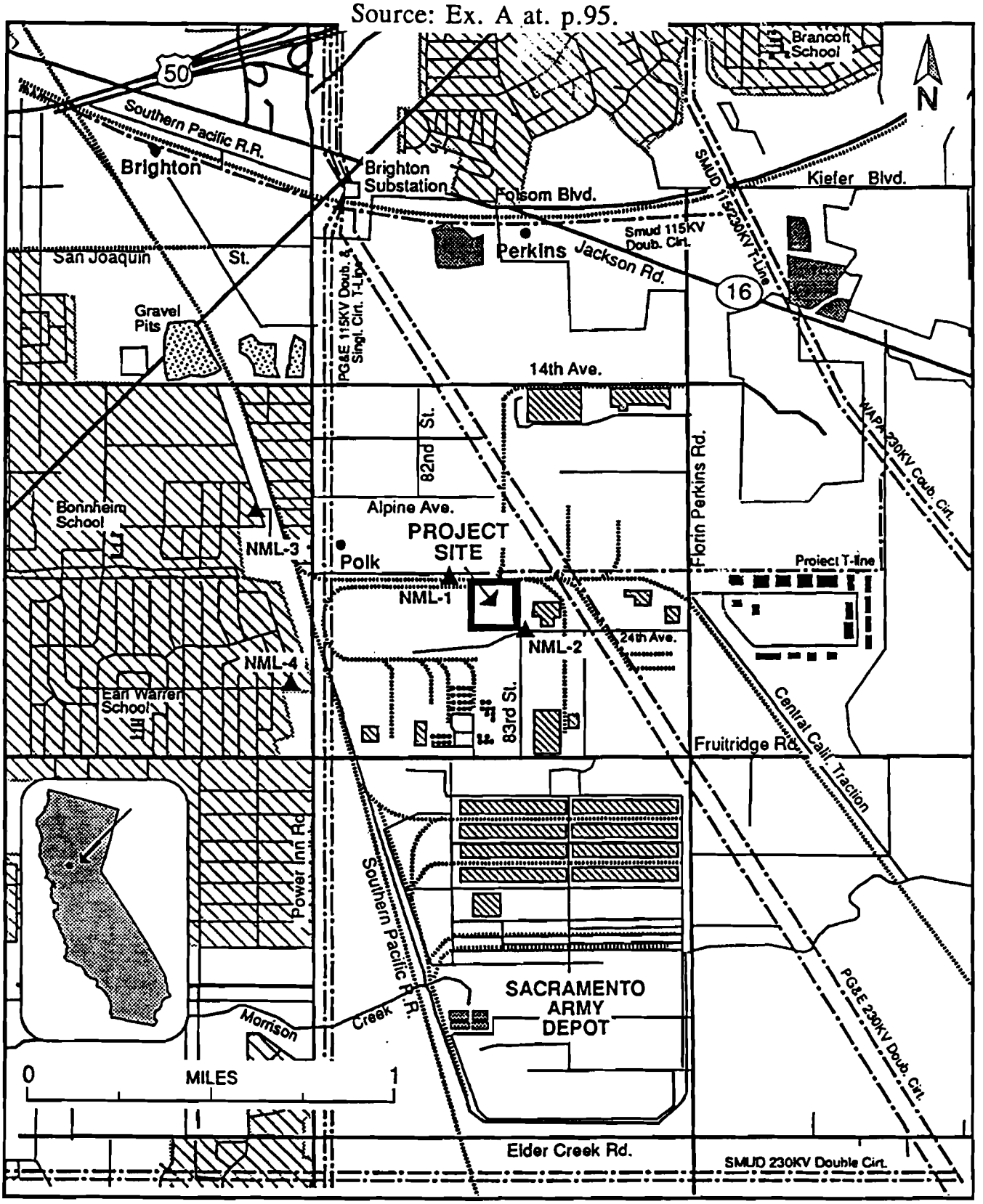
[50] L_{eq} is the equivalent steady state sound level which in a stated period of time would contain the same acoustical energy as time-varying sound level during the same period.

[51] dBA or decibel is an unit of measurement on a logarithmic scale which describes the magnitude of a particular quantity of sound pressure or power with respect to a standard reference value.

FIGURE 15

Noise Monitoring Locations (NMLs)

Source: Ex. A at. p.95.



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from USGS Sacramento East, Ca. 7.5 Minute, photorevised 1980 and AFC 6-10-1.

NOISE: Table 1
Ambient Noise Levels

Date	Measurement Start Time	Location 1		Location 2		Location 3		Location 4	
		L_{eq}	L_{90}	L_{eq}	L_{90}	L_{eq}	L_{90}	L_{eq}	L_{90}
May 26, 1993	3:00 a.m.	55.0	52.0	57.0	55.5	46.0	43.0	55.5	51.0
	4:00 a.m.	57.5	56.0	60.0	56.5	61.5	45.5	66.5	53.0
	5:00 a.m.	58.5	55.5	59.0	56.5	59.0	46.0	66.5	53.5
	6:00 a.m.	58.5	56.0	59.5	56.5	56.0	50.0	66.0	55.0
	7:00 a.m.	58.5	55.5	61.0	57.0	63.0	50.0	67.5	57.5
	8:00 a.m.	57.0	55.5	60.5	57.5	65.0	49.0	69.0	56.5
	9:00 a.m.	59.0	56.0	61.5	58.5	64.0	49.5	69.0	56.[illegible]
	10:00 a.m.	62.0	57.5	65.0	60.0	57.0	49.5	65.5	57.5
	11:00 a.m.	66.0	59.0	71.0	61.5	54.0	50.0	65.5	58.0
	Noon	65.5	58.5	70.5	60.5	56.0	49.5	65.0	57.5
	1:00 p.m.	66.0	58.0	67.5	60.0	53.5	49.0	66.0	57.5
	2:00 p.m.	63.0	57.5	69.0	56.5	64.0	44.5	72.5	57.5
	3:00 p..m.	60.5	56.0	57.5	55.0	56.0	44.5	65.5	54.5
	4:00 p.m.	60.5	55.0	57.5	54.5	50.0	45.0	62.5	55.0
	5:00 p.m.	63.5	56.0	63.0	55.0	49.5	45.0	62.5	53.5
	6:00 p.m.	68.0	56.0	59.5	56.0	62.5	45.0	64.0	50.5
	7:00 p.m.	64.5	54.0	59.5	56.0	63.0	43.0	64.0	51.0
	8:00 p.m.	55.5	54.0	58.0	56.0	62.0	43.0	64.5	51.0
	9:00 p.m.	55.5	54.0	57.5	55.5	58.5	43.0	67.5	51.5
	10:00 p.m.	55.5	54.0	57.5	55.5	64.5	41.5	67.0	51.0
	11:00 p.m.	54.0	52.0	57.0	54.5	66.5	41.5	68.0	50.0
May 27, 1993	Midnight	52.5	50.0	56.5	54.5	63.5	41.0	64.5	50.0
	1:00 a.m.	50.5	49.5	56.5	54.0	43.5	41.0	55.5	50.5
	2:00 a.m.	52.5	49.5	55.5	54.0	62.0	42.0	63.5	51.5
	3:00 a.m.	54.0	52.0	55.5	53.5	68.0	42.0	69.5	51.5
	4:00 a.m.	55.5	54.5	57.0	55.5	62.5	44.5	66.0	52.5
	5:00 a.m.	55.5	54.5	59.0	56.0	49.0	45.5	61.0	52.5
	6:00 a.m.	57.0	55.0	58.5	55.5	50.5	46.5	64.0	53.5
	7:00 a.m.	57.0	54.0	59.0	56.0	58.0	45.0	68.0	55.5
	8:00 a.m.	54.5	52.0	67.5	41.0	52.0	44.0	63.5	53.5

Source: AFC Table 6.10-4 (pages 6.10-9 and 6.10-10)

Source: Ex. A at p. 96.

Guidelines issued by the U. S. Environmental Protection Agency (EPA) identify an L_{dn}[52] of 55 dBA as adequate to protect people from hazardous noise levels outdoors. (Ex. A at p. 97.) The City of Sacramento Noise Ordinance limits noise levels to 55 dBA at residences during daytime hours and 50 dBA during nighttime hours between 10 p.m. and 7 a.m. (Ex. A at p. 99.) The Sacramento County noise element levels are five decibels lower than the City's requirements. The Applicant will follow the more stringent County nighttime level of 45 dBA. (*Ibid.*) Several mitigation measures will be employed to contain equipment noise during nighttime operations. (*Id.* at p. 106.)

1. Construction.

For purposes of noise analysis, construction activities are grouped into four major phases consisting of site preparation, foundation construction, building and equipment erection, and site cleanup and facility startup. Construction activities will last approximately 21 months. Noise emissions will vary with each phase of construction.[53]

Site preparation will require the use of heavy diesel-powered equipment. Noise emissions during this phase of construction will be dominated by diesel engine noise. Foundation construction involves concrete handling equipment and heavy diesel-powered equipment. Neither pile driving nor blasting activities will be required during this or any other phase of construction. Noise emissions during this phase of construction will also be dominated by diesel engine noise.

Building and equipment erection will involve stationary and mobile cranes, equipment delivery, pneumatic torque wrenches and heavy diesel-powered equipment. Noise emissions during this phase of construction are expected to be slightly higher than during any other phase

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[52] L_{dn} reprsents sound level day and night. This is a 24-hour L_{eq} with the daytime level from 0700 to 2200 hours and the nighttime level from 2200 to 0700 hours. A 10 dB penalty is added to the nighttime period.

[53] Construction and demolition noise is exempt from the city ordinance. The ordinance allows noise exceedance in areas where "the measured ambient level exceeds the permissible exterior noise limit, the allowable noise exposure standard shall be the ambient noise level." (Ex. A at p. 99.)

of construction. The noise contours during the equipment erection phase are shown in FIGURE 16. As indicated, the worst-case average level is estimated to be approximately 55 dBA at the nearest residences during the daytime. This noise level, when combined with the $L_{eq(24)}$ value of 65.0 dBA, results in noise levels of 65.4 dBA. The 0.4 dBA noise increase over the ambient is an inaudible increase. (Ex. A at p. 101.)

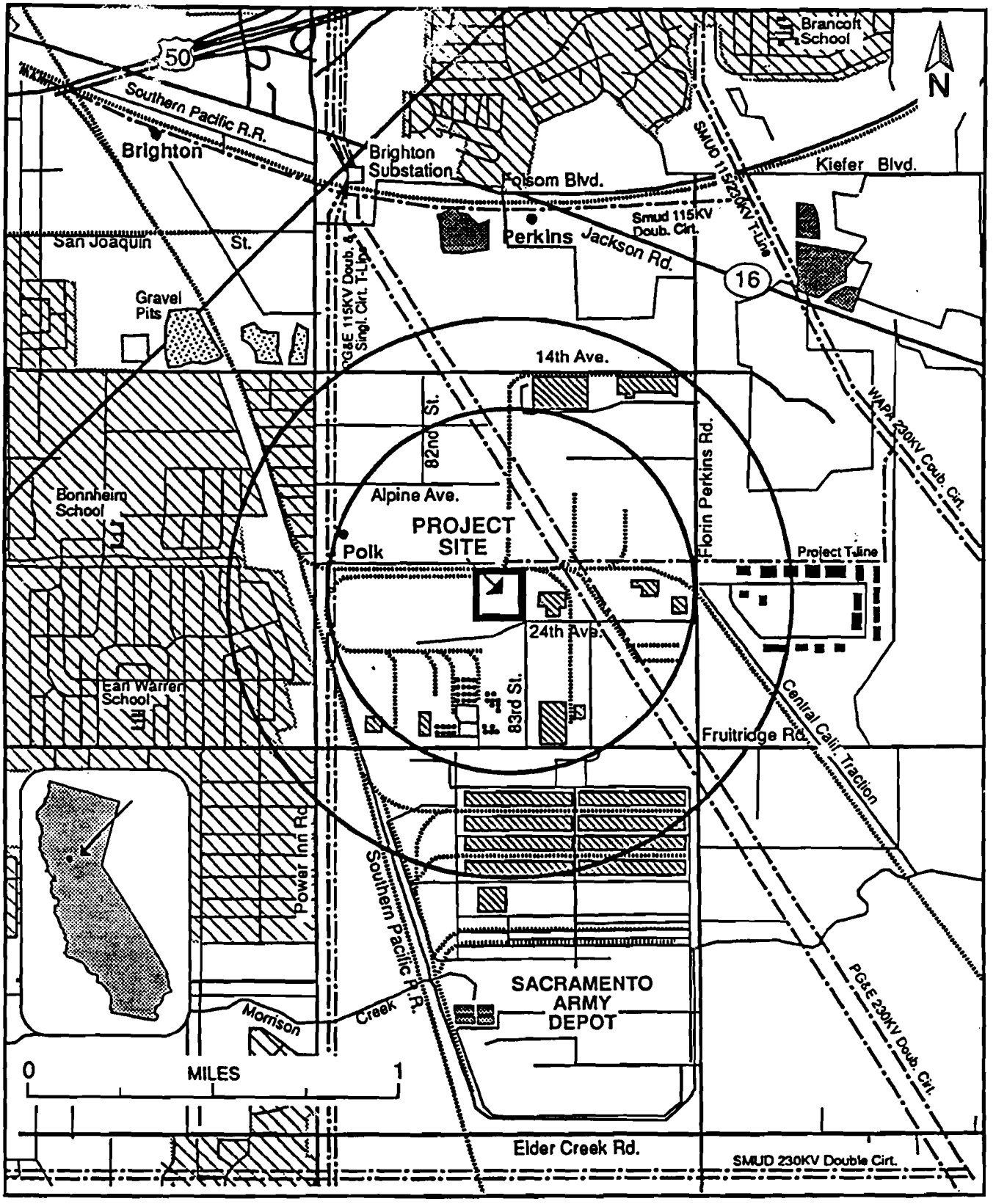
Noise emissions associated with facility start-up will be steam blow of the heat recovery steam generators (HRSGs) to remove any debris within the steam lines prior to hookup with the steam turbine. Noise is produced when high-pressure steam is vented to the atmosphere. The noise from the steam blow will be noticeable mainly because of the sudden onset of noise compared with the actual noise levels.

Construction activities are scheduled to occur between 7 a.m. and 6 p.m. on weekdays. Some activities may require extended hours due to scheduling constraints or to maintain the structural integrity of concrete pours. Any nighttime construction will be limited to low noise producing activities. (Ex. A at p. 100.) Construction noise may be audible at the quietest times of the day, but should not cause a significant increase in the ambient noise level at most times.

2. Operation. Noise emissions from equipment during project operation are shown in NOISE: Table 2. Testimony indicates the goals and policies contained in the City Noise Ordinance were used in evaluating the long term noise impacts from plant operation. Noise impacts would be considered significant under the following:

- If noise resulting from the project increases average ambient noise levels (L_{dn}) by more than 3 dBA, where existing levels are already above the applicable criteria; and
- If the project-generated noise results in a 5 dBA increase in noise levels (L_{dn}) and the resulting level remained below the maximum level considered normally acceptable.

FIGURE 16
Potential Construction Noise Impacts
Source: Ex. A at p. 102.



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from USGS Sacramento East, Ca. 7.5 Minute, photorevised 1980 and AFC 6-10-2.

TABLE 2
Cogeneration Facility Equipment Noise Emissions
Source: Ex. A, Table 4, at p. 103.

Equipment (quantity)	Expected Sound Power Level, dBA	Mitigation Measures	Mitigated Sound Power Level, dBA	Expected Sound Pressure Level at 3 ft, dBA
LM6000 Air Inlet (2)	106 each	Inlet Silencer	106 each	87
LM6000 Turbine Generator (2)	115	Acoustical Wall	111 each	88
HRSG Walls (2)	94 each	None	94 each	73
HRSG Exhaust (2)	126 each	Stack Silencer	101 each	58 @ 5 ft above base of stack
Steam Turbine Generator	108	Enclosure	99	85
Circulating Water Pumps (3)	107 each	None	107 each	89
Cooling Tower	112	Low Noise Fans	112	85
Gas Compressor (4)	115 each	Enclosure	98 each	85
Auxiliary Boiler	94	None	94	85
Boiler Feed Pump	104	None	104	85
Transformers (2)	98 each	None	98 each	79 each
Simple Cycle CT Air Inlet	106	Inlet Silencer	106	87
Simple Cycle CT Generator	115	Acoustical Wall	111	88
Simple Cycle CT Exhaust	126	Stack Silencer	106	65 @ 5 ft above base of stack

Source: AFC Table 6.10-7 (page 6.10-20)

The noise contours from operational noise are shown in FIGURE 17. Based on the modeling results which are contained in the evidence of record, the project will produce an overall noise emission level of approximately 45 dBA (L_{eq24}) at the nearest residential areas. Since the $L_{eq(24)}$ outside these residences was measured at 65.0 dBA, noise from project operations is not expected to be noticeable over existing community noise. (Ex. A at p. 104.)

Steam blow at project start-up will produce noise levels of 90 dBA (muffled) at 1,000 feet. The nearest sensitive noise receptors are located about 2,500 feet from the site where resulting noise levels will reach about 82 dBA. This noise level at the receptors will be heard during short blows of about two minutes each. Although the noise will be startling, the expert testimony did not characterize the impact as significant because of the short duration (three weeks) and the restriction to daylight hours (6 a.m. to 8 p.m. on weekdays and 7 a.m. to 8 p.m. on weekends.) The Conditions of Certification include a complaint resolution protocol which will be implemented to respond to project-related noise complaints. (Ex. A at p. 106.)

Regulations under the federal Occupational Safety and Health Act (OSHA) establish maximum worker noise exposure levels. State law on worker noise exposure reflects the same criteria as federal standards. OSHA noise regulations also specify hearing conservation programs including notification, hearing protection devices, audiometric tests and noise monitoring requirements. (Ex. A at pp. 93-98.) The Conditions of Certification require the Applicant to follow all applicable laws, ordinances, regulations, and standards related to worker noise exposure. (*Id.* at p. 104.)

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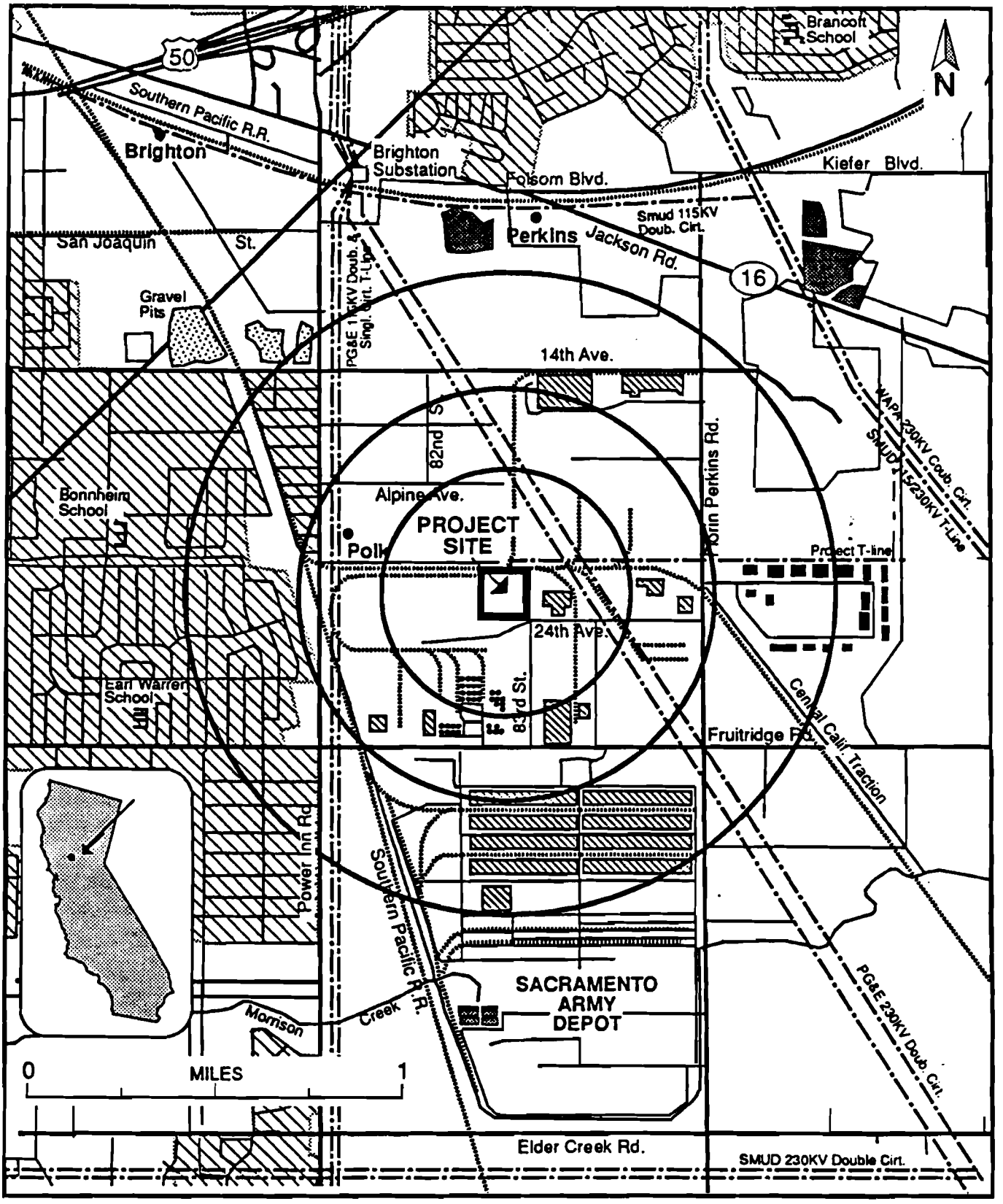
FIGURE 17
Potential Operation Noise Impacts
Source: Ex. A at p. 105.



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from USGS Sacramento East, Ca. 7.5 Minute, photorevised 1980 and AFC 6-10-3.

The Conditions of Certification incorporate all appropriate mitigation measures identified in the record to ensure that impacts from noise associated with project construction and operation will be reduced to insignificance.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Conditions of Certification require the Applicant to comply with all applicable federal and state standards related to worker noise exposure.

2. Construction noise may be audible in the quietest times of the day but should not cause a significant increase in the ambient noise level which is typical of industrial land use.

3. Impacts from increased noise emissions related to project construction will be insignificant to nearby residential areas because construction will be limited to the period of 7 a.m. to 6 p.m. on weekdays.

4. Noise associated with project operations will be mitigated by equipment modifications to maintain noise levels at the 45 dBA nighttime requirement.

5. The Conditions of Certification require that a complaint resolution protocol be followed to respond to noise complaints received from the community.

6. Loud, sudden noise from steam blow at project start-up will produce noise levels at about 82 dBA at the nearest residential area, but impacts should not be significant due to the short duration (three weeks) of the procedure and the restriction to daylight hours.

7. The Conditions of Certification ensure that, with implementation of the mitigation measures described in the evidence of record, impacts from noise emissions associated with project construction and operation will be insignificant.

8. The Conditions of Certification ensure that the Applicant will comply with all applicable laws, ordinances, regulations, and standards related to noise exposure as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

NOISE-1 Ten (10) days prior to the start of construction of the Procter & Gamble Cogeneration Project (project), and for a period of ten (10) days after the start of construction, the project owner shall publish the telephone number in local newspaper(s) for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. For a period of 10 days prior to and after any change in the telephone number, the project owner shall also publish the new number in the local newspaper(s).

Verification: The project owner shall file a copy of the advertisement with the City of Sacramento Planning Department and with the California Energy Commission (CEC) Compliance Project Manager (CPM) when the advertisement is initially run in the local newspaper(s). With any subsequent changes in the telephone number, the project owner shall file a copy of the new number with the CEC CPM and the Planning Commission.

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

PROTOCOL: The project owner shall:

- use the Noise Complaint Resolution Form to document and respond to each noise complaint;
- contact the person(s) making the noise complaint within 24 hours;
- conduct an investigation to determine the source of noise related to the complaint;
- if the noise is project related, take all feasible measures to reduce the noise at its source; and
- submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to their satisfaction.

Verification: Within thirty (30) days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the City of Sacramento Planning Department and with the CEC CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within the thirty (30) day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of project construction, the project owner shall submit to the CEC CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during the construction of the Procter & Gamble Cogeneration project and also to comply with OSHA standards (see table below).

Worker Noise Exposure Standards.	
Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115
Source: OSHA regulations	

L_{50}? L_{eq}.
no Impact limits?

Verification: Thirty (30) days prior to the start of project construction, the project owner or contractor shall submit to the CEC CPM the above referenced program. The project owner shall keep this report at the job site and make it available to OSHA upon request.

NOISE-4 Upon the Procter & Gamble Cogeneration Plant reaching a rated output capacity of 80 percent or greater, the project owner shall conduct a 24-hour community noise survey. If the results from the survey indicate that operation of the power plant causes noise increases in excess of those permitted under the City of Sacramento Noise Ordinance, additional mitigation measures shall be installed to reduce noise to a less than significant level.

PROTOCOL: The noise survey:

- Shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced.
- Sites shall be the same as those used by the project owner in the pre-project ambient noise survey.

Verification: The project owner shall conduct the above described noise survey within thirty thirty (30) days of the project first achieving a rated output capacity of 80 percent or greater. Within thirty (30) days of completing the survey, the project owner shall submit a summary report of the survey to the City of Sacramento Planning Department and the CEC CPM. Included in the report will be a description of any mitigation measures necessary to remain in compliance with the City of Sacramento Noise standards.

NOISE-5 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas within the facility. The survey shall be conducted within thirty (30) days of the project first achieving a rated output capacity of 80 percent or greater. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095-5100 (Article 105) and Title 29, Code of Federal Regulations, Part 1910. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report on the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the California and Federal regulations.

Verification: The project owner shall submit the noise survey report to the CEC CPM within thirty (30) days of completion of the survey. The project owner shall make the report available to OSHA upon request.

NOISE-6 The project owner shall ensure that the design, construction, and installation phases of this project will comply with all local Noise Ordinances.

PROTOCOL: The project owner shall implement the noise attenuation measures necessary to comply with all local noise ordinances. Such attenuation measures may include the following mitigation measures:

- provide inlet silencing of the LM6000 and simple cycle combustion turbine air inlets;
- provide acoustical treatment for the combustion turbine generators;
- provide stack silencing for the HRSG exhausts, and simple cycle CT exhaust;
- enclose the steam turbine generators;
- use low noise fans for the cooling tower;
- enclose the gas compressors;
- provide a temporary silencer to be used during the steam blow of the HRSG; and
- perform noisy[54] project construction between the hours of 7 a.m. to 6 p. m.

Verification: In the monthly compliance report during design, the project owner shall specify which mitigation measure(s) will be employed to comply with the local noise ordinances. After the implementation of each mitigation measure, the project owner shall inform the CEC CPM in a monthly compliance report and the City of Sacramento Planning Department that the mitigation has been accomplished. The project owner shall state which mitigation measure(s) was implemented.

NOISE-7 The project owner shall conduct a public notification program to alert area residents prior to the start of steam blow activities. The notification shall include the nature of the activity, the length, the expected sound levels and the fact that it

[54] Noisy construction includes, but is not limited to, pile driving and mechanical excavation.

is a one-time operation and not a part of normal plant operations, as well as that the steam blow activity will be conducted during normal daytime hours.

Verification: At least seven (7) days prior to the start of steam blow activity, the project owner shall notify the area residences, within a one mile radius of the project site, regarding the planned steam blow activity. The notification may be in the form of letters to the area residences, telephone calls, fliers, town meetings, or publishing the event in the local newspaper(s). Within five (5) days of notifying the area residents, the project owner shall send a letter to the CEC CPM confirming that the area residents have been notified of the planned steam blow activities, and describe the method of that notification.

NOISE COMPLAINT RESOLUTION FORM

PROCTER & GAMBLE COGENERATION Project
Sacramento Cogeneration Authority (93-AFC-2)

Complainant's name and address: Noise Complaint Log No.

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet: _____ dBA Date: _____
Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet: _____ dBA Date: _____
Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____

Date installation completed: _____
Date first letter sent to complainant: _____
(copy attached)
Date final letter sent to complainant: _____
(copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

M. Socioeconomics

The technical area of socioeconomics encompasses several related issues. A typical socioeconomic impact analysis evaluates the effects of project-related population changes on local schools, medical and protective services, public utilities and other public services, as well as on the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes in population. This analysis discusses the potential effects of the proposed project on local communities, community resources and public services pursuant to CEQA Guidelines. (Cal. Code of Regs., tit. 14, § 15131.)

Project construction will last about two years from the Spring of 1995 through the Spring of 1997. The on-site construction workforce will average about 84 workers (including six supervisory and ten construction management personnel). During the six months of peak employment from May 1996 through October 1996, an average of 161 workers will be employed with a projected peak of 181 workers in May 1996. Thereafter, the workforce will generally decrease to less than 70 workers during the last six months of construction. FIGURE 18 shows the number of employees per month needed for the project. (Ex. A at p. 238.)

There will be approximately 21 permanent workers needed for project operations. SOCIOECONOMICS: Table 1 shows the projected full-time and maintenance staff for the project.

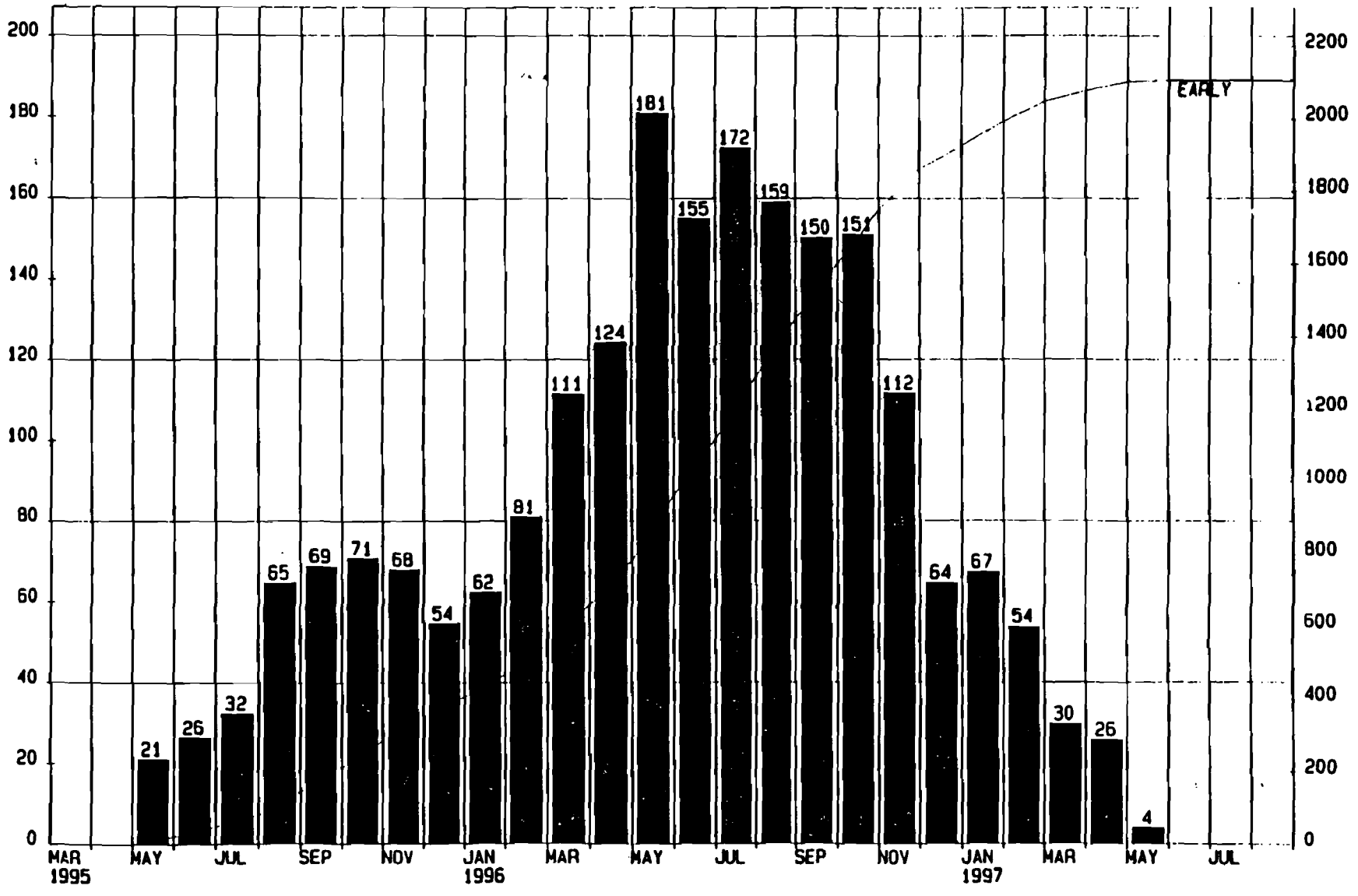
SOCIOECONOMICS: Table 1
Projected Full-Time Operating and Maintenance Staff for the Procter & Gamble Project

STAFF	NUMBER OF PERSONNEL
Plant Manager	1
Operations Manager	1
Maintenance Technician	3
Operations Personnel	15
Administrative	1
TOTAL	21

Source: Ex. A at p. 241

FIGURE 18

TOTAL MANPOWER BY MONTH



Total Manpower by Month
Figure 3.18-1

Source: Ex. 2, Figure 3.18-1.

The evidence of record indicates that there were a total of 29,500 construction workers in the Sacramento Metropolitan Statistical Area (MSA) in 1992. See SOCIOECONOMICS: Table 2, below. Therefore, the number of construction workers needed for the proposed project represents a very small fraction of the available workforce. Additionally, the peak workforce of 181 and near peak of 172 will be needed only for two months in the six-month peak construction period. (Ex. A at p. 241.)

SOCIOECONOMICS: Table 2

Nonagricultural Wage and Salary Employment by Industry in the Sacramento MSA in Thousands (1980-1992)

Industry	1980	1985	1990	1991	1992	Average % Change 1980-1992
Total	417.9	494.5	629.4	631.4	622.5	3.38
Mining	0.6	0.9	0.6	0.5	0.8	2.43
Construction	20.9	27.3	40.7	36.8	29.5	2.91
Manufacturing	28.5	35.1	45.6	45.5	42.6	3.41
Transportation and Public Utilities	22.7	23.8	28.5	29.1	29.1	2.09
Wholesale Trade	18.0	24.2	29.0	28.9	27.8	3.69
Retail Trade	80.3	97.6	116.7	116.9	114.9	3.03
Financial Insurance Real Estate	23.2	28.6	41.1	42.8	42.4	5.15
Services	77.9	101.5	142.3	144.6	150.1	5.62
Government	145.8	155.7	185.0	186.1	185.8	2.04

Source: Sacramento Metropolitan Chamber of Commerce, *Greater Sacramento Area Statistical Abstract*, Page 4-3; California Employment Development Department, May 1993, unpublished data.

Source: Ex. A, at p. 242.

Most hiring of construction workers will occur locally since the construction contractor is located within the Sacramento MSA. However, approximately 20 supervisory and construction management personnel and subcontractors who are not available locally will be brought in from outside the Sacramento MSA during the period of May, 1995 to November, 1996. (Ex. 2 at p. 6.7-39; 7/20/94 RT 20-22.)

The demand for housing by the limited number of supervisory and construction management personnel and specialized construction workers is expected to be minimal and will principally effect temporary housing sources such as hotels or month-to-month rentals. (Ex. A at p. 242.) Employees hired to operate the facility are expected to be area residents and will not need to relocate. Any potential demand for additional housing as a result of project construction or operation can be accommodated by the existing 8.4 percent vacancy rate in the Sacramento MSA.

The project will have no significant impacts on police, emergency transport, or medical services. However, the project may require additional fire protection services because it involves the use and storage of potentially harmful and hazardous substances. (Ex. A at p. 242; Ex. 1: Testimony of Diana Parker at p. 6.) These potential impacts are addressed in the Sections on Industrial Safety and Fire Protection and Hazardous Materials Handling in this Decision.

Construction and operation of the project could cause impacts to local school districts which are at or over capacity by adding to their enrollments if in-migrating personnel should relocate their families to Sacramento. (Ex. A at p. 243.) To assess such impacts, the Applicant will conduct a survey of its employees to determine whether those who have relocated their families have children who attend the local schools. In cases where children of employees attend over-enrolled schools, the Conditions of Certification require the Applicant to negotiate with the affected school districts to compensate for costs associated with the additional children. (Ex. A at p. 249.) Any cumulative impacts resulting from additional students attending Sacramento

area schools due to in-migration of employees from the other four SMUD sponsored projects will also be mitigated by compensation to the affected school districts.

The Sacramento City Unified School District normally assesses developer impact fees of $.27 per square foot for commercial/industrial projects. Because SCA was created under a Joint Powers Agreement with SMUD, a municipal utility, it is exempt from these fees. (Ex. A at p. 243.) SCA is also exempt from the requirement to pay property taxes to Sacramento County which would have been approximately $1,115,100 based on an estimated value of $115.1 million for the property and the equipment. *(Ibid.* at p. 244.) The project is unlikely to have a major impact on surrounding property values since the site is zoned for heavy manufacturing.

The project will incur annual operating and maintenance expenses of approximately $5.3 million (including labor costs of $1.2 million). (Ex. A at p. 244.) Over $3.0 million will be spent in the Sacramento regional economy. *(Ibid.)* Project operation will generate annual sales taxes of approximately $232,500 based on the current rate of 7.75 percent sales tax. SOCIOECONOMICS: Table 3 depicts the distribution of the annual sales taxes by the project.

SOCIOECONOMICS: TABLE 3

Sales Tax Distribution	Tax Rate	Amount of Tax
County General Fund	1.00	30,000
Sacramento Transit Authority	.50	15,000
Realignment	.50	15,000
Regional Transit	.25	7,500
State of California	5.50	165,000
	TOTAL 7.75	**$232,500**

Source: Ex. A at p. 245.

The Conditions of Certification also require, to the extent feasible, the Applicant to purchase supplies and materials from vendors in the Sacramento region which includes the MSA and

adjacent localities. (7/20/94 RT 22-27.) The evidence of record does not indicate that the proposed project will cause any significant adverse socioeconomic impact.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The proposed project, by itself and cumulatively, has the potential to impact school districts which are at capacity because children of relocated personnel may attend over-enrolled schools.

2. The Conditions of Certification require the Applicant to mitigate impacts to over-enrolled schools by negotiating with the affected school districts to compensate for costs associated with providing services to the children of project employees.

3. The proposed project is not expected to adversely impact local workforce availability, housing availability, or public services.

4. The proposed project is exempt from school district developer impact fees and property taxes, but will generate annual sales taxes of approximately $232,000 in the Sacramento area.

5. The Conditions of Certification require the Applicant, to the extent feasible, to purchase supplies and materials from vendors in the Sacramento regional area.

6. Implementation of the Conditions of Certification set forth below will ensure that the proposed project will not adversely impact socioeconomics in the Sacramento area.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within the local regional area unless:

- to do so will violate federal and/or state statutes;
- the materials and/or supplies are not available; or
- qualified employees for specific jobs or positions are not available; or
- there is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least sixty (60) days prior to the start of construction, the project owner shall submit to the California Energy Commission (CEC) Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and

procurement requirements and procedures. In addition, the project owner shall notify the CEC CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The CEC CPM shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall compensate any local public school district in the Sacramento MSA which is at or over capacity for costs associated with increased pupil enrollment caused by construction of the project.

Protocol: The project owner shall conduct a survey of its workers at the time of peak employment to determine if any workers relocated to the project area and brought children who are attending local public schools. The survey shall obtain the following information:

a. The job classification of each worker;

b. The city and state of permanent residence of each worker;

c. The number of workers that relocated to the Sacramento MSA to work on the project and the number of children of such workers that are attending local public schools identified by grade level and school;

d. A determination whether or not any school identified is at or over capacity shall be made through consultation with such school(s) and the project owner;

e. If the survey results indicate that relocated construction workers' children are attending local public schools that are at or over capacity, the project owner shall execute an agreement with each affected school district to compensate the district for costs that the district incurs due to enrollment of children of relocated project construction workers; and

f. The project owner shall comply with the terms of the agreement(s).

Verification: No later than thirty (30) days after the date of peak construction on the project, or a date mutually agreeable to the project owner and the CEC CPM, the project owner shall provide the results of its worker survey to the CEC CPM for review and approval.

If the survey results indicate that any children of in-migrating construction workers and management personnel attended schools in the Sacramento MSA that are at or over capacity, the project owner shall provide to the CEC CPM within thirty (30) days after the survey, a copy of each compensation agreement that has been executed with each affected district.

Within seven (7) days after any performance date for the project owner in the agreement(s), the project owner shall submit to the CEC CPM documentation that the requirement has been fulfilled.

N. Traffic and Transportation

Construction of the proposed project will result in a temporary increase in car and truck traffic which has the potential to cause adverse effects on the transportation system serving the project area. Increased traffic resulting from operation of the project will be minimal.

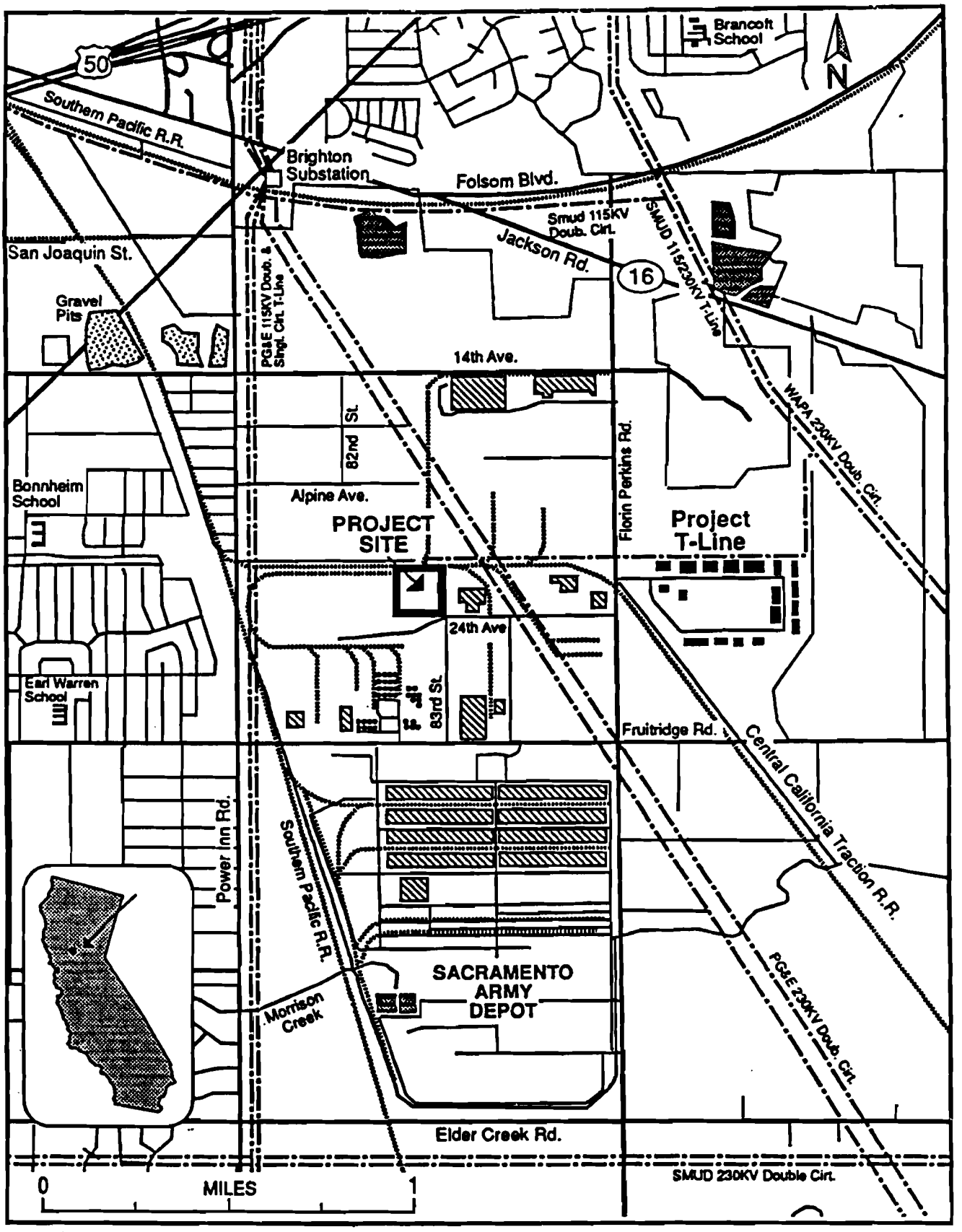
1. Access. A network of existing paved roads provides access to the project area. Highways 50 and 99 are multi-lane freeways which provide the major through-routes serving the area. Highway 50 is approximately three miles north of the site, and Highway 99 is approximately 4 miles west of the site. A number of city arterials provide access from the freeways to the project area. Immediate access is from 83rd Street, a two-lane collector with two parking lanes, which runs north from Fruitridge Road. Fruitridge Road is the major four-lane city arterial, with a center turn lane, running east-west and immediately to the south of the project area. See FIGURES 19 and 20.

Access to Fruitridge Road is possible by a variety of routes. From Highway 50, the Watt Avenue, Howe Avenue/Power Inn Road, or 65th Street Expressway exits may be used. Watt Avenue to South Watt Avenue to Kiefer Boulevard is a four-lane arterial and designated truck route, while South Watt Avenue from Kiefer Boulevard to Fruitridge Road is a two-lane road. An alternate route is South Watt to Kiefer Boulevard, west to Florin Perkins Road (a four-lane arterial) then south to 24th Avenue (a two-lane collector) and then west to the site. (Ex. A at p. 339.)

From the Howe Avenue exit, the route goes south on Power Inn Road to Fruitridge Road and east to the site. Alternatively, the route goes south on Howe, then east on Folsom Boulevard to Jackson Road to Florin Perkins Road, then south to 24th Avenue and west into the project area. From the 65th Street Expressway exit, the direct route goes south to Fruitridge Road and east to the site. From Highway 99 either the Fruitridge Road (north or southbound) or Martin Luther King Jr. Boulevard (northbound) exits may be used, and then east on Fruitridge Road to the site. *(Ibid.)*

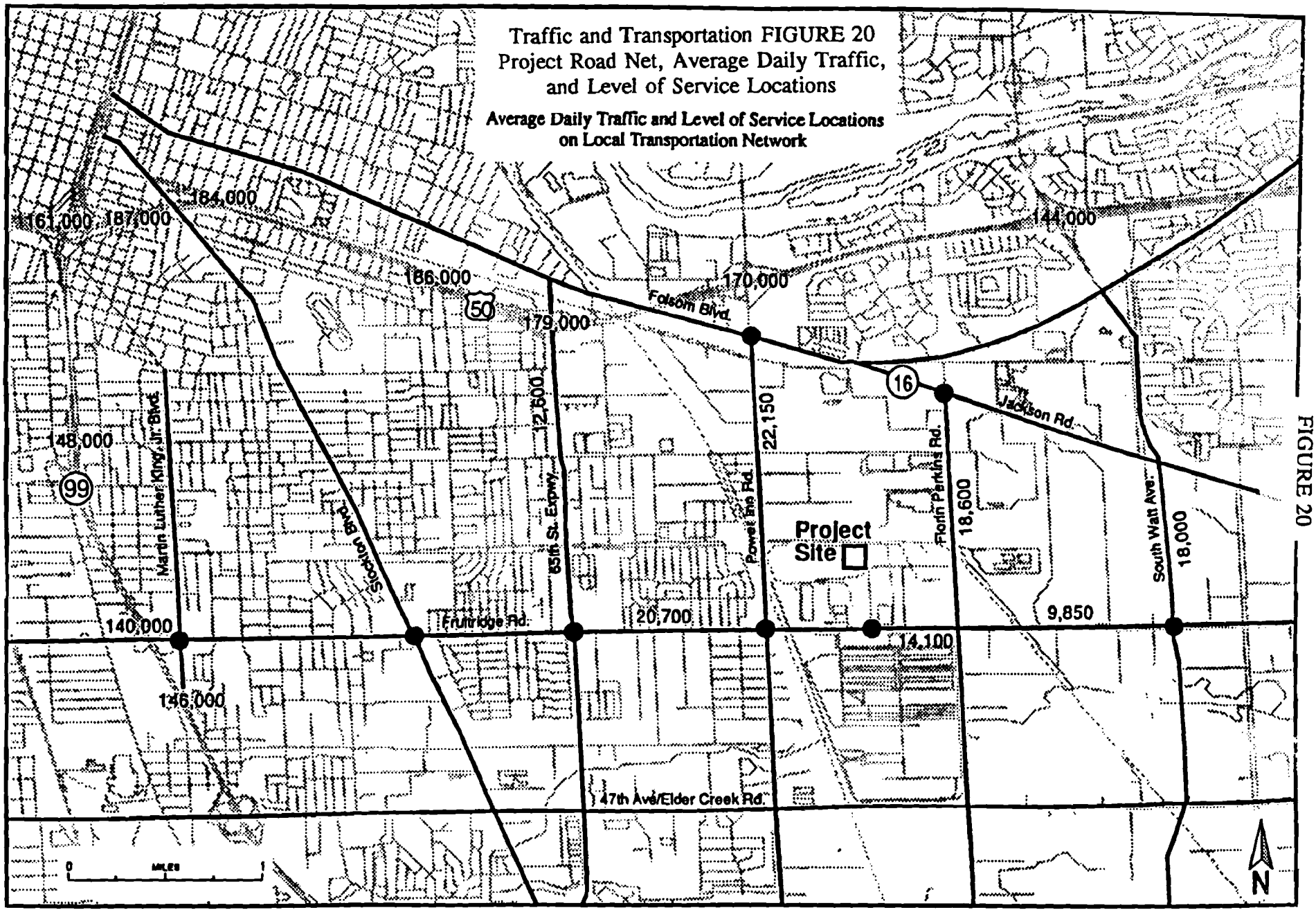
FIGURE 19

Traffic and Transportation
Local Setting



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, JUNE 1994

Source: Ex. A, Traffic and Transportation Figure 1 at p. 338.



Source: Ex. A, Traffic and Transportation Figure 2 at p. 340.

FIGURE 20

CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1994.
SOURCE: Adapted from USGS Sacramento ' nd Carmichael, Ca. 7.5 minute quadrangles, photorevised 1980.

2. Construction Traffic. The project's construction work force will average 84 employees per day, peak at 181 during May 1996 and maintain at least 161 or more during May-October 1996. See FIGURE 18 in the Socioeconomics Section of this Decision.

a. Commuters. Expected traffic figures are based on an occupancy ratio of 2.0 workers/vehicle representing the worst case scenario; this level will result in an estimated 180 peak vehicle trips per day or 90 peak one-way trips per day. The evidentiary analysis of traffic impacts is based on the assumption that employees will commute from the Sacramento Metropolitan Statistical Area, resulting in low numbers of peak hour vehicles on any one particular route until arrival at the vicinity of the project site. (Ex. A at p. 347.)

In determining the Level of Service (LOS)[55] expected during construction, the traffic analysis escalated peak morning and evening traffic counts during the construction period using the peak construction workforce. The analysis also included the projected results of build-out from changed land uses for the Sacramento Army Depot; this projection adds a proportional distribution of traffic during the construction period. (Ex. A at p. 350.) TRAFFIC AND TRANSPORATION: Table 1 shows the peak hour 1996 baseline LOS with the project and without the project.

The evidence indicates that no morning peak LOS traffic impacts are expected because peak construction traffic (6:00 a.m. to 7:00 a.m.) will not coincide with the morning peak hour (7:30 to 8:30 am). However, project-related evening traffic will result in a decrease in LOS from D to E at southbound 83rd Street at Fruitridge Road.

[55] LOS measures the effect on the capacity of a road based on existing roadway and traffic conditions. LOS ranges from "A" (the best) to "F" (the worst) and represents conditions from free-flowing with no delays to extreme congestion with speeds approaching zero. In urbanized areas, LOS is measured by the length of delay expected at signalized intersections. (Ex. A at pp. 341-2.)

TRAFFIC AND TRANSPORTATION: Table1
LOS - Peak Hour for Baseline and Peak Construction

Location	Peak Hour 1996 Baseline LOS		Peak Hour LOS 1996 with project		6 a.m. - 7 a.m. 1996 LOS	
	a.m.	p.m.	a.m.	p.m.	without project	with project
Folsom at Power Inn						
Eastbound	D	*	No Impact	No Impact	D	No Impact
Westbound	F	*	No Impact	No Impact	C	No Impact
Northbound	*	E	No Impact	No Impact	D	No Impact
Southbound	F	E	No Impact	No Impact	D	E
Jackson at Florin Perkins						
Eastbound	B	B	No Impact	No Impact	B	No Impact
Westbound	F	C	No Impact	No Impact	D	No Impact
Northbound	D	E	No Impact	No Impact	C	No Impact
Southbound	C	C	No Impact	No Impact	D	No Impact
Fruitridge at M.L. King						
Eastbound	D	E	No Impact	No Impact	C	No Impact
Westbound	D	E	No Impact	No Impact	C	No Impact
Northbound	D	D	No Impact	No Impact	C	No Impact
Southbound	D	D	No Impact	No Impact	D	No Impact
Fruitridge at Stockton						
Eastbound	D	D	No Impact	No Impact	D	No Impact
Westbound	D	E	No Impact	No Impact	D	No Impact
Northbound	D	E	No Impact	No Impact	D	No Impact
Southbound	D	D	No Impact	No Impact	D	No Impact
Fruitridge at 65th Street						
Eastbound	C	D	No Impact	No Impact	D	No Impact
Westbound	C	D	No Impact	No Impact	C	No Impact
Northbound	C	D	No Impact	No Impact	C	No Impact
Southbound	B	C	No Impact	No Impact	B	No Impact
Fruitridge at Power Inn						
Eastbound	C	*	No Impact	No Impact	C	No Impact
Westbound	C	*	No Impact	No Impact	C	No Impact
Northbound	F	D	No Impact	No Impact	C	No Impact
Southbound	C	D	No Impact	No Impact	C	No Impact
Fruitridge at 83rd Street						
83rd Street	B	D	No Impact	E	B	C
Fruitridge	A	A	No Impact	No Impact	A	No Impact
Fruitridge at South Watt						
Fruitridge	F[1]	F[1]	No Impact[1]	No Impact[1]	E[1]	No Impact[1]
South Watt	F[1]	F[1]	No Impact[1]	No Impact[1]	E[1]	No Impact[1]

[1]The City has designated this 4-way stop as in need of signalization. If signals are installed, the LOS will improve significantly.
*The asterisk indicates that traffic delays may be greater than an LOS of F.

Source: Ex. A, Traffic and Transportation: Table 5 at p. 351.

Commission staff considers a decrease in LOS to be a significant traffic impact whether it occurs during construction or operation. Therefore, Staff recommended Conditions of Certification which would require the Applicant to mitigate the potential impacts by encouraging carpooling to achieve a vehicle occupancy ratio of 2:1 and by following a construction work schedule of 7:00 am to 3:30 pm on weekdays to avoid peak traffic. (Ex. A at p. 350, 368; Ex. 1: Testimony of Diana Parker at p. 7.) The Commission has adopted Staff's recommendation.

b. Truck traffic. Construction will involve the delivery of plant equipment and construction-related materials by truck and rail beginning in the Spring of 1995. Heavy trucks will handle the majority of deliveries, which will occur between 8:00 a.m. and 4:30 p.m. on weekdays, avoiding peak traffic hours. Peak truck deliveries in the Fall of 1995 will average 14 trucks per day, adding a negligible 0.1 percent increase to existing truck traffic on the preferred truck routes.[56] The increase in truck traffic will not significantly affect existing traffic conditions on those routes. (Ex. A at p. 352.)

The Applicant must obtain oversize/overweight permits from Caltrans and the City and County of Sacramento for deliveries of large and/or heavy loads using state highways and local roads. (Ex. A at p. 352.) Ten rail deliveries of large and heavy plant equipment in the Summer of 1996 during peak construction traffic will minimize impacts to surface street traffic. (*Id.* at p. 353.)

Truck deliveries of hazardous materials must comply with federal and state law requirements. *(Ibid.)* See TRAFFIC AND TRANSPORTATION: Table 2.

[56] The preferred truck route is south from Highway 50 on Power Inn Road to Fruitridge Road to the site, or east from Highway 99 on Fruitridge Road to the site.

TRAFFIC AND TRANSPORTATION: TABLE 2

Project-Related Chemicals and Hazardous Materials

Material	Use	Quantity On-site	Form
Ammonium hydroxide	Selective catalytic reduction	10,000 gallons - bulk storage tanks (approx. 7 day supply)	Liquid aqueous ammonia
Sodium hydroxide	Demineralizer resin regeneration and neutralization, boiler pH control	6,000 gallon bulk storage tank (approx. 30 day storage)	Liquid
Sulfuric acid	Demineralizer resin regeneration and neutralization, boiler pH control	6,000 gallon bulk storage tank (approx. 30 day storage)	Liquid
Disodium phospate	Boiler water pH and scale control	500 pounds (approx. 30 day storage)	Granular
Trisodium phosphate	Boiler water pH and scale control	500 pounds (approx. 30 day storage)	Granular
Aqueous ammonia	Feedwater pH control	200 gallons (55 gal. drums) (approx. 30 day storage)	Liquid
Sodium hypochlorite	Biocide for condenser cooling water system	7,000 gallons (est. max.) (approx. 30 day storage)	Liquid
Hydrazine	Feedwater oxygen scavenger	200 gallons (55 gal. drums) (approx. 30 day storage)	Liquid
Laboratory reagents	Various	small amounts, 5 pounds or less	Liquid and granular
Hydrochloric acid* (temporary)	Chemical cleaning of HRSG	10,000 pounds (initial cleaning and possibly every 3-5 years)	Liquid
Ammonium bifluoride* (temporary)	Chemical cleaning of HRSG	200 pounds (initial cleaning and possibly every 3-5 years)	Crystals
Citric acid* (temporary)	Chemical cleaning of HRSG	100 pounds (initial cleaning and possibly every 3-5 years)	Powder
Hydrooxyacetic acid* (temporary)	Chemical cleaning of HRSG feedwater system	1,000 pounds (initial cleaning)	Crystals

Source: Ex. A, Traffic and Transportation Table 8 at pp. 359-360.

TRAFFIC AND TRANSPORTATION: Table 2, (Cont.)
Project-Related Chemicals and Hazardous Materials

Material	Use	Quantity On-site	Form
Formic acid* (temporary)	Chemical cleaning of HRSG feedwater system	600 pounds (initial cleaning)	Liquid
Sodium carbonate* (temporary)	Chemical cleaning of HRSG	500 pounds (initial cleaning and possibly every 3-5 years)	Powder
Sodium nitrite* (temporary)	Chemical cleaning of HRSG	500 pounds (initial cleaning and possibly every 3-5 years)	Crystals
Scale inhibitors, various	Reduce scale formation	200 gallons (55 gal. drums) (approx. 30 day storage)	Liquid
Mineral insulating oil	Transformer systems	39,000 gallons	Insulating fluid
Lubrication oil	Rotating equipment	4,000 gallons	Gas turbine, 500° F bearing conditions
Various detergents	Combustion turbine compressor cleaning	900 pounds (periodic cleaning)	Liquid or granular

*Chemical cleaning chemicals shown are those typically used. Other alternatives may be used in future.

Source: Ex. A, Traffic and Transportation Table 8 at pp. 359-360.

3. Project Operation. A permanent staff of 21 employees is expected during project operations. There will be three 8-hour shifts seven days a week but the shifts and operators per shift may vary depending on need. Using an assumption of one employee per car, project operation will not significantly affect LOS values because of the small and variable number of workers driving through the key intersections during peak hours. (Ex. A at p. 354.) The number of truck deliveries during project operation will be low, approximately 14 deliveries per month including hazardous materials, and will occur during non-peak hours if practicable. This minimal truck traffic will not add significantly to traffic volumes. Compliance with applicable law regarding hazardous materials deliveries will mitigate any potential impacts to traffic and transportation.

4. Cumulative Impacts. Traffic impacts resulting from construction and operation of the four other SMUD-sponsored projects will similarly be mitigated so that the cumulative impacts from all the projects considered together will not be significant.

The Conditions of Certification will ensure that impacts to traffic and transportation resulting from construction and operation of the project will not be significant.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. A network of paved city arterials from exits off Highway 50 and Highway 99 provides access to the project site.

2. Project construction will result in a temporary increase in car and truck traffic in the project vicinity.

3. Peak construction morning commute traffic will not impact traffic volumes because construction start time (6:00 a.m. - 7:00 a.m.) does not coincide with the peak morning commute hours (7:30 a.m. - 8:30 a.m.)

4. A decrease in Level of Service (LOS) at the intersection of 83rd Street and Fruitridge during the evening commute will be mitigated by encouraging carpooling to achieve a vehicle occupancy ratio of 2:1 and by scheduling work hours to avoid peak commute times.

5. The Conditions of Certification ensure that truck deliveries of hazardous materials during construction and operation will comply with applicable federal and state law.

6. Truck deliveries of materials and equipment during construction and operation will not cause significant impacts to traffic and transportation because the volumes are relatively low and deliveries will be made during off-peak hours as much as practicable.

7. Rail deliveries of heavy and large equipment during construction will mitigate impacts to road surfaces.

8. Any potential impacts to traffic and transportation resulting from the four other SMUD sponsored projects will be mitigated such that no significant cumulative impacts will result from construction and operation of the Procter & Gamble Cogeneration Project.

9. Implementation of the Conditions of Certification will ensure that the project will be constructed and operated in conformance with all applicable laws, ordinances, regulations, and standards as identified in Appendix A of this Decision and that no significant impacts to traffic and transportation will result from construction and operation of the project.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with the City of Sacramento, Sacramento County, and Caltrans restrictions on oversize or overweight limit vehicles. The project owner shall obtain necessary transportation permits from the City, County and Caltrans.

Verification: In its Monthly Compliance Reports, the project owner shall notify the California Energy Commission (CEC) Compliance Project Manager (CPM) of any oversize/overweight transportation permits obtained during the reporting period. The project owner shall maintain copies of these permits in its compliance file for a period of at least six months after the start of commercial operation.

TRANS-2 The project owner shall comply with the City of Sacramento, Sacramento County, and the California Department of Transportation (Caltrans) requirements

for encroachment on a public right of way. The project owner shall obtain the necessary encroachment permits from the City, County and Caltrans.

Verification: In its Monthly Compliance Reports, the project owner shall notify the CEC CPM of any encroachment permits obtained during the reporting period. The Applicant shall maintain copies of these permits in its compliance file for a period of at least six months after the start of commercial operation.

TRANS-3 The project owner shall conduct monthly surveys during the following construction periods:

- The period which includes the two months prior to the peak construction workforce being on-site.
- The period during which the peak on-site construction workforce is on-site.
- The period which includes the two months following the peak construction workforce being on-site.

If the surveys indicate that a 2:1 vehicle occupancy ratio is not being achieved, the project owner shall implement a program which encourages ride-sharing. For the purposes of this Condition, the peak on-site construction work force exists when there are 100 or more employees.

Protocol: The vehicle occupancy ratio will be determined by conducting a "windshield" survey of the construction workers. This may include such means as counting the number of workers in each personal vehicle (and company vehicles in cases where project personnel utilize company vehicles to commute to and from the work site) or counting the number of personal vehicles (and company vehicles, as applicable) in the construction parking lot and dividing by the number of workers at the work site.

If the survey results indicate that a 2:1 vehicle occupancy ratio is not being achieved, the project owner will encourage project workers to carpool to and from the site by distributing a written notice encouraging carpooling at the first of each month to each worker employed at the site. Also, informational media will be displayed on the project bulletin boards to advertise and encourage carpooling. Carpooling will also be encouraged at staff meetings.

Verification: The project owner in its Monthly Compliance Report to the CEC CPM shall provide the results of the monthly carpooling survey and, if applicable, identify the measures

that will be implemented to minimize traffic impacts during the upcoming month for the construction periods identified above.

TRANS-4 The project owner shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The project owner shall maintain, in its compliance file, copies of all shipping manifests related to hazardous material shipments.

TRANS-5 The project owner shall limit construction truck deliveries to the period between 8:00 a.m. and 4:30 p.m. on weekdays unless the supplier's delivery schedule does not allow delivery during this period.

Verification: The project owner shall advise the CEC CPM, in its monthly construction reports, of the established hours of scheduled deliveries in effect during the coming month. The CEC CPM will review this report for the coming month and provide any necessary comments to the project owner.

TRANS-6 The project owner shall make every effort to schedule construction work such that a.m. and p.m. peak construction traffic occurs outside the peak periods from 7:15 a.m. to 8:30 a.m. and 3:30 p.m. to 5:15 p.m., unless it can be demonstrated by the project owner that the peak periods cover different time periods.

Verification: The project owner shall advise the CEC CPM in its Monthly Construction Reports of the established normal working hours in effect during the coming month.

TRANS-7 The project owner shall obtain a schedule of the construction activities for the SMUDGAS pipeline along Fruitridge Road east of Power Inn Road and shall provide a copy of the schedule, as well as a copy of the cogeneration project's construction schedule, to Procter & Gamble. The project owner shall maintain contact with SMUDGAS and Procter & Gamble during project construction in order to communicate the cogeneration plant construction activities. The purpose of such communication shall be to avoid peak construction traffic periods on the three other SMUD-related cogeneration projects occurring during the same period of time.

Verification: The project owner shall submit to the CEC CPM, at least sixty (60) days prior to the start of construction, a copy of correspondence forwarded to Procter & Gamble regarding the cogeneration plant and SMUDGAS pipeline construction schedules. The project owner also

shall document, in its monthly compliance report to the CEC, communications between the project owner, SMUDGAS, and Procter & Gamble regarding construction activities. The documentation shall identify any measures to be taken to minimize the effect of concurrent construction activities on local traffic patterns.

O. Land Use

Land Use issues are reviewed in the context of existing land use patterns and applicable law. The Sacramento City General Plan and the City Zoning Ordinance specifically regulate land uses within city limits and are applicable to the proposed project. Under the General Plan, the project area and transmission line corridor are included in zoning category M-2(S), designated for industrial manufacturing uses.[57] (Ex. A at p. 258.)

The project site is surrounded on three sides by intensive manufacturing uses. Residential developments exist to the west but are physically separated from the facility by railroad tracks and Power Inn Road. The cogeneration project may increase levels of ambient and intrusive noise, create dust, and lead to increases in traffic congestion and visual clutter but mitigation measures will reduce such potential impacts to insignificance. See sections in this Decision on Noise, Air Quality, Public Health, Traffic and Transportation, and Visual Resources.

Continued industrial development is the primary land use trend in the project vicinity. Since construction of the cogeneration plant and appurtenant transmission line does not involve changes in land use or intensity of land use, the project will be compatible with existing land use and development. (Ex. A at p. 258.) Available infrastructure, including local road and rail access and a wide range of services are available to the project site and vicinity. (Ex. 2, secs. 6.6.2.2.2 and 6.6.2.2.3.)

The project must comply with all relevant provisions of the City of Sacramento Zoning Ordinance. In two instances, the preliminary site plan does not meet the Zoning Ordinance

[57] The M-2 zone permits the manufacture or treatment of goods from raw materials. While the Zoning Ordinance is silent on powerplant development, the cogeneration project is ancillary to the existing Procter & Gamble facility which manufactures products from raw material. (Ex. A at p. 260.) Zone M-2(S) requires certain landscaping measures in keeping with the concept of attractive, landscaped industrial park developments. (Ex. 2, Table 6.6-1.)

standards: the height limitation and the requirement to separate paved from unpaved areas at an industrial site. (Ex. 1: Testimony of Diana Parker at p. 2-3; Ex. A at p. 261.)

First, the project's two HRSG stacks (115 feet), the auxiliary boiler stack (80 feet) and the transmission poles (100 feet) exceed the 75 feet height limitation imposed by section 3(B)(25) of the Zoning Ordinance. (Ex. 1: Parker at p. 2; Ex. A at p. 261.) Secondly, all areas at the site not covered by equipment or concrete driveways will be covered with a six-inch layer of gravel. The graveled areas will be used for maintenance activities involving truck parking, materials storage and equipment preparation, making it impractical to separate paved areas from graveled areas with fences, bollards or curbing as required by Section 3(D)(3) of the Zoning Ordinance. (Ex. A at pp. 261-262; 7/20/94 RT 7-8.)

Since the site plan does not meet the height limitation or paved area curbing requirements of the Zoning Ordinance, the Applicant must establish that the project is eligible for a variance under the provisions of section 14(A) of the Zoning Ordinance which requires the following findings:

(1) The variance will not be a grant of special privilege.

(2) Failure to grant the variance would be more detrimental or injurious to the public welfare than granting the variance.

(3) The variance is consistent with policies contained in the General Plan for the reduction of air pollution and compliance with federal and state clean air standards.

The Applicant has presented facts which support a variance as follows:

Height Exceedance. The structures that exceed the height requirements are necessary for the project to comply with local, state, and federal air quality standards consistent with the City General Plan. In addition, other industries in the area, including the existing Procter & Gamble facility, have structures that exceed the height requirement and therefore a variance for the proposed project would not be a special privilege. (Ex. A at p. 262; Ex. 1: Parker at p. 3-4.)

Paving and Barrier Requirements. The project site design is unlike those of other industrial facilities in the vicinity because the equipment and processes for generating electricity are unique to powerplant facilities. As such, the site design requirements are determined by function rather than aesthetics. The placement of curbs, tire stops, and landscaping on the site, as required by the Zoning Ordinance, would hinder access to delivery vehicles transporting hazardous materials to the site and obstruct emergency vehicles from reaching critical areas in the event of an accident or other emergency that would cause harm to the public welfare. (Ex. 1: Parker at pp. 3-4.)

The facts presented by the Applicant are consistent with the findings required to obtain a variance; i.e., the variance is not a special privilege, the variance would protect the public welfare and the variance is consistent with air quality standards. Therefore, the Commission finds that the project is eligible for a variance from the height, and paving and barrier requirements specified in sections 3(B)(25) and 3(D)(3) of the Zoning Ordinance.[58] (Ex. A at p. 262; 7/20/94 RT 6-7, 10-11.)

Section 29(C)(2) of the Zoning Ordinance requires a special permit for construction of high-voltage lines. (Ex. A at p. 262.) The evidence indicates that the location and construction of the transmission line is consistent with the Zoning Ordinance requirements and that there are no superior alternatives to the proposed location and design of the project's transmission line.[59] See the Alternatives section in this Decision.

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[58] The City of Sacramento planning staff has indicated that the facts supporting a variance are consistent with the provisions of section 14(A) and if the City had jurisdiction over the proposed project, they would recommend the City Planning Commission grant a variance. (Ex. A at p. 261; 7/20/94 RT 10-11.) On October 24, 1994, the General Manager for the Development Services Division of the City of Sacramento Department of Planning and Development sent a letter to the Committee confirming that the Development Services Division would be supportive of a request for a variance by the Applicant. The October 24 letter was identified for the record as Exhibit 63 at the Committee Conference on November 1, 1994.

[59] The October 24, 1994 letter from the Development Services Division of the City of Sacramento Department of Planning and Development confirms that the Development Services Division would be supportive of an application by the Applicant for a special permit for the proposed transmission line. (Ex. 63.)

The Condition of Certification will ensure that the Applicant submits to the City of Sacramento a detailed site plan, at least sixty days prior to construction, that is consistent with the Zoning Ordinance. (7/20/94 RT 5-7, ll.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The proposed site area, including the transmission line corridor, is zoned M-2(S) for industrial manufacturing uses.

2. Construction and operation of the proposed project and transmission line will be compatible with existing land uses and development in the vicinity.

3. The proposed project is eligible for a variance from the height limitations and curbing requirements set forth in sections 3(B)(25) and 3(D)(3) of the Sacramento Zoning Ordinance since the variance would not constitute a special privilege, it would protect public welfare and it would be consistent with General Plan policy to comply with state and federal air quality standards.

4. The proposed transmission line is consistent with the General Plan and Zoning Ordinance for construction of high-voltage lines as required by section 29(C))(2) of the Zoning Ordinance since no superior alternatives to the design or location of the project's transmission line are available.

5. The Condition of Certification ensures that the proposed project will conform with all applicable laws, ordinances, regulations, and standards related to Land Use, including the City of Sacramento General Plan and Zoning Ordinance as identified in Appendix A of this Decision.

CONDITION OF CERTIFICATION

LAND USE-1 The project owner shall comply with sections 3(D), Development Standards for Special Sites; 6(A), Parking Space Requirements; and 6(C), Parking Design Standards; of the Sacramento City Zoning Ordinance (Ordinance number 2550, adopted March, 1992).

Verification: At least sixty (60) days prior to the start of project construction, the project owner shall submit to the CEC CPM copies of a detailed design plan with comments provided by the City of Sacramento Building Department. The site plan shall consist of construction detail drawings, at a scale no smaller than 1":50', and shall include, at a minimum, details on setbacks, landscaping, and parking.

III. PROJECT ENGINEERING & TRANSMISSION SYSTEM

The evidence of record regarding project engineering and the electrical transmission system was uncontroverted.

A. Facility Design

The Warren-Alquist Act requires the Commission to determine whether the proposed project will be designed, sited and constructed to protect environmental quality and to conform with public health and safety standards. (Pub. Resources Code, § 25523.) Review of facility design includes the civil, electrical, mechanical, and structural engineering elements related to design, construction and operation of the project and its component systems. (Ex. A at p. 377.)

The evidence is based on preliminary design proposals contained in the Application. Therefore, Commission staff's analysis was necessarily limited to whether the proposed cogeneration project has been described in sufficient detail to provide reasonable assurance it will be constructed in accordance with all applicable laws, ordinances, regulations, and standards (Ex. A at p. 377.)

Staff proposed several Conditions of Certification to ensure compliance with the laws, ordinances, regulations, and standards including review, inspection and auditing during construction by the appropriate building inspectors and the Commission staff. (Ex. A at p. 378.) Staff also proposed additional design criteria to comply with building code requirements. *(Id.* at p. 379.) The Applicant agreed to these additional criteria, and they are included in the Conditions of Certification. See FIGURE 21. In addition, the Applicant will implement a Quality Assurance/Quality Control program during design and construction to ensure compliance with industry standards. (Ex. A at pp. 380; 392; Ex. 2 at section 5.5.)

FIGURE 21

Staff Proposed Additions to Applicant Proposed Design Criteria

The following requirements were not identified by the Applicant in the AFC but are applicable to the project and should be added to the Applicant's proposed design criteria to comply with building codes.

- **Welded, bolted or other intermittent connections such as inserts for anchorage of nonstructural components shall not be allowed the one-third increase in allowable stresses permitted in Section 2303(d), UBC 1991;**

- **AISC Specification Type 1 and Type 2 steel structures should also comply with Chapter 27, Section 2710, UBC 1991, Steel Structures Resisting Forces Induced by Earthquake Motions In Seismic Zones Nos. 3 and 4;**

- **If the wind design governs, the detailing requirements and limitations in UBC 1991 seismic provisions should also be followed;**

- **$U = 1.4(D + L + E)$, and $U = 0.9D \pm 1.4E$ required by UBC 1991, Section 2625 should be added for Concrete Structures;**

- **UBC 1991, Section 2710 (e)1. Column strength. A. Axial Compression $1.0\ P_{DL} + 0.7\ P_{LL} + 3(R_W/8)P_E$ and B. Axial Tension $0.85\ P_{DL} + 3(R_w/8)P_E$ should be added for steel structures design;**

- **All structures and equipment should be designed to comply with UBC 1991 Section 2336(a): "Friction resulting from gravity loads shall not be considered to provide resistance to seismic forces";**

- **The structures, equipment internals and components should comply with UBC 1991, Section 2337(b)11: "Building separations. All structures shall be separated from adjoining structures. Separations shall allow for $3(R_w/8)$ times the displacement due to seismic forces"; and**

For AWWA D100 anchored flat-bottom tank design, the coefficients $Z = 0.75$, $K = 2.0$, and $S = 1.2$ should be used.

Source: Ex. A at p. 379.

The applicable laws, ordinances, regulations, and standards are listed in Appendix A of this Decision. The Conditions of Certification are specified at the conclusion of this Section. Assuming compliance with the Conditions of Certification and the Quality Assurance/Quality Control program, the evidence establishes that the project will meet applicable design and construction criteria.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The proposed cogeneration project is currently in the preliminary design stage.

2. Review of the available information and evidence contained in the Application (Ex. 2) and the Final Staff Assessment (Ex. A) establishes that the proposed cogeneration project can be designed and constructed in accordance with the applicable laws, ordinances, regulations, and standards identified in Appendix A of this Decision.

3. Implementation of the Conditions of Certification as set forth below will ensure the proposed cogeneration project is designed and constructed in accordance with applicable laws, ordinances, regulations, and standards.

4. Implementation of the Quality Assurance/Quality Control program will provide additional safeguards to ensure compliance with the applicable laws, ordinances, regulations, and standards.

5. The Commission concludes that the proposed cogeneration project will be designed, sited, constructed and operated in accordance with applicable law relating to the project's civil, electrical, mechanical, and structural engineering elements.

CONDITIONS OF CERTIFICATION

FDG-1 The project owner shall furnish to the California Energy Commission (CEC) Compliance Project Manager (CPM) and to the CBO[60] a schedule of structural

[60] CBO is the City or County Chief Building Official, his or her representative, or the Energy Commission's duly appointed representative.

plan submittals, a Drawing List, and a Specifications List. The schedules shall contain a description and list of proposed submittal packages for structural plans, calculations, and specifications for major structures and equipment (listed below). The project owner shall also furnish monthly schedule updates.

Major Structures

Combustion Turbine Generator (CTG) Foundation
Inlet Air Filtration Equipment and Inlet Air Duct

Support Structures
Heat Recovery Steam Generator (HRSG) Structure

Foundation
Exhaust Stack and Foundation
Field Fabricated Tanks and Foundations
Shop Fabricated Pressure Vessel Foundations
Equipment Foundations (condenser, compressors, pumps, transformers)

Cooling Tower

Major Equipment

CTG
HRSG including the Selective Catalytic Reduction (SCR)
CTG Inlet Filtration Equipment
Shop Fabricated Pressure Vessels
Condenser

Verification: At least sixty (60) days (*or a lesser number of days mutually agreeable to the project owner and the CBO*)[61] prior to the start of the first increment of new construction (the first increment of construction is typically defined as site preparation), the project owner shall submit the schedule, Drawing List, and Specifications List to the CBO and to the CEC CPM and provide monthly schedule updates in the Monthly Compliance Report.

FDG-2 The project owner shall make payments to the CBO equivalent to the fees listed in the 1991 Uniform Building Code (UBC), Chapter 3, Section 304 and Table No. 3-A; Chapter 70, Section 7007 and Table No. 70-A and 70-B for plan review and permits. If the City of Sacramento has adjusted the UBC fees by Code or Ordinance, the project owner shall pay the adjusted fees.

[61] Unless specifically stated, this phrase applies to all verifications that have a time requirement.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, calculations, and specifications, and the soils report. The project owner shall send a copy of the CBO receipt of payment to the CEC CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

FDC-3 Prior to the start of site preparation, the project owner shall assign the following engineers to the project, all of which must be registered in California: A) at least one resident construction engineer; B) at least one qualified and responsible civil engineer; C) a qualified civil engineer, fully competent and proficient in soil mechanics; D) at least one responsible design engineer who is either a registered structural engineer with the authority to use the title *Structural Engineer* in California, or a civil engineer who is fully competent and proficient in the design of power plant structures and equipment supports; and, E) at least one responsible mechanical engineer.

Protocol (A): The resident construction engineer shall:

- monitor construction progress to ensure compliance with the design intent;
- assure that the construction of all the facilities comply with the civil work construction criteria, applicable laws, ordinances, regulations and standards, approved plans and specifications; and
- assure the conformance of all structural erection with the applicable laws, ordinances, regulations and standards, approved plans, and specifications.

The resident construction engineer shall have authority to halt construction and to require changes or remedial work if the work does not conform to the applicable requirements.

Protocol (B): The responsible civil engineer shall:

- design (or be responsible for design), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities to comply with the Commission's Decision. At a minimum these include grading, site preparation, excavation, and compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and
- provide consultation to the resident construction engineer during the construction phase of the project and recommend changes in the design

of the civil works facilities and changes in the construction procedures; and

The tasks performed by the responsible engineer(s) may be divided between two or more civil engineers, as long as each engineer is responsible for a particular segment of the project (e.g. proposed earthwork, related civil works, civil structures, transmission line civil works, etc). No segment of the project shall have more than one responsible engineer.

Protocol (C): The civil engineer, fully competent and proficient in soil mechanics shall:

- review all the soils engineering reports and engineering geology reports, and prepare a final soils grading report;
- prepare the soils engineering reports required by Chapter 70 of the UBC;
- be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in Chapter 70 of the UBC;
- recommend field changes to the responsible civil engineer and to the resident construction engineer;
- review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to rapid settlement or collapse when saturated under load; and
- prepare reports on foundation investigation to comply with Chapter 29 of the UBC.

This civil engineer shall be authorized to halt earthwork and to require changes, if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

Protocol (D): The design engineer shall:

- be directly responsible for the design of the proposed structures and equipment supports;

- provide consultation to the resident construction engineer during design and construction of the project;
- monitor construction progress to ensure compliance with the design intent;
- evaluate and recommend necessary changes in design; and
- prepare and sign all major building plans, specifications and calculations.

The tasks performed by the responsible design engineer may be divided between two or more civil or structural engineers as long as each engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible engineer.

Protocol (E): The mechanical engineer(s) shall:

- be responsible for, and sign and stamp a statement with each mechanical submittal to the CBO that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Commission Decision.

The tasks performed by the responsible mechanical engineer(s) may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible engineer.

If any engineer is subsequently reassigned or replaced the project owner shall, within ten (10) days, submit the name, qualifications, and registration number of the newly assigned engineer to the CBO, with a copy to the CEC CPM. The project owner shall notify the CEC CPM of all CBO approvals or disapprovals of the engineer within five (5) days of the approval or disapproval.

Verification: At least fourteen (14) days prior to the start of site preparation, the project owner shall submit to the CBO for review and approval the name(s), qualifications and registration number(s) of the all engineer(s) listed in this Condition. The owner shall also submit to the CEC CPM a copy of the CBO approval of the qualifications of all registered engineers.

FDG-4 Prior to the start of the first activity requiring special inspection, the project owner shall assign to the project at least one construction engineer who shall:

- be responsible for the special and continuous inspections required by UBC Section 306.

Welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels) shall be inspected by a certified weld inspector (AWS and/or ASME as applicable).

If the construction engineer, certified weld inspector, or other certified special inspector is subsequently replaced or re-assigned, the project owner shall within ten (10) days submit the name(s) and qualifications of the newly assigned individual(s) to the CBO, with a copy to CEC CPM.

Verification: At least fourteen (14) days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CEC CPM, the name(s) and qualifications of the construction engineer(s), certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform the duties set forth above.

FDE-5 Prior to the first submittal of electrical plans, the project owner shall assign to the project a responsible electrical engineer, registered in California, who shall be responsible for the electrical design of the project, and shall sign and stamp all electrical design drawings, plans, specifications, and calculations. The transmission line may be the responsibility of a separate California registered electrical engineer.

The tasks performed by the electrical engineer may be divided between two or more engineers, as long as each electrical engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible engineer.

If the electrical engineer is subsequently reassigned or replaced the project owner shall, within ten (10) days, submit the name, qualifications, and registration number of the newly assigned engineer to the CBO, with a copy to the CEC CPM. The project owner shall notify the CEC CPM of all CBO approvals or disapprovals of the engineer within five (5) days of the approval or disapproval.

Verification: At least fourteen (14) days prior to the submittal of the first set of electrical plans, design drawings, specifications, and calculations, the project owner shall submit to the CBO for review and approval, with a copy to the CEC CPM, the name(s), qualifications and registration number(s) of the responsible engineer(s) assigned to the project to perform the above duties.

FDC-6 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

- The design of proposed drainage structures, and the grading plan;

- an erosion and sedimentation control plan (combined grading plan); and
- the related calculations and specifications, signed and stamped by the responsible civil engineer.

Verification: At least fourteen (14) days prior to the start of site grading, the project owner shall submit to the CBO for review and approval the above described documents.

FDC-7 The project owner's resident construction engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the project owner's engineering geologist or civil engineer, who is fully competent and proficient in soil mechanics, identifies unforeseen adverse geologic conditions. The project owner shall prepare and submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected areas.

Verification: The project owner shall provide to the CEC CPM evidence of the CBO's approval to resume earthwork and construction in the affected areas within five (5) days of the CBO granting approval.

FDG-8 Prior to the start of any increment of construction, the project owner shall obtain the CBO's approval to commence that increment of construction, upon approval of the plans, specifications, and calculations. Upon completion of the increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The submittal should also include the applicable QA/QC procedures.

Verification: At least thirty (30) days prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the proposed final design plans, specifications, and calculations for that increment of project construction.

The project owner shall transmit a copy of the CBO's approvals to the CEC CPM in the next Monthly Compliance Report.

FDC-9 All plant site grading operations shall be subject to inspection by the CBO and the CEC CPM. The project owner shall perform inspections in accordance with Chapters 3, 29 and 70 of the UBC. If the project owner's inspector discovers that work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the project owner's responsible civil engineer, the CBO, and the CEC CPM. The project owner shall prepare a written report,

detailing the discrepancies and non-compliance items, and send copies to the CBO and the CEC CPM.

Verification: Within five (5) days of the discovery of the discrepancies, the project owner shall transmit to the CBO and the CEC CPM a nonconformance report (NCR), and the proposed corrective action. These reports shall reference the corresponding Conditions of Certification. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CEC CPM.

FDC-10 After completion of the finish grading of erosion and sedimentation control facilities and drainage facilities, the project owner shall obtain the CBO's approval of the final as-graded plans, and as-built plans for the erosion and sedimentation control facilities.

Verification: Within thirty (30) days of the completion of the above referenced facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures was completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended function. The project owner shall submit a copy of this report to the CEC CPM in the next Monthly Compliance Report.

FDS-11 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the applicable designs, plans or drawings for:

- project structures;
- foundations, equipment supports and anchorages;
- field fabricated tanks;
- loading combinations with load factors for combustion turbine foundation;
- turbine/generator pedestal; and
- switchyard structures.

Protocol (F): The project owner shall:

- obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the most conservative shall govern (i.e., highest loads, or lowest allowable stresses). Plans, calculations, and specifications for foundations that support structures should be filed concurrently with the structure plans, calculations, and specifications;

- ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, staff proposed modifications, assumptions, and methods used to develop the design. These shall be signed and stamped by the responsible design engineer; and

- submit to the CBO the required number of copies of the plans and the required number of copies of the specifications, calculations, and other required documents of the designated critical structures at least ninety (90) days (or a shorter time duration as agreed by the CBO) prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation.

Verification: Thirty (30) days prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CEC CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Commission's Decision.

The project owner shall submit to the CBO the required number of copies of the plans, specifications, calculations, and other required documents of the designated major structures or equipment at least ninety (90) days prior to the start of fabrication and/or installation of each designated structure, equipment, or equipment support.

If the CBO discovers nonconformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within twenty (20) days of receipt of the nonconforming submittal.

The project owner shall submit to the CEC CPM a statement from the CBO that the proposed building plans, specifications, and calculations have been approved and are in conformance with the requirements set forth in the applicable laws, ordinances, regulations and standards.

FDG-12 The project owner shall obtain the CBO's approval of any completed work as being in conformance with the approved final building plans. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" plans conform with the approved final building plans, the project owner shall notify the CEC CPM of the CBO's final approval.

Verification: Within fifteen (15) days of the completion of any structure, the project owner's responsible design engineer shall submit to the CBO, with a copy to the CEC CPM, (a) written notice that the structure is ready for final inspection, and (b) a signed statement that the structure conforms to the final approved building plans. The marked up "as-built" drawing for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings.

FDS-13 The project owner shall submit to the CBO the required number of sets of the following:

- concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

- concrete pour sign-off sheets;

- bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

- field weld inspection reports (including type of weld, location of weld, inspection of non destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number [ref: AWS]); and

- reports covering other structure activities requiring special inspections in accordance with UBC, Section 306.

Verification: If a discrepancy is discovered in any of the above data the project owner shall, within five (5) days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy to the CEC CPM. The NCR shall reference this Condition of Certification and applicable UBC chapter/section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CEC CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval to the CEC CPM within fourteen (14) days, provided specific test results comply with identified requirements. If disapproved, the project owner shall immediately advise the CEC CPM of the reason for disapproval.

FDM-14 Prior to the start of any increment of piping construction, the project owner shall submit for CBO review and approval the proposed final design drawings, specifications, and calculations for each plant piping system, other than domestic water refrigeration systems, and small bore piping (e.g., piping and tubing with a diameter equal to or less than two (2) inches). The submittal should also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water and refrigeration, to the appropriate code listed herewith. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction.

Protocol (G): The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when:

- the proposed final design plans, specifications, and calculations conform with all of the piping requirements set forth in the Commission Decision;

- all of the other piping systems, except domestic water and refrigeration systems, and small bore piping, have been designed, fabricated, and installed in accordance with all applicable ordinances, regulations, laws, and industry standards, including, as applicable:

-- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
-- ANSI B31.2 (Fuel Gas Piping Code);
-- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
-- ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
-- National Fire Protection Association (NFPA).

The CBO may require the project owner, as necessary, to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation.

Verification: Thirty (30) days prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CEC CPM, the proposed final design plans, specifications, calculations and quality control procedures for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Commission Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CEC CPM in the Monthly Compliance Report following completion of any inspection.

FDM-15 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and Cal/OSHA, prior to operation, the code certification papers and other documents required by legally required standards. The project owner shall request written notification from the CBO that the plan check and installation are in accordance with the code requirements. The submittal should also include the applicable QA/QC procedures. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal/OSHA inspection of said installation.

PROTOCOL (H): The project owner shall:

- ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable codes, shall be submitted for prefabricated vessels and tanks; and

- have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least thirty (30) days prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval any calculations, specifications, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CEC CPM.

The project owner shall send copies of the CBO approvals of plan checks to the CEC CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal/OSHA inspection approvals to the CEC CPM in the Monthly Compliance Report following completion of any inspection.

FDM-16 Prior to the start of construction of any heating, ventilating, air conditioning (HVAC) or refrigeration system, the project owner shall submit to the CBO for review and approval the design plans, specifications, calculations, and quality control procedures for that system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

PROTOCOL (I): The project owner shall:

- Design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the Uniform Mechanical Code and other applicable standards, ordinances and laws. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction.

- The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical design engineer shall sign and stamp all plans, drawings, and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with all applicable laws, ordinances, regulations and standards.

Verification: At least thirty (30) days prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and

refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the design engineer certifying compliance with the applicable standards, ordinances and laws, with a copy of the transmittal letter to the CEC CPM.

The project owner shall send copies of CBO comments and approvals to the CEC CPM in the next Monthly Compliance Report. The project owner shall transmit a copy of the CBO's inspection approvals to the CEC CPM in the Monthly Compliance Report following completion of any inspection.

FDM-17 Prior to the start of each increment of plumbing construction, the project owner shall submit for the CBO's approval the final design plans, specifications, calculations, and quality control procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the county.

PROTOCOL (J): The project owner shall design, fabricate, and install:

- plumbing in accordance with California Code of Regulations, title 24, Division 5, Part 5, and the Uniform Plumbing Code;
- potable water system in accordance with California Code of Regulations, title 24, Division 5, Part 5, Article P10, and the Uniform Plumbing Code;
- drainage system including sanitary drain and waste system in accordance with California Code of Regulations, title 24, Division 5, Part 5, Articles P4, P5, P6, and P7, and the Uniform Plumbing Code;
- toilet rooms and number of toilet rooms in accordance with the Uniform Plumbing Code, Appendix C, and California Code of Regulations, title 24, Part 2;
- building energy conservation systems in accordance with California Code of Regulations, title 24, Division 5, Chapter 2-53, Part 2; and
- temperature control and ventilation systems in accordance with California Code of Regulations, title 24, Division 5, Chapter 2-53, Part 2.

Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction.

The final plans, specifications, and calculations shall clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical design engineer shall stamp and sign all plans, drawings, and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications, and calculations conform with all of the requirements set forth in the Commission Decision.

Verification: Thirty (30) days prior to the start of construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the design engineer certifying compliance with the applicable laws, ordinances, regulations and standards, with a copy of the transmittal letter to the CEC CPM.

The project owner shall transmit a copy of the CBO's inspection approvals to the CEC CPM in the next Monthly Compliance Report following completion of that increment of construction.

FDS-18 The project owner shall submit to the CBO design changes to the final plans required by the UBC, Section 303, including the revised drawings, specifications, calculations accompanied by a complete description of and supporting rationale for the proposed changes, and shall give the CBO prior notice of the intended filing.

Verification: The project owner shall notify the CBO at least fifteen (15) days prior to the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above mentioned documents to the CBO, with a copy of the transmittal letter to the CEC CPM. The project owner shall notify the CEC CPM via the Monthly Compliance Report when the CBO has approved the revised plans.

FDE-19 For the 13.8 kV and lower systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been submitted for review and approval by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable laws, ordinances, regulations and standards.

Verification: The project owner shall submit electrical inspection reports to the CEC CPM in the Monthly Compliance Report. At least thirty (30) days prior to the initial turbine roll, the project owner shall submit to the CEC CPM a statement signed by the CBO that the electrical equipment installations have been installed, inspected, and approved. The following activities shall be reported in the Monthly Compliance Report:

- receipt or delay of major electrical equipment;
- testing or energization of major electrical equipment; and
- the number of electrical drawings approved, submitted for approval, and still to be submitted.

FDE-20 The project owner shall submit to the CBO the required number of copies of items a and b for review and approval and one copy of item c:

a. Final plant design plans to include:
   -- one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
   -- system grounding drawings;
   -- general arrangement or conduit drawings; and
   -- other plans as required by the CBO.

b. Final plant design plan calculations to establish:
   -- short-circuit ratings of equipment;
   -- ampacity of feeder cables;
   -- voltage drop in feeder cables;
   -- system grounding requirements;
   -- coordination study calculations for fuses, circuit breakers and protective relay settings;
   -- lighting energy calculations; and
   -- other calculations as required by the CBO.

c. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Commission Decision and the National Electric Code (NEC).

Verification: Thirty (30) days prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CEC CPM a copy of the transmittal letter to the CBO verifying that copies of the appropriate items listed above were submitted to the CBO for review and approval.

FDG-21 The project owner shall keep the CBO informed regarding the status of construction.

Verification: The project owner shall submit a weekly construction progress report to the CBO within five (5) days after the end of each week. If a discrepancy is discovered during construction, the project owner shall, within five (5) days, prepare and submit an NCR

describing the nature of the discrepancies to the CBO, with a copy to the CEC CPM. The NCR shall reference this Condition of Certification, and applicable chapter/section of the UBC.

FDG-22 The project owner shall design, construct, and inspect the project in accordance with applicable design criteria identified herein and with the legally required industry standards.

Verification: Within thirty (30) days of commercial operation, the project owner shall submit to the CEC CPM a statement of verification, signed by the responsible engineers, attesting that all design, construction, and inspection requirements of the applicable laws, ordinances, regulations and standards installation requirements, and the Commission's Decision have been met in the areas of civil engineering, structural engineering, mechanical engineering, and electrical engineering.

The project owner shall provide the CEC CPM a copy of the Permit to Occupy in the next Monthly Compliance Report after receipt of the permit.

B. Powerplant Reliability

The Warren-Alquist Act requires the Commission to review factors related to safety and reliability of proposed facilities. (Pub. Resources Code, §§ 25511; 25520(b).) However, no specific findings on reliability are mandated, nor are there any laws, ordinances, regulations, and standards that establish powerplant reliability criteria. To fulfill the requirement under Warren-Alquist, Commission staff examined the proposed project design criteria to determine if the project is likely to be built in accordance with typical industry practice for power generation.[62] (Ex. A at p. 409.) Staff also proposed a Condition of Certification to ensure project reliability.

The scope of Staff's reliability analysis included equipment, fuel and water availability, plant maintenance, and potential impacts from seismic shaking.

1. Equipment Availability. The Quality Assurance/Quality Control Program previously identified in Facility Design provides guidelines to ensure procurement of equipment from qualified vendors and to provide for appropriate maintenance and repair. Further, redundancy of critical equipment components to provide backup functions is typical of large powerplant design planning. (Ex. A at p. 413.)

The Applicant's prediction of a plant availability factor of 90.3 percent exceeds the North American Electric Reliability Council's (NERC) standard of 79.23 percent for similar combined cycle plants in North America. While the Applicant's estimate may be optimistic, it indicates a high likelihood that the powerplant's reliability will be consistent with industry norms. (Ex. A at p. 414.)

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[62] The proposed cogeneration project is designed for an operating life of 30 years. The combined cycle unit is a baseload power generation unit and the simple cycle is designed for peaking and intermediate duty. The auxiliary boiler will operate continuously at minimum load in parallel with the combined cycle to assure reliable steam supply to Procter & Gamble. (Ex. 1: Testimony of Curtis Kling at pp. 3-4.)

2. Plant Maintenance. The Applicant will establish an equipment maintenance program in accordance with manufacturer's recommendations and implement an overall quality control program consistent with industry norms. (Ex. A at p. 415.)

3. Fuel and Water Availability. Natural gas fuel will be supplied by the new SMUDGAS pipeline which will also supply the three other SMUD related cogeneration projects. Water will be supplied by the City of Sacramento water system. (Ex. A at. p. 415.) Evidence indicates the supply of fuel and water will be adequate.

4. Seismic Shaking. The powerplant is designed to withstand expected seismic events in conformance with applicable building codes. California has many widely dispersed electric generation sources that are interconnected for system reliability. The system also includes a significant reserve margin. As a result of these features, California's electrical system has a high level of resistance to generation outages from seismic events. Seismic damage to a single small powerplant or group of plants will not cause major interruptions in the ability of the system to generate sufficient power. Moreover, compliance with the most updated applicable reliability standards for construction and operation will ensure that a new facility, such as the proposed project will perform at least as well, if not better, than existing older powerplants. (Ex. A at pp. 415-416.) Loss of electric generation from the proposed powerplant should not have a significant effect on the state's overall ability to provide power in the event of seismic activity. (*Id.* at p. 416.)

Thus, the evidence of record establishes that the proposed project will be designed, constructed, and operated consistent with typical industry norms for reliable operation.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The proposed cogeneration project will meet industry norms for reliability if designed, constructed, and operated in accordance with the specifications set forth in the Application for Certification (Ex. 2) and the Final Staff Assessment (Ex. A).

2. The loss of electric generation from the proposed project due to seismic damage should not have a significant effect on the state's overall ability to provide power in the event of seismic activity.

3. Compliance with the following Condition of Certification will ensure the proposed cogeneration project is designed, constructed, and operated in such a manner to conform with typical industry norms for reliability of power generation facilities.

CONDITION OF CERTIFICATION

RELI-1 The project owner shall maintain monthly data sets of powerplant reliability and maintenance data, including the following:

a. logs of equipment failure data and operational data for all major equipment, including gas turbines, steam turbine, generators, HRSGs and duct burners, wet-surface condenser, feedwater system pumps, SCR system, and major pumps, valves and controls. These logs shall include major equipment and plant availability factors, and major equipment and plant forced outage rates;

b. plant operating logs showing dates and times of dispatch, and power level of dispatch; and

c. logs of plant and major equipment forced outages, including their causes and durations.

Verification: The project owner shall maintain records of the above information at the project site, and make them available for audit by the California Energy Commission's (CEC) Compliance Project Manager (CPM) at any reasonable time. The project owner shall also submit a summary of plant forced outages, including their causes and duration, as well as plant availability factors and forced outage rates for the report period, to the CEC CPM in each Annual Compliance Report following commencement of commercial operation of the plant.

C. Efficiency Conformance

1. Efficiency Standards. The Warren-Alquist Act provides an exemption from the Notice of Intention requirements if a proposed project qualifies as a cogeneration facility. (Pub. Resources Code, § 25540.6(a).) "Cogeneration" is defined as "...the sequential use of energy for the production of electrical and useful thermal energy." (Pub. Resources Code, § 25134.) The Act establishes two standards for a cogeneration facility:

- At least 5 percent of the total annual energy output must be in the form of useful thermal energy (Pub. Resources Code, § 25134(a)); and
- In the case of a topping-cycle facility,[63] the useful annual power output plus one-half the useful annual thermal energy output must equal not less than 42.5 percent of any natural gas and oil energy output. (Pub. Resources Code, § 25134(b).)

The Applicant's evidence includes three operating scenarios:[64]

a) combined cycle plant only, baseload operation with two combustion turbines operating, no duct burners (102.6 MW);

b) combined cycle plant only, one combustion turbine operating, no duct burner (48.3 MW); and

c) combined cycle plant only, two combustion turbines operating, and duct burners firing (116.9 MW representing maximum combined cycle plant output on a hot day).

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[63] The proposed project will be a topping cycle cogeneration facility in which heat from the combustion of fuel serves first to generate electricity; waste heat is then employed in an industrial process.

[64] The combined cycle unit will operate 95 percent of the time. The duct burners and simple cycle combustion turbine will operate 50 percent of the time. The entire facility can also be dispatched for maximum electric generation of 171 MW with no steam output. (Ex. A at p. 422.) The auxiliary boiler will provide steam to Procter & Gamble during outages and peak power generation. *(Id.* at p. 419.) The simple cycle peaker unit was not considered in calculating cogeneration efficiency.

Calculations of the powerplant's operating and efficiency standards exceed minimum requirements for each of the operating scenarios and qualify the project for cogeneration status. The standards to be achieved by the project during cogeneration operation are:

Scenario	Operating Standard	Efficiency Standard
a	17.73 %	50.57 %
b	31.41 %	52.81 %
c	15.91 %	46.80 %
Minimum Requirement	5.00 %	42.50 %

Source: Ex. A at p. 422

Thus, under each scenario, the powerplant's operating and efficiency standards exceed the prescribed minimums.

2. Energy Resources. In addition to reviewing project conformance with the operating and efficiency standards established by the Warren-Alquist Act, CEQA requires the Commission to examine the project's effects on existing energy resources. (Cal. Code of Regs., tit.14, § 15126(c).)

The evidence demonstrates that project consumption of natural gas will be substantial. Since the project will cause an increase in demand upon energy resources, Commission staff compared the project's fuel efficiency ratings with feasible alternatives. (Ex. A at p. 423.)

Thermal or fuel efficiency can be affected by the powerplant configuration and by the selection of generating equipment. (*Id.* at p. 424.) The project consists of a combined cycle power block consisting of two GE LM6000 gas-fired CTGs and a steam turbine which operates on heat energy recuperated from the gas turbine exhaust stream. The recovery of heat, which

would otherwise be lost through the exhaust stack, increases efficiency of the combined cycle plant over either the gas turbine or steam turbine operating alone. (Ex. A at p. 424.) Use of waste heat in a cogeneration process is inherently more efficient than the separate powerplant and industrial heat source that it replaces. *(Ibid.)* The cogeneration unit will operate as a baseload generator which represents the most fuel-efficient operating mode for combined cycle applications. (*Id.* at p. 425.) An additional simple cycle gas-fired GE LM6000 CTG unit will be employed to provide flexible peaking capacity to be dispatched as needed.

The aeroderivative[65] GE LM6000 CTGs utilized in this project represent the state-of-the art in efficiency for both baseload and peaking purposes. (Ex. A at p. 425.) Compared with large heavy duty industrial machines, the smaller units selected by the Applicant provide greater fuel efficiency during reduced load operations because one or more units can be shut down completely. Fuel efficiency is impaired when larger machines are operated at less than full load. *(Id.* at p. 426.)

When the project is operating in typical cogeneration baseload mode at 102.6 MW, electricity is generated at an efficiency level of 45.7 percent. The fuel chargeable to power for the project when operating in cogeneration mode at 102.6 MW represents an efficiency factor of 51.6 percent. (Ex. A at p. 426.) This compares favorably to the 32 percent efficiency level of PG&E's existing system and the 52 percent achievable from the newest, most efficient non-cogeneration systems. *(Ibid.)* Overall cogeneration efficiency (electricity plus steam) could be as high as 62.7 percent. *(Id.* at pp. 426, 428.)

Therefore, the evidence establishes that the equipment configuration for the proposed project represents one of the most fuel-efficient cogeneration projects available and will not cause significant adverse impacts to energy resources. (Ex. A at p. 428.)

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[65] Aeroderivative units are modified from aircraft jet engines for power generation. Such machines are only available in small units up to 50 MW but are highly efficient compared to the larger heavy industrial machines that range up to 200 MW. (Ex. A at p. 425.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The powerplant configuration consists of a gas-fired GE LM6000 combined cycle baseload unit and a GE LM6000 simple cycle peaker unit, both of which meet or exceed efficiency ratings for comparable equipment.

2. The project will operate in a cogeneration mode in accordance with Public Resources Code section 25134.

3. When operating in cogeneration mode, the project will meet or exceed the minimum operating and efficiency standards required by Public Resources Code section 25134.

4. The selected equipment provides the most feasible fuel-efficient alternative to satisfy project objectives.

5. The proposed cogeneration project will not cause significant adverse impacts to energy resources.

6. The Condition of Certification ensures that the proposed cogeneration project will comply with the requirements of Public Resources Code section 25134.

CONDITION OF CERTIFICATION

EFF-1 The facility shall be operated in accordance with the requirements of Public Resources Code section 25134.

Protocol: The project owner shall maintain monthly records of: 1) fuel consumption in the three gas turbines and two HRSG duct burners (including startup and shutdown); 2) electrical energy produced by the cogeneration power plant and the simple cycle gas turbine generator; and 3) net thermal use derived from cogeneration steam. Based upon these records, the project owner shall annually prepare calculations of the operating standard and efficiency standard achieved by the plant, showing how the plant meets the minimum required standards.

Verification: The project owner shall maintain the above records and the above calculations showing compliance with the required standards at the project site, and make them available for audit by the California Energy Commission's (CEC) Compliance Project Manager (CPM) at any reasonable time. The project owner shall also submit the above calculations of the operating standard and the efficiency standard, showing compliance with the required standards, to the CEC CPM in each Annual Compliance Report following first power generation from the plant.

D. Transmission Line Safety and Nuisance

The proposed transmission line must be designed, constructed and operated in a manner which protects environmental quality, assures public health and safety and complies with applicable law. Issues include aviation safety, communications interference, fire safety, audible noise, hazardous and nuisance shocks and electric and magnetic field levels. (Ex. A at pp. 446-455.)

1. Aviation Safety. Regulations of the Federal Aviation Administration (FAA) require the Commission to evaluate the project's potential hazardous effects on air navigation. The FAA requires mitigation for structures over 200 feet above ground level and for project sites that are located within a specified distance from airports or other runway facilities. (Ex. A at p. 447.)

The evidence indicates that the project's tall structures, including the transmission line will be less than 200 feet tall. Further, the site and transmission line will be located more than 3.41 miles[66] from the nearest airport and will not cause interference with aircraft flight paths. (Ex. A at p. 448.) Although a helicopter pad is located at 1.6 miles from the site, the height and location of the existing Hedge-to-Hurley transmission lines have not cause an interference problem for helicopter landings and the new line is not expected to change the existing conditions. (*Ibid.*) Accordingly, there will be no impacts to aviation safety from construction of the project or its associated transmission line.

2. Communications Interference. The operation of a transmission line can cause corona discharges[67] producing radio and television interference. Noise produced by the corona effect along a transmission line conductor does not cause television interference for operating voltages

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[66]The FAA provides a distance formula which results in the calculation of 3.41 miles as the critical distance for the project according to Staff's testimony. (Ex. A at p. 448.)

[67]Corona effect is a partial-discharge phenomenon with visible luminosity under some conditions casued by the voltage gradient on the conductor. (Ex. A at p. 449.) Its intensity is a function of weather conditions, voltage, conductor diameter, number of conductors per phase and spacing between the conductors. (*Ibid.*)

below 345 kV. Since the voltage of the project transmission line is 230 kV, corona noise at the edge of the right-of-way will not be a concern. (Ex. A at 449.)

Uncontrolled radio frequency noise may cause interference with AM radio reception and UHF television broadcasts. The principal cause of interference from transmission lines is electric discharges or sparks on faulty insulators. (Ex. A at p. 450.) The Federal Communications Commission (FCC) provides guidelines for reduction of transmission line related interference. Although the evidence does not indicate the potential for communication interference, the Conditions of Certification incorporate the FCC standards requiring the Applicant to locate and correct all causes of radio and television interference attributed to the project's transmission line. (*Ibid.*)

3. Fire Hazards. Fire hazards associated with transmission lines occur from the accumulation of debris, garbage or vegetation underneath the line which could be ignited especially if vehicle fuel is accidentally spilled near the line. (Ex. A at p. 450.) Fire prevention methods require the Applicant to maintain a clean space area of ten feet around the transmission line. (*Id.* at p. 451.) See, Pub. Resources Code section 4293. CPUC regulations on fire prevention standards for electric utilities specify exemptions from the clearance requirements where all the conductors are continuous over or through a pole or tower and on cultivated and non-cultivated lands that are already cleared to prevent fire hazards. (*Ibid.*) (Cal. Code of Regs., tit. 14, §§ 1250-1258.) Although there is no evidence to indicate that the transmission line will cause fire hazards, the Conditions of Certification incorporate the fire prevention measures established in applicable law to reduce any potential fire hazards during construction and operation of the transmission line.

4. Audible Noise. Audible noise generated by transmission lines is composed of two major components. The first is a broad band that contains a high frequency component and results in a crackling, frying or hissing sound. The second component is a low frequency pure tone that is perceived as a low humming sound. (Ex. A at pp. 451-452.) The evidence

indicates that the nearest sensitive receptor (i.e., residential area) for audible noise is located approximately one-half mile from the transmission line where the loudest predicted noise level is 34.7 dBA. (*Id.* at p. 452.) The maximum predicted noise level at the closest industrial receptor is 53.4 dBA at twenty feet from the line. The noise level at the edge of the right-of-way at fifty feet was recorded at 53.2 dBA. (*Ibid.*) As discussed in the Noise Section of this Decision, the noise levels fall within accepted standards and thus, no impacts are expected from transmission line audible noise.

5. Hazardous Shocks. CPUC standards establish uniform requirements for overhead line construction to prevent hazardous shocks that may occur from direct contact with energized conductors of transmission lines. (Ex. A at p. 452.) If the Applicant adheres to the applicable law on construction and maintenance of the transmission line, there should not be any hazardous shocks due to direct contact with energized conductors. (*Ibid.*)

6. Nuisance Shocks. Nuisance shocks are caused by electric currents below levels that are likely to cause physiological harm. (Ex. A at p. 453.) The fields associated with a transmission line can induce an accumulation of static electromagnetic charges on any ungrounded surface in the vicinity of the transmission line, creating a shock potential for pedestrians who touch the surface while in contact with the ground. (*Ibid.*) Since the transmission line associated with the project will be accessible to the public, it will be designed to minimize the risk of nuisance shocks to the public. The Conditions of Certification provide for the notification of adjacent property owners regarding potential risks and the grounding of all nearby metallic structures to reduce potential impacts to levels of insignificance.

7. Electric and Magnetic Fields. Although electric and magnetic fields associated with the transmission line are not at issue in this proceeding, the Commission believes discussion is

appropriate in light of increased public concern.[68] Most experts have concluded that direct exposure to these fields is unlikely to pose any significant short-term or long-term hazard to human health because the fields are too weak to directly induce significant amounts of bodily currents.[69] (*Id.* at p. 3.)

When voltage is applied to a conductor, an electric field is created in the space around the conductor. The electric field strength is measured in kilovolts per meter (kV/m) which describes how the voltage changes with distance from the conductor. It is usually measured one meter above the ground and depends on the voltage applied to the line, the distance from the line and the arrangement of the conductors. (Ex. A at p. 456.)

The intensity of electric fields from high-voltage lines can be limited by increasing the distance between the conducting object and the transmission line and by grounding any conductive object.[70] The "Rules for Overhead Electric Line Construction" contained in General Order 95 (GO 95) of the CPUC specifies the minimum clearances required for energized components of transmission lines. The project will comply with the clearance requirements. (Ex. A at pp. 452-453.)

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[68] Both California and the federal government have passed legislation encouraging experts to study this issue. Study results to date are not sufficient to reliably identify electric and magnetic fields as a cause of disease. (Ex. 1: Deis p. 2.)

[69] California does not presently have standards for electric or magnetic fields; however, Florida limits electric field levels to 2 kV/m at the edge of the right-of-way and 8 kV/m within a transmission line right-of-way. Under Florida's rules, the magnetic field level at the edge of a right-of-way is limited to 150 mG. FIGURE 22 shows the standards presently used by the few states that have adopted standards. (9/13/94 RT 5-10.) The electric and magnetic fields from the proposed transmission line fall well below those levels.

[70] The fields associated with any transmission line can induce an accumulation of static electromagnetic charges on any ungrounded surface in the vicinity of the transmission line, creating a shock potential for any passerby who touches the surface while in contact with ground. Therefore, to preclude any potential shock incident, metallic objects located underneath or in the vicinity of a transmission line will be grounded. (Ex. A at pp. 453-454.)

FIGURE 22

STATE STANDARDS AND GUIDELINES FOR TRANSMISSION LINE ELECTRIC AND MAGNETIC FIELD STRENGTHS

State	Electric Field - kV/m		Magnetic Field - mG	
	On Right of way	Edge of Right of way	On Right of way	Edge of Right of way
Florida	8[1]	2	---	150 (max. load)[1]
	10[2]	---	---	200 (max. load)[2]
	---	---	---	250 (max. load)[3]
Minnesota	8	---	---	---
Montana	7	1	---	---
New Jersey	---	3	---	---
New York	11.8	1.6	---	200(max.load)6
	11[5]	---	---	---
	7[4]	---	---	---
Oregon	9	5	---	---

1 For 69 to 230 kV lines
2 For 500 kV lines
3 For 500 kV double circuit lines on certain existing rights of way
4 Maximum for highway crossings
5 Maximum for private road crossings
6 Interim Standard

Source: Adapted from BPA 1993 (Bonneville Power Administration). 1993. Electrical and Biological Effects of Transmission Lines. DOE/BP-0945, published 1989, second edition, revised February 1993. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon.

Source: Ex. F [Transmission Line Safety and Nuisance]

The maximum electric field strength for the proposed 230 kV line is approximately 0.5 kV/m underneath the line. (Ex. 1: Testimony of Mike Deis at p. 2.) The field strength drops to approximately 0.4 kV/m at the edge of the right-of-way. *(Ibid.)*

When current flows in a transmission line or other conductor, a magnetic field is created in the space around the conductor. Milligauss (mG) is a common unit for measuring magnetic field strength, usually measured one meter above the ground. (Ex. A at p. 456.) The exact magnetic field strength at the point of measurement is a function of the amount of current flowing in the line, the distance from the line, the ground clearance, the phase configuration, the distance between conductors and if arranged in bundles, the spacing between conductors in the bundle. (Ex. 1: Deis at p. 2.)

Some measures can be taken to reduce magnetic field strengths such as constructing double circuit lines with opposing fields between each circuit and installing the proposed circuits in a "compact" configuration on the poles. These design techniques will be used in the construction of the new transmission line. (Ex. 1: Deis at p. 3-4; Ex. A at p. 452.)

The maximum magnetic field strength will be approximately 15.3 mG underneath the proposed 230 kV line. Field strength drops to approximately 14.2 mG at the edge of the right-of-way. (Ex. 1: Deis at p. 3.)

The Commission has imposed a Condition of Certification to verify that actual electric and magnetic field strength levels of the project are within the range predicted by modeling. (Ex. A at p. 458.) If the actual fields vary from the predicted range, the matter will be referred to the Commission's Compliance Project Manager for possible corrective action.

The evidence demonstrates that with implementation of the Conditions of Certification as set forth below, the transmission system should not cause any adverse effects to the environment or to public health and safety.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Conditions of Certification reasonably ensure that the proposed transmission line will not cause significant adverse impacts to public health or safety in the areas of aviation safety, communication interference, fire hazards, audible noise, hazard shocks, or nuisance shocks.

2. The proposed transmission line is not expected to create an electric field strength greater than 0.4 kV/m or a magnetic field strength greater than 14.2 mG at the edge of the right-of-way.

3. The electric and magnetic field strengths associated with the proposed transmission line are not likely to cause adverse impacts to public health.

4. Implementation of the Conditions of Certification set forth below will ensure that the proposed transmission line will be designed, constructed and operated in compliance with all applicable laws, ordinances, regulations, and standards concerning transmission line safety and nuisance as identified in Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

TLSN- 1 Prior to beginning construction of the transmission line, the project owner shall submit a statement from the responsible electrical engineer, registered in the State of California, stating that the Procter & Gamble Cogeneration Project transmission line will be designed and constructed in accordance with California Public Utilities Commission (CPUC) General Order (GO)-95, GO-128, Title 8, California Code of Regulations, the National Electrical Safety Code and Institute of Electrical and Electronic Engineers (IEEE) Guide for Safety in AC Substation Grounding, American National Standards Institute/IEEE Standard 80-1986.

Verification: At least thirty (30) days before the start of construction of the project transmission line the project owner shall submit the required statement about the design and construction of the proposed transmission line to the California Energy Commission (CEC) Compliance Project Manager (CPM).

TLSN-2 The project owner shall make every reasonable effort to locate and correct, on a case-by-case basis, all causes of radio and television interference attributed to the transmission line facilities. In addition to any necessary transmission line repairs, corrective action shall include adjusting or modifying receivers, adjusting, repairing, replacing or adding antennas, antenna signal amplifiers, filters or lead-in cables.

The project owner shall maintain written records, for a period of not less than 5 years, of all complaints of radio or television interference attributed to the transmission facilities and corrective actions taken in response to any such complaints. All complaints shall be recorded in writing and shall include explicit notations of the corrective actions performed. Complaints which did not result in corrective action being taken or in which there was no resolution shall be described and justified. The record shall be signed by the project owner representative and, whenever possible, by the complainant to indicate concurrence with the corrective action or with the justification of no corrective action.

Verification: All written radio and television interference records shall be maintained by the project owner, available for CEC CPM inspection, and summarized in the Annual Compliance Reports.

TLSN-3 The project owner shall keep the transmission line right-of-way free of flammable material as required by Public Resources Code sections 4292-4296 and Title 14, California Code of Regulations sections 1250- 1258.

Verification: The project owner shall provide a summary of the inspection results and any cleanup and fire prevention activities along the right of way in the Annual Compliance Report.

TLSN-4 The project owner shall ensure that all ungrounded metallic fences, gates and other large permanent metallic objects within the transmission line right-of-way that might be sources of nuisance shocks, regardless of ownership or location, are grounded in conformance with the procedures in the National Electrical Safety Code.

In the event that a property owner will not permit the grounding of a metallic object, the project owner shall so notify the CEC CPM. Notification shall include, when possible, the owner's written objection. Upon receipt of such notice of objection, the CEC CPM may waive the requirements for grounding of that object.

Verification: At least ten (10) days prior to the scheduled energizing of the project transmission line, the project owner shall submit a letter to the CEC CPM certifying compliance with this condition.

TLSN-5 The project owner shall prepare a letter to all property owners, within or adjacent to the right-of-way which shall contain the following:

- A description of the nature and operation of the transmission line;
- A description of the project owner's responsibility for and intent to ground all ungrounded metallic fences, gates, roofs, building sidings or other large permanent metallic objects within the right-of-way, regardless of ownership or location;
- A description of the property owner's responsibility to notify the project owner in the event that the property owner adds or installs a metallic object which requires grounding as described above; and
- A statement that the refueling of vehicles or equipment under a transmission line is not recommended.

The project owner shall submit a copy of the proposed letter to the CEC CPM for approval prior to its mailing to the property owners, and shall maintain a record of correspondence (notification and responses) related to this requirement in a compliance file.

Verification: Thirty (30) days prior to construction of the T-line the project owner shall submit a copy of the proposed letter to the CEC CPM for approval. The project owner shall notify the CEC CPM in the first Monthly Compliance Report that the notification letters were mailed to all property owner and that copies of the letters are on file.

TLSN-6 The project owner shall investigate all complaints from property owners or the public regarding problems due to induced voltages on vehicles, portable objects, metallic roofs, metallic building sidings, gutters, fences, irrigation equipment or other objects within the right-of-way. The project owner shall, at its own expense, take all measures necessary to correct these problems.

The project owner shall obtain an exclusive easement for the proposed transmission line right-of-way. As part of this easement, the project owner will reserve the right of approval of all structures, fences and large metallic objects

to be installed in the right of way. If a property owner proposes to install a structure or fence, and it is approved by the project owner, the property owner will be required to install a grounding system in accordance with the National Electrical Safety Code and approved by an Electrical Engineer registered in the State of California.

Verification: The project owner shall maintain a record of activities (investigation of complaints and grounding, notification and correspondence) related to this condition. A summary of these records shall be included in the Annual Compliance Reports.

TLSN-7 The project owner shall engage a qualified Electric Magnetic Field (EMF) consultant either from a list provided by the CEC CPM or approved by the CEC CPM to verify that the electric and magnetic field levels are within the parameters calculated by the project owner and Staff. The consultant and the CEC CPM shall jointly prepare a list which provides the location of where representative measurements shall be taken prior to the start of construction of the transmission line and at the same locations after energization of the line. The consultant shall make measurements of the electric and magnetic field strength levels at locations provided in the list. In the event that the measurements are not within the parameters calculated by the project proponent and Staff, the matter shall be referred to the CEC CPM for resolution.

Verification: The project owner and the CEC CPM shall meet at least sixty (60) days prior to the start of construction to select the qualified consultant. Within thirty (30) days after the selection of the consultant, the consultant and the CEC CPM shall jointly prepare a list which provides the location of where representative measurements shall be taken prior to the start of construction of the transmission line and at the same locations after energization of the line. The project owner shall file a copy of the first set of measurements with the CEC CPM at least 10 days prior to the scheduled energization of the project transmission line. The post-construction measurements shall be filed within 15 days after energization of the transmission line.

E. Transmission System Engineering

The Applicant must establish that adequate transmission capacity available to accommodate the project's generation and that the project will not cause adverse impacts to the electric power system. (See ER 92; Pub. Resources Code, § 25523.)

The project's transmission facilities include approximately 1.3 miles of overhead 230 kV double-circuit transmission line and four new circuit breakers at the new Procter & Gamble 230 kV substation. (Ex. 1: Testimony of Sherri Eklof at p. 2; Ex. A at p. 434.) The transmission line will exit north from the switchyard, cross over the California Traction Railroad tracks and turn east to connect to SMUD's existing Hedge/Hurley 230 kV line. (Ex. A at p. 434.) A 12 kV distribution line with secondary is located east of Florin-Perkins Road in the proposed corridor for the new 230 kV line. *(Ibid.)*

The new transmission line will utilize steel poles, all aluminum conductors of 954 kcmil, lightning protection shield wire and fiber optic cable. (Ex. A at p. 434; Ex. 1: Eklof at p. 2.) The proposed conductors will match the existing Hedge/Hurley circuit. The 954 kcmil conductors have a thermal rating of 303 MVA (nominal) at normal operating conditions and an emergency thermal rating of 351 MVA at nominal voltage. (Ex. 1: Eklof at pp. 2-3.) The evidence of record indicated that these ratings are sufficient for the 171 MW maximum project output and appropriate for interconnection to SMUD's power grid. (Ex. A at p. 434.)

Under normal and emergency operating conditions, the project should not cause an adverse impact to SMUD's electric power system. (Ex. A at p. 435.) The Applicant's load flow studies show no component loading above thermal rating. (Ex. 1: Eklof at p. 3.) Transmission substation bus voltages do not vary more than $\pm$ 5 percent as a result of the project. Transient stability studies show that loss of the project's generation or transmission facilities will not affect power system stability. *(Ibid.;* Ex. A at pp. 435-436.)

The Applicant investigated 15 interconnection alternatives, including 69, 115, and 230 kV configurations connecting to SMUD and five alternatives connecting to PG&E or the Western Area Power Authority (WAPA). (Ex. 1: Eklof at p. 3; Ex. A at p. 437.) The Applicant's preferred route utilizes the existing Hedge/Hurley right-of-way. The creation of a new 1.3 mile right-of-way to the loop point is justified by the need to reach the existing facilities. (Ex. A at pp. 436-437.) The new right-of-way will range in width from 60 to 100 feet depending on structure type and span length. *(Id.* at p. 434.) Evidence establishes that the proposed 230 kV loop-in to SMUD's Hedge/Hurley line is preferable due to its technical feasibility, low cost, use of existing right-of-way and minimal impact on power and energy losses. *(Ibid.)* This alternative provides high reliability and flexibility to the system due to the availability of two circuits and may accommodate future development as well. *(Ibid.)*

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The electrical transmission facilities associated with the proposed cogeneration project conform with industry accepted transmission system engineering criteria.

2. The proposed 230 kV interconnection with SMUD's existing Hedge to Hurley transmission circuit is preferable to other alternatives.

3. The following Conditions of Certification ensure that the transmission facilities will be designed, constructed, and operated in accordance with applicable engineering standards.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements a through d listed below. The substitution of "or equal" equipment and equivalent switchyard configurations is acceptable. Failure to establish "or equal" status shall be a violation of certification:

a. The Procter & Gamble (P&G) 230 kilovolt switchyard shall include a four-circuit breaker "ring" bus;

b. A 1.3 mile double circuit transmission line using steel pole construction with single 954 thousand-circular-mil (kcmil) all aluminum conductor shall be constructed to the loop point;

c. The transmission facilities shall meet or exceed the requirements of California Public Utilities Commission General Order 95; and

d. No other generating unit or transmission circuit may be connected to the Procter & Gamble Cogeneration project switchyard or 1.3 mile double circuit 230 kV transmission line without prior authorization of the California Energy Commission (CEC) Compliance Project Manager (CPM).

Verification: No later than sixty (60) days prior to planned construction of the transmission facilities, the project owner shall submit for approval to the CEC CPM electrical one-line diagrams signed and sealed by a registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements (1a) through (1d) above. The substitution of "or equal" equipment and equivalent substation configurations shall be identified and justified by the project owner and approved by the CEC CPM.

TSE-2 The project owner shall inform the CEC CPM of any impending changes which may not conform to the requirements (a) through (d) of Condition TSE-1 and request approval to implement such changes.

Verification: No later than thirty (30) days prior to planned construction of transmission facilities, the project owner shall inform the CEC CPM of any impending changes which may not conform to requirements (a) through (d) of Condition TSE-1 and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. No changes may be made without written approval of the CEC CPM.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, as well as any subsequent CEC CPM approved changes thereto, to ensure conformance with-California Public Utilities Commission General Order 95 and these Conditions. In case of nonconformance, the project owner shall inform the CEC CPM in writing within

10 days of discovering such nonconformance and describe the corrective actions to be taken.

Verification: Within sixty (60) days following first successful synchronization of the project, the project owner shall transmit to the CEC CPM an engineering description(s) and one-line drawings of the "as-built" facilities, signed and sealed by a registered electrical engineer in responsible charge. A statement attesting to conformance with California Public Utilities Commission General Order 95 and these Conditions shall be concurrently provided.

F. Industrial Safety and Fire Protection

The Applicant must comply with all applicable laws, ordinances, regulations and standards on employee safety, fire prevention and emergency response capability. Specifically, the California Occupational Safety and Health Administration (CAL-OSHA) has established standards for worker safety that must be included in the project's comprehensive Safety and Health Program.

The Applicant has identified a list of potential hazards to workers: exposure to hazardous materials, excessive noise, high temperature equipment, rotating equipment, steam (high pressure piping and equipment), high voltage equipment and high pressure steam storage vessels. (SAFETY: Table 1.)

The evidence indicates that potential impacts can be mitigated by: 1) appropriate measures identified in the project's Health and Safety Manual for construction and operation; 2) review by CAL/OSHA of the Health and Safety Manual; and 3) implementation of personnel safety training and adherence to proper safety procedures and methods. (Ex. A at p. 74.)

The Injury and Illness Prevention Plans for construction and operation will require employees to use personal protective equipment whenever hazards are present. (SAFETY: Table 2.) The Safe Work Practices Plan provides measures, including training programs, to maximize worker safety in handling hazardous or volatile materials. These plans will be compiled in the Health and Safety Manual to be reviewed by CAL-OSHA before approval by the Energy Commission's Compliance Unit. (Ex. A at p. 72.)

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Table 6.13-1
Locations of Potential Worker Hazards

Location	Aqueous NH_3	Acid	Hazardous Material	Flammable Material	Noise	High Temperature	Rotating Equipment	Steam	Pressure Vessel	High Voltage
Generation Area	X		X		X	X	X	X		X
Warehouse				X						
Water Treatment Building		X	X		X		X		X	X
Control/Administration Area				X						X
Chiller Building					X		X	X		X
CT Cooling Unit					X					
HRSG	X		X	X	X	X		X	X	
HRSG Stack	X				X	X				
Step-up Transformer			X							X
Gas Compressor				X	X	X	X		X	
Oil/Water Separator				X						
Auxiliary Boiler			X	X	X	X	X	X	X	
Auxiliary Deaerator						X		X	X	
Neutralization Tank		X	X							
Aqueous Ammonia Tank	X									
Acid Storage Tank		X								
Chemical Feed System		X	X							
Circulating Water Chemical Feed System		X	X							
Meter Pump for Chemical Feed		X	X							

Source: Ex. 2, Table 6.13-1

Table 6.13-2
Basic Protective Equipment Guide

Body Area	Hazards	Recommended Protection
Eyes/Face	Low velocity flying particles	Safety glasses with side shields
	High velocity chips and sparks	Impact goggles or safety glasses with full face shield
	Corrosive liquid splash during transfer	Splashproof goggles and face shield
	Breaking into an acid piping system	Acid hood
	Welding - injurious light rays	Welding hood with appropriate eye filter lenses
Head/Ears	General wear, overhead rigging, material handling, maintenance and general construction operation	Hard hat
	High noise level	Ear plugs or muff
Respiratory System	Low hazard inert dusts	Dust mask
	Low concentration solvent vapors	Cartridge type organic vapor respirator
	Acid mists	Cartridge type acid mist respirator
	High concentration dusts or vapors	Airline respirator or air purifying respirator
	Oxygen deficiencies or gases	Self-contained breathing apparatus or air line respirator
Hands and Arms	Handling rough or sharp objects	Leather gloves

Source: Ex. 2, Table 6.13-2

Table 6.13-2
Basic Protective Equipment Guide (Continued)

Body Area	Hazards	Recommended Protection
	Handling hot objects	Leather gloves
	Using solvents	Impervious synthetic gloves
Feet and Legs	Electric current	Dielectric gloves
	General wear for light handling	Safety toe shoes
	Handling heavy objects	Metatarsal safety shoes
	Using brush hooks or scythes	Shin guards
	Working with steam or corrosive liquids	Safety toe synthetic boots
	Underground work	Safety toe synthetic boots
Trunk and Full Body	Hot or corrosive liquids	Synthetic apron
	Punctures, impact, or cuts	Canvas or leather kickback apron or metal mesh apron
	Breaking acid lines	Full body suit made of appropriate materials
Fall Protection/ Rescue	Working from elevated structure of platform without standard railings	Safety belt and lanyard
	Vessel entry	Harness and lifeline or wristlets and lifeline
	Suspended scaffolds	Lifeline, safety belt/lanyard

Source: Ex. 2, TABLE 6.13-2 (Cont.)

The Conditions of Certification require that the Fire Prevention Plan be developed in consultation with the City of Sacramento Fire Department (CSFD) and CAL-OSHA. To satisfy the CSFD requirements, the Fire Prevention Plan must include the following procedures:

- procedures for notifying CSFD of the road maintenance activities;
- identification of the water systems that will be operational and approved by the CSFD prior to the start of framing construction;
- procedures that the Applicant will use to comply with the applicable fire and safety codes during the construction of the project;
- procedures for clearing all flammable vegetation to a distance of thirty (30) feet from combustible material or buildings located on-site;
- identification of all above ground storage facilities for flammable and hazardous materials that must be diked to 150 percent capacity in accordance with Articles 79 and 80 of the Uniform Fire Code;
- identification of the location of all fire hydrants and fire hydrant pavement markers; installation of the fire hydrants may be required by the CSFD prior to the beginning of combustible construction or storage of combustible material;
- prior to the start of construction an approved emergency vehicle turnaround shall be identified and/or provided, as specified by the CSFD;
- prior to final inspection, commercial and/or industrial buildings shall have street addresses posted based on requirements of the CSFD;
- identification of two points of vehicular access that will provide for fire and other emergency equipment, and for safe evacuations;
- identification of the location of structures that will require a fire protection system because access within 150 feet of the structure is not possible;
- identification of approved CSFD key box if automatic electric security gates are used (an approved lock switch may be required on each gate in lieu of the key box);
- identification of fire extinguishers as required by UFC Section 10.303;

- identification of all flammable liquid storage and dispensing areas that must comply with UFC Division X; and
- automatic fire extinguishing systems identified in buildings shall be required to meet the specifications of the UFC. (Ex. A at pp. 73-74.)

The Emergency Response Plan will provide contingency procedures for a variety of possible emergency situations. The Applicant will consult with the CSFD for review and acceptance of the Plan. (SAFETY: Table 3.)

The nearest fire fighting facility is a CSFD fire station located on 5801 Florin Perkins Road, approximately 0.5 miles southeast of the project. The average response time is less than five minutes. (Ex. A at p. 65.) The nearest emergency medical facility, UC Medical Center located at 47th Avenue and Stockton Boulevard, is approximately five and one-quarter miles from the project site. *(Ibid.)*

Based on the uncontroverted evidence,[71] the Commission believes implementation of the Conditions of Certification requiring the Applicant to provide the necessary plans and manuals will ensure project compliance with all applicable laws, ordinances, regulations and standards and will mitigate potential worker safety impacts to a level of insignificance.

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[71] Testimony indicated that the required Plans and the Health and Safety Manual will be completed and reviewed by the appropriate agencies within the timeframe established in the Conditions of Certification. (7/20/94 RT 36-37.)

Table 6.13-3
Sample Emergency Response Plan Outline

1.0 Introduction
- 1.1 Purpose
- 1.2 Scope

2.0 Responsibilities
- 2.1 Plant Manager
- 2.2 Plant Supervisor
- 2.3 Control Room Operator
- 2.4 Maintenance
- 2.5 Security

3.0 Response and Notification Plan
- 3.1 Plant Supervisor/Emergency Coordinator
- 3.2 Control Room Operator

4.0 Response Procedures
- 4.1 Evacuation Routes and Procedures
- 4.2 Site Security
- 4.3 Emergency Medical Treatment and First Aid
- 4.4 Decontamination Procedure
- 4.5 Documentation and Recordkeeping
- 4.6 News Media
- 4.7 Emergency Notification List

5.0 Reference Procedures
- 5.1 Plant Security
- 5.2 Accidental Reporting and Investigating
- 5.3 Clearance and Tagging
- 5.4 Operating Tags/Recordkeeping
- 5.5 Hazard Communication Standard Training
- 5.6 CEMS/AQMD Reporting
- 5.7 Spill/NPDES Reporting
- 5.8 Secondary Containment
- 5.9 Earthquake Procedure
- 5.10 First Aid and CPR Training
- 5.11 Emergency Training
- 5.12 Respiratory Protection Program
- 5.13 Safety Inspections

Source: Ex. 2, Table 6.13-3

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. Construction and operation of the proposed project will create potential hazards to worker health and safety.

2. Potential hazardous impacts to worker health and safety can be mitigated by development of a Health and Safety Plan which conforms with standards established by the California Occupational Health and Safety Administration (CAL-OSHA) and includes the Health and Safety Manual, Injury and Illness Prevention Plan, Safe Work Practices Plan, Emergency Action Plan and Fire Prevention Plan.

3. The Applicant will submit its Emergency Action and Fire Prevention Plans to the City of Sacramento Fire Department for review and acceptance.

4. The Applicant will submit its Health and Safety Manual, including the Injury and Illness and Safe Work Practices Plans, to CAL-OSHA for review and acceptance.

5. Implementation of the Conditions of Certification will ensure that construction and operation of the proposed project will comply with all applicable laws, ordinances, regulations and standards related to industrial safety and fire protection as identified in Appendix A of this Decision, and thereby mitigate any potential impacts to levels of insignificance.

CONDITIONS OF CERTIFICATION

SAFETY-1 The project owner shall develop a Project Construction and an Operation Safety and Health Program. The key elements of the program shall include:

Construction

- Injury and Illness Prevention Plan
- Fire Protection and Prevention

Operation

- Injury and Illness Prevention Plan
- Fire Protection and Prevention Plan

- Emergency Action Plan
- General Safety
- Safe Work Practices

The Safety and Health Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), for review and comment concerning compliance of the program with the provisions of Title 8, California Code of Regulations, Subchapter 4, Construction Safety Orders; Subchapter 5, Electric Safety Orders; Subchapter 7, General Industry Safety Orders; and 29 CFR 1910. The Safety and Health Program shall also be submitted to the California Energy Commission (CEC) Compliance Project Manager (CPM) for review and comment.

All Cal/OSHA comments shall be addressed and incorporated, where appropriate, into the manuals. The project owner shall implement the manuals consistent with the comments and requirements of the Cal/OSHA.

Verification: At least thirty (30) days prior to beginning any construction, the project owner shall submit to the California Energy Commission (CEC) Compliance Project Manager (CPM) the final version of the construction manual incorporating Cal/OSHA comments. At least 30 days prior to beginning operation, the project owner shall submit to the CEC CPM the final version of the operating manual incorporating Cal/OSHA comments.

SAFETY-2 Prior to start of building construction and prior to the start of operation, the project owner shall submit a copy of a Fire Prevention Plan to the City of Sacramento Fire Department for review and acceptance.

Verification: At least thirty (30) days prior to the start of building construction, and at least 30 days prior to the start of operation, the project owner shall submit to the CEC CPM a copy of the Fire Prevention Plan and a letter from the CSFD stating that it has reviewed and accepted the plan.

SAFETY-3 Prior to the start of construction, the project owner shall submit a copy of the Emergency Action Plan to the City of Sacramento Fire Department for review and acceptance. The plan shall include, but not be limited to, the planned shut down of the facility during upset conditions.

Verification: At least thirty (30) days prior to the start of construction and at least 30 days prior to the start of operation, project owner shall submit to the CEC a copy of the approved Emergency Action Plan and a letter from CSFD stating that it has reviewed and accepted the plan.

SAFETY-4 The project owner shall keep current copies of the Project Construction and Operation Health and Safety Manual, Fire Prevention Plan, and Emergency Action Plan together with all relevant records, on-site. The documents shall be available for inspection by the CEC CPM.

Verification: At least thirty (30) days prior to construction, the project owner shall notify the CEC CPM that the Project Construction Health and Safety Manual, Fire Prevention Plan, and Emergency Action Plan, together with all relevant records, are present on site and available for inspection.

At least thirty (30) days prior to operation, the project owner shall notify the CEC CPM that the Project Operation Health and Safety Manual, Fire Prevention Plan, and Emergency Action Plan, together with all relevant records, are present on site and available for inspection.

SAFETY-5 The project owner shall design and install all exterior lighting to meet the requirements contained in the Visual Resources section of the Commission Decision and in accordance with the American National Standards Practice for Industrial Lighting, ANSI/IES-RP-7.

Verification: Within sixty (60) days after construction is completed, project owner shall submit a statement to the CEC CPM that the illuminances contained in ANSI/RP-7 were used as a basis for the design and installation of the exterior lighting.

COMPLIANCE PLAN AND MONITORING PROGRAM

The Procter & Gamble Compliance Plan and Monitoring Program (Compliance Plan) has been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed and operated in conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and Conditions adopted or established by the California Energy Commission (CEC or Commission) and specified in the written Decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of two elements:

(1) **General Compliance Conditions** beginning in this section which: set forth and explain the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others; set forth the requirements for handling confidential records and maintaining the compliance record; state procedures for settling disputes and making post-certification changes and state the procedures for verification, including periodic reports and any other administrative procedures that are necessary to verify that all the Conditions will be satisfied; and

(2) **Specific Conditions of Certification** which are found following each technical area and contain all certification requirements including the measures required to mitigate any and all potential adverse project impacts to an insignificant level. Each Condition of Certification also includes a verification provision which describes the method of verifying that the Condition has been satisfied.

GENERAL COMPLIANCE CONDITIONS

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

A. A CEC CPM will oversee the compliance monitoring and shall be responsible for:

1) Ensuring that the design, construction, operation, and closure of the Procter & Gamble Cogeneration Project is in compliance with the Terms and Conditions of the Commission's Decision;

2) Resolving complaints;

3) Processing post-certification changes to the Conditions of Certification and project description;

4) Documenting and tracking compliance filings; and

5) Ensuring that the compliance files are maintained and accessible.

The CEC CPM will consult with the appropriate responsible agencies and Commission management when resolving disputes and complaints and processing amendments.

B. Pre-Construction and Pre-Operation Compliance Meeting

The CEC CPM may schedule pre-construction and pre-operational compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Commission's and the owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Commission's Conditions of Certification to confirm that they have been met or, if they have not been met, to make arrangements to ensure that the proper action is taken. In addition these meetings shall ensure, to the extent possible, that construction and operation are not delayed due to oversight or inadvertence and to preclude any last-minute, unforeseen issues from arising.

C. The Commission shall maintain as a public record:

1) All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

2) All monthly and annual compliance reports filed by the owner;

3) All complaints of noncompliance filed with the Commission; and

4) All petitions for project or Condition changes and the resulting Staff or Commission action taken.

Project Owner Responsibilities

It is the responsibility of the project owner to ensure that the general compliance conditions and the Conditions of Certification are satisfied. Failure to comply with any of the Conditions of Certification or the general compliance conditions may result in reopening of the case and revocation of CEC certification, or other action as appropriate.

A. Department of Fish and Game Filing Fee

Pursuant to the provisions of Section 711.4 of the Fish and Game Code, the owner must remit to the California Department of Fish and Game (CDFG) a filing fee in the amount of eight hundred and fifty dollars ($850). The fee must be paid on or before the tenth day following the Commission's final decision. No construction may commence until the fees are paid in full, and proof of payment submitted to the CEC CPM.

The owner shall submit a CDFG receipt for the payment to the CEC CPM, within 30 days of the final decision. The receipt shall identify the project, and indicate the date paid and the amount paid.

B. Access

The CEC CPM, or other designated CEC staff and associates, shall be guaranteed and granted unrestricted access to the powerplant site, related facilities, project-related staff, and the records maintained on site for the purpose of conducting audits, surveys, inspections, or general site visits.

C. Compliance Record

The project owner shall maintain project files on-site for the life of the project. The files shall contain copies of all "as-built" drawings and copies of all documents submitted as verification for conditions. They shall also maintain, on-site or at an alternative site approved by the CEC CPM, all other project-related documents for the life of the project unless a lesser period is specified by the Conditions of Certification.

CEC staff and delegate agencies shall, upon request to the owner, be given unrestricted access to the files.

D. Compliance Verifications

A cover letter from the owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. The cover letter shall include a complete reference to the appropriate Condition(s) of Certification including the Condition number and a description of the submittal. The owner shall also identify those submittals **not** required by a Condition of Certification with a statement such as: "This submittal is for information only and is not required by a specific Condition of Certification." When submitting supplementary or corrected information, the owner shall cross-reference the previous submittal.

The project owner is responsible for the delivery and content of all verification submittals to the CEC CPM whether such condition was satisfied or work performed by the project owner or agent.

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the owner desires CEC staff action by a specific date, it shall so state in its submittal and include a detailed explanation of the effects on the project if this date is not met.

Each Condition of Certification is followed by a means of verification. The verification describes the CEC's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary, by the CEC CPM, without full Commission approval.

Verification of compliance with the Conditions of Certification can be accomplished by:

1) Reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the owner or authorized agent as required by the specific conditions of certification;

2) Appropriate letters from delegate agencies verifying compliance;

3) CEC staff audit of project records; and

4) CEC staff inspection of mitigation and/or other evidence of mitigation.

E. Compliance Reporting

There are two different compliance reports that the owner must submit to assist the CEC CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission's Decision. During construction, the owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. The majority of the Conditions of Certification require that compliance submittals be submitted to the CEC CPM in the monthly or annual compliance reports.

A compliance matrix is to be submitted by the owner to the CEC CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CEC CPM with the current status of all compliance Conditions in a spreadsheet format.

The compliance matrix must identify:

1) The technical area,

2) The Condition number,

3) A brief description of the verification action or submittal required by the Condition,

4) The date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),

5) The expected or actual submittal date,

6) The date approved by the CBO, CEC CPM, or delegate agency, if applicable, and

7) An indication of the compliance status for each condition that it is: "not started", "in progress" or "completed (date)".

F. Monthly Compliance Report

During construction of the project, the owner or authorized agent shall submit Monthly Compliance Reports within 10 working days after the end of each reporting month. The first report is due the month following certification by the Commission and shall include an initial list of dates for each of the events identified on the Key Events Table at the end of this section. This does not preclude required reporting outside the monthly framework if required by specific Conditions of Compliance. Monthly Compliance Reports shall be numbered consecutively, and contain at a minimum:

1) A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2) Documents and submittals required as verification of conditions (these must be identified in the transmittal letter);

3) An updated compliance matrix including the status of each condition; i.e., not started, in progress, late, on schedule or completed;

4) A list of compliance requirements completed during the reporting period;

5) A list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;

6) A cumulative listing of any changes to compliance activities which have resulted from negotiations between the owner and the Commission or its delegate agencies (Note: changes to Conditions, Verifications, or other Terms of Compliance must be approved by either the Commission or CEC CPM prior to implementation);

7) A monthly listing of any filings or permits issued by other governmental agencies;

8) A projection of project compliance activities scheduled during the next two months;

9) A listing of the month's additions to the on-site compliance file; and

10) Any requests to dispose of items that are required to be maintained in the owner's compliance file.

G. Annual Compliance Report

After the Air District has issued a Permit to Operate, the owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each calendar year of commercial operation and are due to the CEC CPM by February 15th of the year immediately following the reporting year. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CEC CPM. This does not preclude reporting outside the annual report framework if required by specific conditions of compliance. Each Annual Compliance Report shall be identified by year and shall contain the following:

1) An updated compliance matrix;

2) A summary of the current project operating status and explanation of any significant changes to facility operations;

3) Documents and submittals required as verification of conditions (these must be identified in the transmittal letter);

4) A cumulative listing of changes to the facility as a result of the Commission's post-certification change/amendment process;

5) An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6) A listing of any filings made or permits issued by other governmental agencies during the year;

7) A projection of project compliance activities scheduled during the next year; and

8) A listing of the year's additions to the on-site compliance file.

H. Confidential Information

Any information which the owner deems proprietary shall be submitted to the Commission Docket Unit with an application for confidentiality pursuant to Title 20, California Code of Regulations section 2505(a). Any information which is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations section 2501 et. seq.

I. Facility Closure

The owner shall file a closure plan with the CEC at least 12 months prior to commencing closure activities. The plan shall address the powerplant, the site, fill areas, access roads, equipment, buildings, and other appurtenant facilities constructed as part of the project. The plan shall also address compliance with applicable laws, ordinances, regulations and standards and any local and regional plans in existence at the time of closure.

Closure activities shall not commence until CEC approval of the closure plan is granted. The owner shall comply with the approved closure plan and any conditions of closure established by the CEC.

Delegate Agencies

To the extent permitted by law, the CEC may delegate authority for compliance verification and enforcement to various state and local agencies which have expertise in subject areas where specific requirements have been established as a Condition of Certification. If a delegate agency does not participate in this program, the CEC staff will establish an alternative method of verification and enforcement. CEC staff reserves the right to independently verify compliance.

In performing construction and operation monitoring of the project, the Commission staff acts as and has the authority of the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation where required, and the authority to use discretion as necessary in implementing the various codes and standards.

Substitute Agency

Whenever an agency's responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

Noncompliance

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Commission pursuant to Title 20, California Code of Regulations section 1230 et. seq., but in many instances the noncompliance can be resolved by the procedure described in Section VII.

VI. Enforcement

The Commission's legal authority to enforce the terms and conditions of its Decision is specified in the California Public Resources Code sections 25534 and 25900. The Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Commission Decision.

Moreover, to ensure compliance with the Terms and Conditions of Certification and applicable laws, ordinances, regulations, and standards, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

Informal Dispute Resolution Procedure

The following procedure is designed to informally resolve disputes concerning interpretation of compliance with the requirements of the compliance plan. The owner, the Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute.

The procedure usually precedes the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations section 1230 et. seq., but is not intended to be a substitute for, or prerequisite to it. The informal procedure may not be used to change the terms and Conditions of Certification as approved by the Commission.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

A. Request for Informal Investigation

Any individual, group, or agency may request the Commission to conduct an informal investigation of an alleged noncompliance with the Commission's terms and Conditions of Certification. All requests for an informal investigation shall be made to the designated CEC CPM.

Upon receipt of a request for informal investigation, the CEC CPM shall promptly notify the owner by telephone and letter of the allegation. All known and relevant information

of the alleged noncompliance shall be provided to the owner and to the Commission staff. The CEC CPM will evaluate the request and the information to determine if further investigation is necessary. If the CEC CPM finds that further investigation is necessary, the owner will be asked to promptly investigate the matter and within seven (7) working days of the CEC CPM's request provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CEC CPM. Depending on the urgency of the noncompliance matter, the CEC CPM may conduct a site visit and/or request the owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

B. Request for Informal Meeting

In the event that either the party requesting an investigation or the Commission staff is not satisfied with the owner's report, investigation of the event, or corrective measures undertaken, either party may request, by writing to the CEC CPM, a meeting with the project owner. Such request shall be made within fourteen (14) days of the owner's filing of its written report. Upon receipt of such a request, the CEC CPM shall:

1) Immediately schedule a meeting with the requesting party and the owner, to be held at a mutually convenient time and place;

2) Secure the attendance of appropriate CEC staff and staff of any other agency with expertise in the subject area of concern as necessary;

3) Conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and

4) After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CEC CPM shall inform the complainant of the formal complaint process provided under Title 20, California Code of Regulations section 1230 et. seq.

Formal Dispute Resolution Procedure

If either the owner, CEC staff, or the party requesting an investigation is not satisfied with the results of said informal meeting, such party may file a complaint or a request for an investigation with the CEC's General Counsel. The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter consistent with the requirements of noticing provisions. The Commission has the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Cal. Code of Regs., tit. 20, § 1232).

Post Certification Changes to the Commission Decision

The project owner must petition the Commission, pursuant to Title 20, Californa Code of Regulations section 1769 of the Siting Regulations, if it proposes to: 1) delete or change a Condition of Certification; 2) modify the project design or operational or performance requirements; or 3) transfer ownership or operational control of this facility.

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KEY EVENT LIST

PROJECT _____ DATE ENTERED _____

DOCKET NUMBER _____ PROJECT MANAGER _____

EVENT DESCRIPTION	*DATE ASSIGNED*
Date of Certification	
Start of Construction	
Completion of Construction	
Start of Operation (1st Turbine Roll)	
Start of Rainy Season	
End of Rainy Season	
Start T/L Construction	
Complete T/L Construction	
Start Fuel Supply Line Construction	
Complete Fuel Supply Line Construction	
Start Rough Grading	
Complete Rough Grading	
Start of Water Supply Line Construction	
Complete Water Supply Line Construction	
Start Implementing Erosion Control Measures	
Complete Implementing Erosion Control Measures	

APPENDIX A

Applicable Laws, Ordinances, Regulations and Standards

AIR QUALITY

The California Energy Commission (Commission) is the lead agency in the state for evaluating and certifying thermal electric power plants that have a generating capacity of at least 50 MW. As part of its licensing process, the Commission coordinates with local, state and federal agencies to assure a complete and timely review of the project, including its potential air quality impacts. The California Air Resources Board has delegated the review, management and enforcement of stationary source projects to local air districts. The federal Environmental Protection Agency has also delegated some of its air quality regulatory authority to local air districts.

The local air district has the responsibility to enforce applicable provisions of the federal Clean Air Act (42 U.S.C. § 7401 et seq.), applicable provisions of the California Air Resources Act (California Health and Safety Code § 39000 et seq.) dealing with nonvehicular air pollution and some aspects of the federal Prevention of Significant Deterioration program. In this case, the Sacramento Metropolitan Air Quality Management District reviewed the air quality aspects of the project related to compliance with the District's rules and regulations and issued a Determination of Compliance (DOC) in lieu of its Authority to Construct (ATC).

FEDERAL

To construct a new major air pollution source or make major modifications to an existing source located in a federal attainment area, an applicant may need to obtain a federal permit, known as a Prevention of Significant Deterioration (PSD). A major stationary source is either one that is listed as one of EPA's 28 source categories and will emit or have the potential to emit more than 100 tons per year of the pollutants regulated by the federal Clean Air Act, or any other stationary source that will emit or have the potential to emit more than 250 tons per year of the pollutants regulated by the federal Clean Air Act. A major modification is one which causes a significant net emissions increase (emissions threshold level depends on pollutant) at the source of any pollutant regulated under the federal Clean Air Act (42 U.S.C. § 7401 et seq.)

Additionally, a second criterion that a project must meet for the PSD process to apply is that the pollutant that exceeds the major stationary source or source modification emissions threshold must be classified as attainment or unclassified for the area in which the project is to be located.

The proposed project is a new stationary source (one of the 28 listed source categories), but does not exceed the PSD major stationary source 100 tons per year threshold for any of the regulated air pollutants identified as attainment or unclassified for the area. The project uses a

combination of air emissions control equipment, a specific fuel type, and limits on operational hours to control emissions; therefore the PSD process does not apply. The federal New Source Performance Standards (NSPS) program has been delegated to the District (see Rule 801). The NSPS program requires new air pollutant emitting sources to comply with the emissions standards.

STATE

California Health and Safety Code section 41700 requires that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The California Air Resource Board delegates authority for enforcement of this section to the local air district.

LOCAL

Various Sacramento Metropolitan Air Quality Management District adopted rules and regulations are applicable. A brief summary of the applicable rules are:

Rule 102 Rule 102 makes it unlawful to circumvent any applicable section of these rules and regulations.

Rule 201 Rule 201 provides a procedure for the review of new sources of air pollution and of the modifications and operation of existing sources, leading to an Authority to Construct (ATC) permit prior to building, replacing, or altering an air pollution source, and a Permit to Operate (PTO) permit prior to operating any new or modified facility from which air contaminants may be emitted.

Rule 202 Rule 202 provides for the review of new and modified stationary air pollution sources, and identifies mechanisms by which ATOs for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

Rule 203 Rule 203 adopts the provisions of the federal PSD program in its entirety.

Rule 204 Rule 204 formalizes the procedure to bank Emission Reduction Credits.

Rule 301 Rule 301 establishes permit fees to be charged to stationary sources subject to Rule 201.

Rule 306 Rule 306 establishes fees to be charged to stationary sources subject to the Air Toxics "Hot Spots" Information & Assessment Act.

Rule 401 Rule 401 limits the visible emissions and opacity of discharge of air contaminants into the atmosphere.

Rule 402 Rule 402 protects the public's health and welfare from the emission of air contaminants which constitute a nuisance.

Rule 403 Rule 403 is intended to reasonably regulate operations which periodically may cause fugitive dust emissions into the atmosphere.

Rule 404 Rule 404 limits the quantity of particulate matter in the atmosphere through the establishment of an emission limit of 0.1 grains per day standard cubic foot above which particulate matter may not be discharged into the atmosphere.

Rule 406 Rule 406 regulates the emission of sulfur compounds and combustion contaminants through the establishment of emission concentration limits. Emissions of sulfur compounds in any form are limited to a concentration of 0.2 percent by volume, calculated as SO_2, and emission of combustion contaminants in any form cannot exceed a concentration of 0.1 grain per dry standard cubic foot of gas, calculated to 12 percent CO_2.

Rule 420 Rule 420 limits the emission of compounds of sulfur by prohibiting the combustion of fuels containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions, or any liquid or solid fuel having a sulfur content in excess of 0.5 percent by weight.

Rule 481 Rule 481 limits hexavalent chromium emissions from cooling towers by eliminating chromium based circulating water treatment programs and limiting the hexavalent chromium concentration in the circulating water to 0.15 milligrams per liter.

Rule 801 Rule 801 establishes the general definitions, monitoring, records, and administrative requirements applicable to the federal New Source Performance Standards.

BIOLOGICAL RESOURCES

FEDERAL

Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.; 50 C.F.R. § 17.1 et seq.) designates and provides for protection of threatened and endangered plant and animal species and their critical habitat.

Clean Water Act (33 U.S.C. § 1344) permits for dredged or fill material.

STATE

California Endangered Species Act of 1984 (Fish & Game Code §§ 2050 through 2098) protects California's rare, threatened, and endangered species.

Title 14, California Code of Regulations section 670.5 lists animals of California designated as threatened or endangered.

Native Plant Protection Act of 1977, (Fish & Game Code § 1900 et seq.) gives CDFG the authority to designate state, rare, threatened, and endangered plants.

California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.) requires all governmental agencies to develop standards and procedures necessary to protect California's environmental quality and establish public procedures for identification of significant adverse environmental impacts. CEQA exempts certified state regulatory programs, including the California Energy Commission power plant siting certification program, from specific procedural requirements; these programs, remain subject to other provisions of CEQA, such as the policy of avoiding significant adverse impacts to the environment where feasible.

Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines) (Cal. Code Regs., tit. 14, § 15065 ("mandatory findings of significance")) requires that a reduction in number of a rare, threatened, or endangered species be considered a significant impact. Section 15380 ("rare or endangered species") provides definitions and provides protection of unlisted species under the act if the species can be shown to meet the criteria for listing.

California Department of Fish and Game Operations Manual (section 1100, June 1987) provides the following policy statements and definitions relevant to the subject of mitigation: "State policy mandates the preservation, protection, restoration, and enhancement of fish and wildlife, and recreational use thereof, to be in the public interest. CDFG goals in implementing this policy

are to prevent further diminishment of fish and wildlife by land and water development projects, to restore fish and wildlife whenever possible, and to ensure that necessary fish and wildlife preservation measures are carried out with other project features.

CULTURAL RESOURCES

Cultural resources are protected under provisions of the federal Antiquities Act of 1906 (16 U.S.C. §§ 431, 432, 433) and subsequent related legislation, policies, and enacting responsibilities. Other pertinent laws, ordinances, and policies include:

FEDERAL

National Historic Preservation Act of 1966 (16 U.S.C. § 470 et seq.) establishes a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States.

Executive Order 11593, Protection of the Cultural Environment, (May 13, 1971) (36 C.F.R. § 8921, 16 U.S.C. § 470); ordering protection and enhancement of the cultural environment through providing leadership, and developing criteria for assessing resource values.

Historic and Archaeological Data Preservation Act of 1974 (16 U.S.C. § 469) provides for the protection of archaeological resources as a resu;t of construction of a dam or alteration of terrain caused by the federal government or a federally licensed project.

American Indian Religious Freedom Act of 1978 (43 U.S.C. § 1996) protects Native American religious practices, ethnic heritage sites, and land uses.

Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001-3013) defines "cultural items", "sacred objects", and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review; allows excavation of human remains but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.

STATE

California Environmental Quality Act (CEQA), (Pub. Resources Code § 21000 et seq.) requires analysis of potential environmental impacts of projects and requires application of feasible mitigation measures.

CEQA Guidelines (Cal. Code Regs., tit.14, § 15000 et seq.) Appendix G, subdivision (j), specifically defines a significant environmental effect as occurring when the proposed project will "...disrupt or adversely affect ... a prehistoric or historic archaeological site or a property of historic interest or cultural significance to a community or ethnic or social group...."

CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) Appendix K, section VIII specifically assigns special importance to the remains of Native Americans and specifies procedures to be used when human remains are discovered.

CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) Appendix I, section XIV specifically discusses factors for identifying potential significant impacts which will be considered by staff in making its significance determination.

Penal Code Section 622½ sets the penalties for damage or destruction of archaeologic resources, whether situated on private lands or within any public park or place.

LOCAL

The CEC ensures compliance with local laws, ordinances, regulations, standards, plans, and policies related to cultural resource protection. In California these are based upon and bound by the requirements of CEQA for the protection of cultural resources and mitigation of potential impacts to such resources.

The Sacramento County General Plan identifies areas of potential cultural resource sensitivity to avoid, identifies the agencies and groups to contact for coordination of efforts for preservation and stabilization of cultural resources, and identifies the regional archaeological information center as the primary clearinghouse for information on archaeological and historic resources (P&G 1994a).

FACILITY DESIGN

The LORS cited herein are the legally required LORS which apply to the civil, electrical, mechanical, and structural engineering portions of the project. These are identified here as those which are legally required or are required as part of this analysis. If there are conflicts between LORS, the more stringent shall govern. Also, the latest adopted edition(s) shall apply.

The Applicant has identified an extensive list of Industry Standards which are applicable to the project. Proper use of these standards will be assured through employment of a comprehensive "Quality Assurance/Quality Control" (QA/QC) program during design and construction, and by adoption of the Conditions of Certification proposed herein. These standards are required as part of the analysis to ensure protection of public health and safety, and to assure protection of the environment.

FEDERAL

The Environmental Protection Agency (EPA) (40 C.F.R. § 112 et seq.) requires a Spill Prevention Control and Countermeasure (SPCC) plan for facilities storing oil in excess of 660 gallons in any single above ground tank; 1,320 gallons in aggregate tanks above ground; and 4,200 gallons below ground.

STATE

Board of Registration for Professional Engineers, Rule 145 -- Prohibits a California Registered Engineer from working outside the scope of his or her area of professional competence.

Business and Professions Code section 6704 et seq. and sections 6730 and 6736 require state registration to practice as a civil, electrical, mechanical or structural engineer in California.

Title 24 California Code of Regulations, Parts 2 ,3, 4, 5, 6, 7 prescribe general building standards: Part 2, California Building Code 1992 (incorporates the 1991 Uniform Building Code—UBC); Part 3, California Electrical Code (incorporates the 1990 National Electrical Code—NEC); Part 4, California Mechanical Code (incorporates the 1991 Uniform Mechanical Code—UMC); Part 5, California Plumbing Code (incorporates the 1991 Uniform Plumbing Code—UPC); Part 6, California Energy Code.

California Public Utilities Commission General Order 95 prescribes standards for overhead electric line systems.

Local Ordinance

Applicable County and City of Sacramento Ordinances.

Industry Standards

The following list is a representative summary of an extensive list of Industry standards provided by the Applicant for use on the Procter & Gamble Cogeneration Project. For a complete list of the applicable industry standards, see appendices B, C, D, and F of the AFC.

Industrial Codes and Standards

International Conference of Building Officials, "Uniform Building Code" (UBC), 1991 Edition.

Structural Engineers Association of California, ''Recommended Lateral Force Requirements and Tentative Commentary," 1990 Recommendation and Commentary.

Applied Technology Council, "Tentative Provision for the Development of Seismic Regulations for Buildings," (ATC-3-06), Amended December 1984.

American Institute of Steel Construction (AISC),

- "Specification for Structural Steel Buildings-Allowable Stress Design and Plastic Design, June 1, 1989.
- "Code of Standard Practice for Steel Buildings and Bridges."
- "Allowable Stress Design Specification for Structural Joints Using ASTM A325 or A490 Bolts."
- Manual of Steel Construction Allowable Stress Design, 9th Edition.

American Iron and Steel Institute (AISI), "Specification for the Design of Cold Formed Steel Structural Members," Parts 1 and 2, 1986.

American Welding Society (AWS) "Structural Welding Code" (AWS D1.1-92).

American Concrete Institute (ACI).

- "Building Code Requirements for Reinforced Concrete" (ACI 318-89).
- "Building Code Requirement for Structural Plain Concrete" (ACI 318.1-89).
- "Code Requirements for Nuclear Safety Related Structures," Appendix B (Steel Embedments only), (ACI 349), except that anchor bolts will be embedded to develop their yield strength.
- ACI 531-79 "Building Code Requirements for Concrete Masonry Structures" (Revised 1983).

- ACI 212.3R-91--Chemical Admixtures for Concrete.
- ACI 301-89-Specifications for Structural Concrete for Buildings.
- ACI 302.IR-89--Guide for Concrete Floor and Slab Construction.
- ACI 350R-89 Environmental Engineering Concrete Structures.

Structural and Miscellaneous Steel.

- ASTM A569-Specifications for Steel Carbon (0.15 maximum percent) Hot-Rolled Sheet and Strip, Commercial Quality.
- ASME/ANSI STS-1-1986--Steel stacks, except for circumferential stiffening which will be in accordance with British Standard 4076--1978 and except that seismic design will be in accordance with UBC 1991.

American Society for Testing and Materials (ASTM).

- Masonry Institute of America, "Reinforced Masonry Engineering Handbook."
- American Water Works Association (AWWA).

  - "Standards for Welding Steel Tanks," (AWWA D10-84).
  - "Standards for Prestressed Concrete Pressure Pipe, Steel Cylinder Type for Water and Other Liquids," (AWWA C301-84).
  - "Standards for Reinforced Concrete Water Pipe--Noncylinder Type, Not Prestressed," (AWWA C302-87).

American Petroleum Institute (API) Standard 650, Welded Steel Tanks for Oil Storage, 1988.

American Association of State Highway and Transportation Officials--1990, "A Policy on Geometric Design of Highways and Streets."

American Society of Mechanical Engineers (ASME)

- ASME Boiler & Pressure Vessel Codes,
  - Section I - Power Boilers
  - Section II - Material Specification
  - Section V - Nondestructive Examination
  - Section VIII - Pressure Vessels
  - Section IX - Welding and Brazing Qualifications

ASME Power Test Codes,
- PTC-4.4-81 - Power Test Code for Gas Turbine Power Plants

American National Standards Institute (ANSI)
- ANSI B31.1 - Power Piping Code
- ANSI B31.2 - Fuel Gas Piping Code

-- ANSI B31.3 - Chemical Plant & Petroleum Refinery Piping Code
-- ANSI C5.1 (NFPA 78) - Lighting Protection Code
-- ANSI B16.25 - Butt-Welding Ends

Heating, Ventilating, and Air Conditioning Guide by American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).

Uniform Plumbing Code (UPC).

Tubular Exchanger Manufacturers Association (TEMA)

International Association of Plumbing and Mechanical Officials.

National Fire Protection Association Standards (NFPA), 1992.

Uniform Mechanical Code (UMC)

Steel Structures Painting Council Standards (SSPC).

Instrument Society of America (ISA).

American Society of Nondestructive Testing (SNT-TC-lA).

International Standard Organization (ISO) 3945-1985 "Mechanical Vibration of Large Rotating Machines with Speed Range from 10 to 200 revs/sec--Measurement and Evaluation of Vibration Severity In Situ."

Institute of Electrical and Electronic Engineers - IEEE - Standards for electrical equipment.

Edison Electric Institute

Insulated Cable Engineers Association

Illuminating Engineering Society

National Electric Manufacturers Association

National Electric Safety Code

Underwriters Laboratory

The codes and industry standards used for design, fabrication, and construction will be the codes and industry standards, including all addenda, in effect as stated in equipment and construction

purchase or contract documents. Where no other standard or code governs, the Uniform Building Code (UBC) will be used.

The codes and standards proposed by the Applicant are appropriate. If there are conflicts, the latest edition and the more stringent one should be used.

GEOLOGICAL HAZARDS AND RESOURCES

- International Conference of Building Officials, "Uniform Building Code" (UBC,1991 edition) for review, permitting, and inspection of grading and structures (chapters 70 and 29 respectively). See Facility Design testimony for descriptions of local ordinances adopting the UBC.

- California Environmental Quality Act (CEQA) Guidelines section 15002, subdivision (a)(3) states that "the basic purpose of CEQA is to prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible."

HAZARDOUS MATERIALS HANDLING

The following federal, state, and local laws and policies generally apply to the protection of public health and hazardous materials management. Their provisions have established the basis for CEC staff's determination regarding the significance and acceptability of project-related impacts on public health.

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. § 11001 et seq.) established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of hazardous or extremely hazardous substances. The Act requires the States to implement a comprehensive system to inform local agencies and the public when a significant quantity of such substances is stored or handled at a facility. The requirements of this Act, as well as additional requirements for handling and storage of acutely hazardous substances, are reflected in section 25500 et seq. of the California Health and Safety Code.

The National Fire Protection Association (NFPA) 85A provides design specifications and procedures applicable to furnaces and boilers fired with fuel oil, natural gas, and other similar gaseous and liquid fuels. This code is designed to provide measures for prevention of explosions in fuel fired equipment such as the heat recovery steam generator (HRSG) associated with this project.

STATE

Hazardous materials management is addressed in section 25500 et seq. of the Health and Safety Code. These sections establish the requirement for registration of any business (Business Plan) which handles acutely hazardous materials (AHM) in quantities equal to or greater than the threshold planning quantities (TPQ) listed in Appendix A of Title 40 of the Code of Federal Regulations, Part 355. Note that the California list of acutely hazardous materials is same as the federal list of extremely hazardous substances. Section 25500 et seq. also requires the preparation of a Risk Management and Prevention Program if it is determined that there is a significant likelihood that the use of the materials may pose an AHM accident risk.

LOCAL AND REGIONAL

Local regulations incorporate the requirements of the Uniform Fire Code (UFC) and the Uniform Building Code (UBC).

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. These requirements are generally similar to those contained in the Health and Safety Code. However, the UFC has a unique requirement for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. This requirement is generally restricted to acutely toxic materials.

The Uniform Building Code (UBC) contains requirements regarding the storage and handling of hazardous materials which address seismic design of structures and restricts the issuance of occupancy permits until the Applicant has demonstrated compliance with section 25500 et seq. of the Health and Safety Code.

LAND USE

SACRAMENTO CITY GENERAL PLAN

The project is located within the jurisdiction of several land use plans. The Sacramento City General Plan was adopted in 1988 and directs growth and development within the Sacramento city limits. The General Plan designates the subject parcel for Industrial Manufacturing uses. It defines "Industrial Manufacturing" as "Types of manufacturing which could be allowed by the specific naming of acceptable or unacceptable use, but instead are limited only as far as they do or do not meet specific performance standards." (City of Sacramento 1988)

The following are identified by the plan as performance standards applicable to Industrial Manufacturing uses:

Section 4, Page 19:

Goal A: "Continue to identify and attempt to minimize potential adverse impacts from increased industrial development."

Policy 1: "Allow industrial development in those areas where potential impacts can be expected to be minimized.

Action A: Industrial uses will be regulated using the Zoning Ordinance, General Plan, and Community Plan goals, and the environmental review process.

Action B: Industrial uses, proposed near existing residential areas, must have an internal circulation system and other design amenities."

SACRAMENTO CITY ZONING ORDINANCE

The Sacramento City Zoning Ordinance was adopted in 1992 and regulates land uses within the city limits. It includes setbacks, landscaping requirements, site design, and other development standards (City of Sacramento 1992).

Section 2(D)(27) Permits manufacturing uses in the M-2(S) zone;

Section 3(B)(25) Establishes the following standards for the M2 zone:

Maximum height: 75 feet;
Minimum Yard Setbacks: front- 25 feet; street side: 25 feet;
Maximum lot Coverage: none.

Section 3(D) Establishes the following standards for Special Sites (S) overlay:

3(D)(3) "In the M-1S and M-2S zones, all uses shall be conducted wholly within a completely enclosed building or within an area enclosed on all sides by a solid fence or

wall at least six feet in height. No materials or supplies shall be stored within the required front street side yard setback area, nor shall any building, parking stall, structure, fence, or wall extend into said area. All street frontages must have a 25 foot setback which is to be developed and maintained as open landscaped area. The landscaped area shall include a combination of trees, mounded turf and/or live ground cover and shrubs. A fully automatic irrigation system shall be provided. The landscaped area must be 25 feet clear, excluding curbs. Sidewalks are allowed in this area only when necessary for handicapped access. When vehicles overhang and no wheel stops are provided, the landscaped area must be increased to 27 feet. A six inch raised concrete curb is required at the back of sidewalk; however, if turf is used and extends farther than 15 feet from the property line, this curb is not required." Failure to comply with any of these provisions would require issuance of a variance by the City Zoning Administrator consistent with the provisions of Sections 14(A) and 14(B).

Section 3(D)(7)(b)(2) "Walls or fences Adjacent to Public Streets or Public Right-of-Way: if a wall or fence is placed adjacent to a paved area of parking lot adjoining a public street or public right-of-way, a minimum four (4) foot wide landscaped and irrigated planting strip composed of climbing vines, shrubs, or trees is required along the base of that portion of the wall or fence that fronts the public street or public right-of-way. Such landscaping shall be properly irrigated and maintained";

Section 3(D)(7)(c) "Parcels Abutting Freeways and Railroads: Notwithstanding the provisions of Section 3-D-7-(a), all developments abutting a freeway or railroad may construct a maximum twelve (12) foot high solid wall, subject to issuance of a Special Permit";

Section 3(D)(7)(d) "Zoning Administrator's Variance: the Zoning Administrator shall have the authority to grant variances from the requirements set forth in this Section 3-D-7 in accordance with Section 14-B of the Sacramento City Zoning Ordinance.";

Section 6(A)(1)(n): Requires one parking space per 1,000 square feet of gross floor area;

Section 6(C): Specifies parking space dimensions and bicycle parking requirements;

Section 6(D)(21)(a): Indicates that in instances that represent a change of land use, the entire site would be required to conform to existing requirements;

Section 14(A): A variance may be granted only if the following conditions are met:

(1) The variance cannot be a grant of special privilege that other property owners, similarly situated, would not be granted.

(3) The variance must not be injurious to public welfare, nor to property in the vicinity of the applicant.

(4) The variance must be consistent with the intent of the General Plan.

Section 14(B): Specifies that the Zoning Administrator may vary the requirement for setbacks, height restrictions, etc., up to 50 percent of the original requirement.

In the event that the request exceeds this limitation, the Planning Commission becomes the hearing authority for the variance.

Section 29(C)(2): Construction of high voltage transmission lines are permitted in any zone with the issuance of a transmission facilities permit from the Planning Commission.

Section 29(C)(5): A decision to grant a transmission facilities permit must find the following:

(1) The facilities are consistent with the General Plan and applicable to redevelopment and specific plans.

(2) That there are no superior alternatives.

(3) The facilities are consistent with the policies contained in Section 29(C)(6).

Section 29(C)(6): "The City of Sacramento hereby adopts the following policies for reviewing transmission facilities permit applications:

(1) To discourage within the City lattice towers along new transmission lines right-of-way or along portions of existing right-of-way utilized for expansion of the transmission system.

(2) To incorporate into a project mitigation measures appropriate to the site of a particular project and each transmission line segment of a project whenever feasible, such as undergrounding or rerouting transmission lines to reduce visual impacts and antenna reception interference, reducing the number of poles or towers used for a project, using landscaping to screen or soften the visual impacts of projects, and incorporating sound attenuation measures into projects.

(3) To locate substations on other than local or collector streets.

(4) The following routing preferences are hereby adopted;

a. Preference shall be given to the location of transmission lines in the rank order specified below:

1. Within existing SMUD transmission rights-of-way or rights-of-way anticipated for other projects proposed pursuant to this Section.

2. Adjacent to railroads or adopted freeway routes.

3. Along or adjacent to major arterial streets where existing or planned uses are commercial or industrial.

4. Adjacent to or through existing or planned commercial, industrial or agricultural uses.

5. Along arterial streets where residential uses designated in an adopted plan are R-2 or greater density.

6. Through areas where land uses in an adopted plan are predominantly commercial, but include residential uses.

7. Through residential areas, including side and rear yards, irrespective of density.

b. Preference shall be given to the location of substations in the following rank order.

1. Areas designated for industrial or commercial land uses in an adopted plan.

2. Undeveloped areas designated for residential use in an adopted plan.

3. Areas designated Agricultural-Urban Reserve in an adopted plan.

4. Sites designated for residential use in an adopted plan and surrounded by existing residential uses."

SACRAMENTO ARMY SIGNAL DEPOT REUSE COMMISSION PLAN

The proposed Sacramento Army Signal Depot Reuse Commission Plan is a draft plan that is under consideration by the Sacramento City Council and the Sacramento County Board of Supervisors. It has been prepared in response to the closure of the Army depot and the need to convert the base to civilian uses (City of Sacramento 1993).

FEDERAL

Federal noise guidelines (not standards or regulations) have been promulgated by the Environmental Protection Agency (EPA). EPA has identified an L_{dn} of 55 dBA as adequate to protect people outdoors against interference due to noise (EPA 1974).

Regulations under the Occupational Safety and Health Act (OSHA) of 1970 (29 C.F.R. § 1910, et seq.) establish maximum worker noise exposure levels (NOISE: Table 2). OSHA noise regulations are designed to protect workers against the effects of noise exposure and provide a listing of permissible noise exposures (e.g., workers should not be exposed to noise levels equivalent to 90 dBA or greater for more than 8-hours a day). OSHA noise regulations also specify hearing conservation program requirements and noise monitoring requirements (monitoring is considered necessary when information indicates that any employee's 8 hour exposure will exceed 85 decibels). OSHA noise regulations also specify notification requirements, audiometric test requirements, hearing protector, and attenuation criteria.

NOISE: Table 2
Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: OSHA regulations

STATE

California Occupational Safety and Health Administration (Cal/OSHA) Occupational Noise Exposure Regulations; Title 8, California Code of Regulations section 5095 et seq. Sections 5096, 5097, and 5098 set employee noise exposure limits. They establish an enforceable limit of 90 dB for an 8-hour period and reduce the allowable exposure time by half for each 5 dB

increase in the A-weighted noise level above 90 dB. These standards are equal to the 1970 OSHA standards.

There are no direct state regulations for off-site or community conditions, although the *Model Community Noise Control Ordinances* issued in 1977 by the Department of Health Services, Office of Noise Control may be applied as a set of evaluation criteria[1]

Government Code section 65300 requires that each city and county adopt a general plan. Government Code section 65302(f) requires that a noise element be included to establish acceptable noise limits for various types of land uses. Noise elements generally establish acceptable noise limits for various types of land uses. Noise levels for hospitals, schools, and residential areas are normally the most restrictive.

The California Environmental Quality Act Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) Appendix G, subdivision (p), defines significant effect as generally having actions with the potential to increase substantially the ambient noise levels for adjoining areas. Appendix I, section X, (amended 6-94) states that any proposal that results in increases in existing noise levels or exposure of people to severe noise levels may require mitigation measures.

LOCAL

The City of Sacramento Noise Ordinance limits noise levels to 50 dBA at residences and agriculural properties during the nighttime hours (specified as 10:00 p.m. to 7:00 a.m.) and 55 dBA during the daytime hours. NOISE: Table 3 details the noise levels that should not be exceeded for any given hour.

NOISE: Table 3
Limits for Intermittent Noise Levels at Residential Areas.

Cumulative Duration of the Intrusive Sound	Daytime	Nighttime
Cumulative Period of 30 minutes per hour	55	50
Cumulative Period of 15 minutes per hour	60	55
Cumulative Period of 5 minutes per hour	65	60
Cumulative Period of 1 minutes per hour	70	65
Level not to be exceeded for any time per hour	75	70

Source: City of Sacramento Noise Ordinance

[1] Generally, enforcement authority for environmental noise laws resides with local agencies in the form of the Noise Element of the General Plan and a draft or adopted noise ordinance.

Construction and demolition noise is exempt from the ordinance. The City of Sacramento noise ordinance also makes allowances for areas which are already in exceedance of the required noise levels. It reads, in part "... if the measured ambient level exceeds the permissible (exterior noise limit), the allowable noise exposure standard shall be the ambient noise level."

The Applicant proposes to use the more stringent nighttime standard of the Sacramento County Noise Element of 45 dBA. The Sacramento County noise element levels are all five decibels lower than shown on NOISE: Table 3.

PALEONTOLOGIC RESOURCES

Paleontologic resources are deemed to be non-renewable and significant to our culture; as such, they have been protected under provisions of the federal Antiquities Act of 1906 and subsequent sections of related legislation, policies, and enacting responsibilities. Other pertinent laws, ordinances, and policies include:

FEDERAL

Other specific federal laws would not apply to this project since there are no federally-managed lands affected by the project.

STATE

California Environmental Quality Act (CEQA), (Pub. Resources Code § 21000 et seq.) requires analysis of potential environmental impacts of projects and requires application of appropriate mitigation measures.

CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) Appendix G, subdivision (j), specifically defines a significant environmental effect as occurring when the proposed project will "...disrupt or adversely affect ... a paleontological site, except as part of a scientific study."

Public Resources Code section 5097.5 states that any unauthorized removal of paleontologic resources or sites located on public land is a misdemeanor.

LOCAL

The CEC ensures compliance with local laws, ordinances, regulations, standards, and policies related to paleontologic resource protection. Sacramento County has no specific policy requirements for the protection of paleontologic resources and mitigation of potential impacts to such resources.

PUBLIC HEALTH

The following federal, state, and local LORS generally apply to the protection of public health. These provisions have established the basis for CEC staff's determination regarding the significance and acceptability of project-related impacts on public health.

FEDERAL

- The federal Clean Air Act (42 U.S.C. § 7401 et seq.) established authority for adoption of Ambient Air Quality Standards to protect the public from adverse health effects of air pollution. Pursuant to the Clean Air Act, the federal Environmental Protection Agency (EPA) adopted standards for nitrogen dioxide (NO_2), ozone(O_3), carbon monoxide(CO), sulfur dioxide (SO_2), particulate matter (PM), and lead. (See, 40 CFR §§ 50 and 51.) The EPA also required states to adopt plans to attain compliance with these standards by 1982. These plans are called State Implementation Plans (SIPS). The deadline for attainment of the standards for ozone and CO was delayed until 1987. State implementation plans are now under review by EPA. The amendments also allowed additional time to achieve compliance with the CO and ozone standards. The amount of additional time is dependent on the degree of nonattainment.

STATE

- The California Air Resources Act (Health & Safety Code § 39000 et seq.) requires local air pollution control districts to adopt plans to maintain and achieve compliance with State and federal ambient air quality standards. The plans were to be submitted to the CARB no later than December 31, 1990. The level of controls required for each pollutant depend on the amount of time required to reach attainment. In most nonattainment areas, districts are required to reach attainment. In most nonattainment areas, districts are required to adopt permitting programs that require no net increase in nonattainment pollutants or their precursors from new or modified stationary sources.

- California Health and Safety Code section 39606 requires that the California Air Resources Board (CARB) adopt ambient air quality standards to protect the public health. Pursuant to this section, CARB has adopted standards for O_3, CO, SO_2, PM_{10}, lead, hydrogen sulfide (H_2S), and NO_2. These standards are defined in Title 17, Article 2 of the California Code of Regulations.

- California Health and Safety Code section 39675 mandates that CARB and the Office of Environmental Health Hazard Assessment (OEHHA) establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies (BACT). They also require that the new source review rule for each air pollution control district

include regulations that require new or modified procedures for controlling the emission of toxic air contaminants. Pursuant to these requirements, DHS has developed cancer potency estimates for use in assessing the carcinogenic risk associated with exposure to several pollutants. If DHS has developed a potency estimate for a pollutant, CEC staff uses that estimate, rather than estimates established by EPA, in conducting its carcinogenic risk assessments. The OEHHA looks at all available data, including that of DHS.

- California Health and Safety Code section 41700 requires that "[n]o person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have a natural tendency to cause injury or damage to business or property."

LOCAL

- The rules and regulations of the Sacramento Metropolitan Air Quality Management District (SMAQMD) establish local requirements necessary for compliance with Federal Ambient Air Quality Standards. These rules are incorporated in the State Implementation Plan in conjunction with other district rules. Emission reductions resulting from these rules form the basis by which the District proposes to achieve compliance with State and Federal Ambient Air Quality Standards. SMAQMD Rule 402 restates Health and Safety Code Section 41700.

POWER PLANT RELIABILITY

There are no LORS which establish either power plant reliability criteria or procedures for attaining reliable operation. The Warren-Alquist Act requires only that the Commission review the factors related to safety and reliability, and determine the adequacy of the measures proposed to protect public health and safety (Pub. Resources Code §§ 25511 and 25520(b)).

To fulfill this mandate to review factors related to reliability, CEC staff will examine the proposed project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. These norms can be categorized as:

- equipment availability;
- plant maintainability;
- fuel availability;
- water availability; and,
- power plant reliability *vis a vis* seismic shaking.

INDUSTRIAL SAFETY AND FIRE PROTECTION

FEDERAL

- Department of Labor, Safety and Health Regulations for Construction promulgated under Section 333 of the Contract Work Hours and Safety Standards Act (40 U.S.C. § 327 et seq.)

- The Federal Occupational Safety and Health Administration (OSHA) Regulations for Construction (29 C.F.R. Part 1910) sets forth the safety and health standards promulgated by the Secretary of Labor under section 107 of the Contract Work Hours and Safety Standards Act.

- OSHA Regulations for Construction (29 C.F.R. § 1926) provides information about the applicable safety and health regulations that apply during construction.

STATE

Cal-OSHA Regulations

Title 8 of the California Code of Regulations (Cal. Code of Regs.):

Construction

•	Article 3	General 1509 Construction - Injury and Illness Prevention Program 1510 Safety Instructions 1512 Emergency Medical Services 1514- 1522 et seq. Personal Protective Devices
•	Article 4.	Dust, Fumes, Mists, Vapors, and Gases (§ 1528 et seq.)
•	Article 6.	Excavations (§ 1539 et seq.)
•	Article 10.	Haulage and Earth Moving (§ 1590 .)
•	Article 11.	Vehicle, Traffic Control, Flaggers, Barricades, and Warning Signs §1597 et seq.)
•	Article 14.	Construction Hoists (§ 1604 et seq.)
•	Article 16.	Standard Railings (§ 1620 et seq.)
•	Article 17.	Ramps, Runways, Stairwells, and Stairs (§ 1623 et seq.)
•	Article 18.	Access and Egress (§ 1629 et seq.)
•	Articles 21, 22.	Scaffolds-General Requirements,-Various Types (§ 1635.1 et seq.)
•	Article 24.	Safety Belts and Nets (§ 1669 et seq.)
•	Article 25.	Ladders (§ 1675 et seq.)
•	Article 26.	Saws-Power (§ 1680 et seq.)

•	Article 27.	Power-Actuated Tools (§ 1684 et seq.)
•	Article 28.	Miscellaneous Construction Tools and Equipment (§ 1693 et seq.)
•	Article 29.	Erection and Construction (§ 1709 et seq.)
•	Article 30.	Roofing Operations and Equipment (§ 1723 et seq.)
•	Article 36.	Fire Protection and Prevention (§ 1920 et seq.)

Operations

•	Subchapter 5.	Electrical Safety Orders(§ 2300 et seq. Low-Voltage Electrical Safety Orders, § 2540 et seq. Hazardous (Classified) Locations, § 2700 et seq. High-Voltage Electrical Safety Orders, § 2739 Grounding)
•	Subchapter 7.	General Industry Safety Orders, Article 2. Standard Specifications (§ 3209 et seq. Standard Guardrails, § 3220 Emergency Action Plan, § 3221 et seq. Fire Prevention Plan)
•	Article 4.	Access, Work Space, and Work Areas (§ 3270 et seq., § 3276 et seq. Use of Ladders)
•	Article 7	Miscellaneous Safe Practices
•	Article 9	Sanitation(§ 3360 et seq. Scope and Application)
•	Article 10	Personal Safety Devices and Safeguards (§ 3380 et seq.
•	Article 10.1	Personal Protective Clothing and Equipment for Fire Fighters (§ 3401, et seq, § 3411 Private Fire Brigades)
•	Article 17	Engines and Compressors (§ 3511 et seq.)
•	Article 20	Hand and Portable Tools and Equipment (§ 3555 et seq.)
•	Article 24	Elevated Work Platforms and Aerial Devices
•	Article 25	Industrial Trucks, Tractors, Haulage Vehicles, and Earthmoving Equipment (§ 3649 et seq.)
•	Group 6	Power Transmission Equipment, Prime Movers, Machines and Machine Parts (§ 3940 et seq.)
•	Article 76	Compressed Gas and Air Cylinders (§ 4649 et seq.)
•	Group 10	Gas Systems for Welding and Cutting (§ 4794 et seq.)
•	Article 85	Service Piping for All Gases (§ 4821 et seq.)
•	Article 88	Fire Prevention in Welding and Cutting Operations (§ 4848 Fire Prevention and Suppression Procedure)
•	Article 90	Electric Welding, Cutting and Heating
•	Group 13	Cranes and Other Hoisting Equipment (§ 4884 et seq.)
•	Article 93	Boom Type Mobile Cranes (§ 4928 et seq.)
•	Article 105	Control of Noise Exposure (§ 5095 et seq.)
•	Article 107	Dust, Fumes, Miscellaneous Vapors and Gases (§ 5139 et seq., § 5144 Respiratory Protective Equipment, § 5155 et seq. Airborne Contaminants)
•	Article 108	Confined Spaces (§ 5156 et seq.)

•	Article 109	Hazardous Substances and Processes (§ 5160 et seq., Appendix B, § 5192 et seq. Hazardous Waste Operations and Emergency Response, § 5194 Hazard Communication)
•	Group 20.	Flammable Liquids, Gases, and Vapors (§ 5415 et seq.)
•	Article 145	Tank Storage (§ 5583 et seq.)
•	Group 27	Fire Protection (§ 6150 et seq.
•	Article 157	Portable Fire Extinguishers (§ 6151)
•	Article 158	Standpipe and Hose Systems (§ 6165)
•	Article 159	Automatic Sprinkler Systems (§ 6170)
•	Article 160	Fixed Extinguisher Systems (§ 6175)
•	Article 164	Fire Detection Systems (§ 6183)

LOCAL

The Uniform Fire Code, which has been adopted by the City of Sacramento, is applicable to this project. The code prescribes regulations consistent with nationally recognized good practice for the safeguarding, to a reasonable degree, of life and property from the hazards of fire and explosion arising from the storage, handling and use of hazardous substances, materials and devices and from conditions hazardous to life and property in the use or occupancy of buildings or premises.

INDUSTRY CODES AND STANDARDS

- Uniform Fire Code (UFC). The uniform fire code contains provisions necessary for fire prevention and information about fire safety, special occupancy uses, special processes, explosive, flammable, combustible and hazardous materials.

- Uniform Fire Code Standards. This is a companion publication to the UFC and contains standards of the American Society for Testing and Materials and of the National Fire Protection Association.

- Uniform Building Code. The uniform building codes are designed to provide minimum standards to safeguard human live, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, etc. of buildings and structures. Applicable information is contained in Chapters 5, 20, 32 and 33.

- American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code

  Section I, Boiler Code
  Section II, Material Specifications
  Section VIII, Pressure Vessel Code
  Section IX, Welding and Brazing Qualifications

- ASME TDP-1-1980, Recommended Practices for the Prevention of Water Damage to Steam Turbines Used for Electric Power Generation.

- National Fire Protection Association Standards:

These standards promote the science and improve the methods of fire protection and prevention, electrical safety and other related safety goals.

•	10	Portable Fire Extinguishers
•	11	Low Expansion Foam and Combined Agent Systems
•	11A	Medium and High Expansion Foam Systems
•	12	Carbon Dioxide Systems
•	12A	Halon 1301 Fire Extinguisher Systems
•	13	Installation of Sprinkler Systems
•	14	Installation of Standpipe and Hose Systems
•	15	Water Spray Fixed Systems
•	20	Installation of Centrifugal Fire Pumps
•	22	Water Tanks for Private Fire Protection
•	24	Installation of Private Fire Service Mains and Their Appurtenances
•	26	Supervision of Water Controlling Water Supplies
•	30	Flammable and Combustible Liquids Code
•	70	National Electrical Code
•	72A	Installation, Maintenance and Use of Protective Signaling Devices
•	72D	Installation, Maintenance and Use of Proprietary Protection Signaling Systems
•	72E	Automatic Fire Detectors
•	101	Life Safety Code
•	214	Water-Cooling Towers
•	231	General Storage
•	850	Fossil Fueled Steam and Combustion Turbine Electric Generating Plants
•	1961	Fire Hose
•	1962	Care, Use, and Service Testing of Fire Hose Including Connections and Nozzles
•	1963	Screw Threads and Gaskets for Fire Hose Connections

SOIL RESOURCES

FEDERAL

The Clean Water Act (33 U.S.C. § 1251 et seq.) requires any point source discharge into U.S. Waters to obtain a National Pollution Discharge Elimination System (NPDES) permit. This requirement now includes stormwater discharges, both during construction and operation.

In California, responsibility for administering the NPDES program has been delegated to the Regional Water Quality Control Boards. The Central Valley Regional Water Quality Control Board will administer the NPDES permits for the proposed project.

LOCAL

Sacramento City Grading, Erosion and Sediment Control Ordinance, Chapters 9.31-9.35 of Title 9 of the Sacramento City Code. This ordinance spells out the rules and regulations controlling land disturbance activities in the city. It also requires that all grading activities meet the technical standards identified in the Administrative and Technical Procedures Manual for Grading, Erosion and Sediment Control (1993).

TRANSMISSION LINE SAFETY AND NUISANCE

FEDERAL

Aviation Safety

Title 14, Code of Federal Regulations, Part 77, "Objects Affecting Navigable Airspace".

Federal Aviation Administration (FAA) Form 7460-1 "Notice of Proposed Construction or Alteration" (NPCA).

Advisory Circular (AC) No. 70/7460-1H. "Obstruction Marking and Lighting" describes the FAA

AC 70/7460-2H. "Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace".

Communications Interference

Federal Communication Commission (FCC) 1975, Rules and Regulations, Volume II, Part 15, Subpart A - General, Section 15.25, Operating requirements: Incidental radiation device.

STATE

Fire Hazards

Public Resources Code sections 4291 et seq. "Mountainous, Forest-, Brush-, and Grass-Covered Lands".

Title 14, California Code of Regulations sections 1250-1258. "Fire Prevention Standards for Electric Utilities".

Hazardous Shocks

California Public Utilities Commission General Order 95, "Rules for Overhead Electric Line Construction".

Title 8, California Code of Regulations section 2700 et seq. "High Voltage Electrical Safety Orders".

LOCAL

Audible Noise

City of Sacramento Noise Ordinance (Chapter 66).

INDUSTRY CODES AND STANDARDS

Nuisance Shocks

The American National Standards Institute (ANSI)/The Institute of Electrical and Electronics Engineers (IEEE) Standard 80-1986, *An American National Standard*, IEEE Guide for Safety in AC Substation Grounding.

National Electric Safety Code (NESC), (ANSI) C2, section 9, article 92, aaragraph E; article 93, paragraph C, No. 6.

TRAFFIC AND TRANSPORTATION

FEDERAL

- Title 49, Code of Federal Regulations, Part 171-177, Hazardous Material Regulations, addresses the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

- Title 49, Code of Federal Regulations, Part 350-399, Subchapter B, Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

- Vehicle Code sections 31300 and 31303 et seq. address the transportation of hazardous materials, the routes used, and restrictions thereon.

- Vehicle Code section 34000 et seq. address the transportation of flammable and combustible liquids over public roads and highways.

- Vehicle Code sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34502-34507, 34510, and 34511 address the safe operation of vehicles, including those which are used for the transportation of hazardous materials.

- Vehicle Code sections 2500-2505 address the issuances of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.

- Vehicle Code sections 12804-12804.5 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, these sections require the possession of certificates permitting the operation of vehicles transporting hazardous materials.

- Streets and Highways Code sections 117 and 660-71 and Vehicle Code section 35780 requires permits for the transportation of oversized loads on county roads.

LOCAL

City of Sacramento

- City of Sacramento uses Vehicle Code section 35780 to require a permit for the transportation of oversized loads on city roads.

- The City of Sacramento Code Chapter 38 requires a permit for encroachment on city roads.

County of Sacramento

- Sacramento County Code Chapter 12.08, Construction in Streets, requires permits for encroachment on county roads.

- Sacramento County uses Vehicle Code section 35780 as authority to require a permit for the transportation of oversized loads on county roads.

SIGNIFICANCE CRITERIA

The following criteria are used by CEC staff to determine whether a project-related impact is significant.

Federal

Will the proposed project require the transportation of hazardous materials? Title 49 of the Code of Federal Regulations governs the transportation of such materials.

State

CEQA Guidelines (Cal. Code Regs., title 14, § 15000 et seq.)

- Appendix G, subdivision (l), defines a significant environmental effect as occurring when the proposed project will: "cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system."

- Appendix I (See newly amended Appendix I for current cites), "Generation of substantial additional vehicular movement"

- Appendix I, "Effects on existing parking facilities, or demand for new parking?"

- Appendix I, "Substantial impact upon existing transportation systems"

- Appendix I, "Alterations to present patterns of circulation or movement of people and/or goods"

- Appendix I, "Alterations to waterborne, rail or air traffic?"

- Appendix I, "Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?"

California Code of Regulations

- California Code of Regulations - Various state regulations govern the transportation of hazardous materials. The proposed project should commit to the observation of these regulations.

Local

- Generation of traffic volumes which cause adopted Level of Service standards to be violated. The City of Sacramento General Plan, Transportation Element, Goal D states that the City will work toward achieving an overall LOS of C on the city's street systems. No definition is given of "working toward" or "overall". The City Transportation Division interprets the goal that for streets with existing LOS of C, a decrease to below C is a significant impact and requires mitigation. For streets with existing LOS below C, a significant impact occurs when there is an increase in the peak volume to capacity ratio of more than two one-hundredths (0.02). The city does not apply these standards to the construction phase of a project (P&G 1993a, p. 6.5-20).

- Generation of traffic type(s) for which affected routes have not been designed or which are not otherwise suitable.

VISUAL RESOURCES

CITY OF SACRAMENTO

The project is located within the City of Sacramento. The City's General Plan (adopted in 1987) establishes specific goals and policies to guide development so as to enhance the visual amenities of open space areas. Although the project site is currently vacant land, the General Plan projects the land to be developed for industrial uses. No scenic highways occur in the study area.

City of Sacramento Ordinance No. 83-055. The City of Sacramento adopted a shade tree ordinance on May 24, 1983, that requires that shade trees be planted and maintained throughout surface parking lots. This ordinance requires that within 15 years after establishment of the parking lot, at least 50 percent of the parking area is shaded.

The City of Sacramento adopted the Water Conserving Landscape Ordinance on November 5, 1992. The ordinance is designed to ensure that efficient and effective landscaping that avoids excessive water demands and is less vulnerable to periods of severe drought is developed and maintained.

FEDERAL

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.)

The 1976 Federal RCRA sets forth standards for the management of hazardous solid wastes. The provisions of the Act may be administered in each state by the U.S. Environmental Protection Agency (EPA). However, the law also allows EPA to delegate the administration of the RCRA program to the various states. When a state receives final EPA authorization, its regulations have the force and effect of federal law. EPA grants final authorization when a state program is shown to be equivalent to the federal requirements. California received final authorization on August 1, 1992.

Subchapter III of RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6921 of Title 42, United States Code, requires EPA to promulgate regulations identifying hazardous wastes subject to the management standards either by listing them or describing characteristics which qualify the wastes as hazardous.

Title 42, United States Code section 6922, requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation, and
- submission of periodic reports to the U.S. EPA or authorized state.

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

Amendments to RCRA passed in 1984 broadened regulatory control and banned land disposal of untreated hazardous wastes.

Code of Federal Regulations, title 40, Part 260 et seq. - Hazardous Waste Management System

These sections contain regulations promulgated by the U.S. Environmental Protection Agency (EPA) to implement the requirements of the RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) (42 U.S.C. § 9601 et seq.)

Persons in charge of on-shore facilities are required to report to the federal government any spill or other unpermitted release of a hazardous substance to the environment in a reportable quantity. Superfund defines hazardous substance as any material appearing in lists referenced in Title 42, United States Code section 9601 (14). EPA's regulations at Title 40, Code of Federal Regulations section 302.4, Table 302.4, set forth the list of all hazardous substances under Superfund, and the reportable quantities for each.

STATE

Public Resources Code section 40000 et seq. (California Integrated Waste Management Act of 1989)

These sections, comprising Division 30 of the Public Resources Code, regulate solid waste management in California and created the California Integrated Waste Management Board. The Board is required to adopt and revise minimum standards for solid waste handling and disposal, including design, operation, maintenance and ultimate reuse of solid waste processing or disposal facilities.

Local government has the primary responsibility for solid waste management and planning. Each county and city must prepare and submit to the Integrated Waste Management Board a county-wide integrated waste management plan which includes source reduction and recycling elements, a county-wide siting element, and a summary of significant waste management problems facing the county. Within each county, an enforcement agency may be designated to carry out permitting, inspection, and enforcement of regulations at solid waste landfills, incinerators, and transfer and processing stations.

Title 14, California Code of Regulations section 17200 et seq.

These regulations set forth planning guidelines for county solid waste management plans, minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

Health and Safety Code section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended)

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

Health and Safety Code section 25500 et seq. (Hazardous Materials Release Response Plans and Inventory)

This portion of the Health and Safety Code requires businesses to prepare plans relating to the handling and release or threatened release of hazardous materials. Quantities of hazardous materials or mixtures (including hazardous waste) handled by businesses are established which, if exceeded, require the preparation and implementation of a business plan. Business plans must include emergency response plans and procedures, and information on hazardous wastes including chemical composition, and maximum amounts handled. If certain quantities of acute hazardous materials are handled, the preparation of a Risk Management and Prevention Program may be required.

Title 22, California Code of Regulations section 66262.10 et. seq. establishes requirements for generators of hazardous waste. Under these sections, waste generators must determine if their waste is hazardous according to listings in either Article 4 or Appendix X of Chapter 11 (Identification and Listing of Hazardous Wastes), or according to the characteristics specified in Article 3. As in the Federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. These regulations also establish record keeping, reporting, packaging, and labeling requirements for the generator.

Water Code section 13000 et seq. (Porter-Cologne Water Quality Control Act)

This law regulates the discharge of wastes which could affect water quality and is designed to protect surface and groundwaters of the state against contamination and loss of beneficial use. The Act requires the State Water Resources Control Board to classify wastes according to the risk of impairing water quality and the types of disposal sites according to the level of protection provided for water quality.

Regional Water Quality Control Boards must review and classify waste disposal sites consistent with the classifications adopted by the State Board. The regional boards also issue waste discharge requirements addressing the nature and limiting the release of any wastes which could degrade waters of the state. Discharge of a hazardous substance which is not in compliance with waste discharge requirements requires notification of the State Office of Emergency Services in accordance with the spill reporting provision of the State Toxic Disaster Contingency Plan.

For purposes of spill reporting, the State Water Resources Control Board must establish reportable quantities of hazardous wastes and hazardous materials based on their potential to degrade surface or groundwater and the attendant environmental and health risks.

Title 23, California Code of Regulations section 2510 et seq.

These sections (Chapter 15, Discharges of Waste to Land) establish waste and site classifications and waste management requirements for waste treatment, storage, or disposal accomplished by landfills, surface impoundments, waste piles, and land treatment facilities.

Article 2 contains a waste classification system which provides the basis for determining which wastes may be discharged at each class of waste management unit.

Article 3 contains classification and siting criteria for waste management units and establishes three classes of disposal units (e.g. landfills): Class I for hazardous waste, Class II for designated waste, and Class III for nonhazardous solid waste.

Article 9 requires anyone proposing to discharge wastes to land where water quality can be affected to submit a report of waste discharge to the regional board which then adopts waste discharge requirements.

LOCAL

Sacramento County Ordinance, title 6, Chapters 6.98 and 6.99

These chapters establish a county licensing program for hazardous waste generators as well as related fees to be paid by generators. The Sacramento County Director of the Department of Environmental Management has been designated under the Health and Safety Code to enforce standards and regulations relating to Generators of Hazardous Waste contained in Title 22, Division 4.5 of the California Code of Regulations. The licensing and fee program defrays County enforcement costs incurred as a result of the above designation.

WATER RESOURCES AND WATER QUALITY

Compliance with the following federal, state and local laws, ordinances, and regulations is intended to minimize or eliminate significant adverse impacts to local water supplies and water quality along with the hazard of flooding the site and adjacent properties:

FEDERAL

- The Clean Water Act (33 U.S.C. § 1251 et seq.) states that any point-source waste being discharged into U.S. waters requires a National Pollution Discharge Elimination System (NPDES) permit. In California, the Regional Water Quality Control Boards administer the federal NPDES program. The proposed project is under the jurisdiction of the Central Valley Regional Water Quality Board.

- The Safe Drinking Water Act (SDWA) of 1974, as amended in 1986, requires the Environmental Protection Agency (EPA) to establish a program which provides for the safety of the nation's drinking water.

- Title 42, United States Code sections 4001-4157, provides for National Flood Insurance and describes the conditions for development of properties within 1-in-100-year frequency storm flood plain areas. This FEMA program is administered locally by the City of Sacramento.

STATE

- Water Code section 100 prohibits the waste or unreasonable use or method of use or method of diversion of water.

- The Porter-Cologne Water Quality Control Act of 1967 (Water Code § 13260 et seq.) requires the Regional Water Quality Control Board to adopt waste discharge requirements in order to protect state waters for the use and enjoyment of the people of California.

- The State Water Resources Control Board Resolution 75-58, Water Quality Control Policy for the Use and Disposal of Inland Waters Used for Power Plant Cooling, establishes a hierarchy for the use of available water sources in power plant cooling applications.

- The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) which was added to the Health and Safety Code section 25249.5 et seq., prohibits the discharge or release of certain chemicals into drinking water sources.

LOCAL

- Sacramento City Ordinance No. 88-001 relating to subdivision regulations in designated flood hazard areas within the City of Sacramento (see federal heading for related flood hazard regulation statute).

APPENDIX B

Procedural History

PROCEDURAL HISTORY

Summary

On October 12, 1993, the Sacramento Cogeneration Authority (SCA) submitted an Application for Certification for the proposed Procter & Gamble Cogeneration Project. On November 17, 1993, the Commission found the Application to be data adequate and formally accepted it for processing. The Commission also appointed a Committee composed of Commissioner Barbara Crowley, Presiding, and Commissioner Art Kevorkian, to conduct proceedings on the Application. Both of the original Committee members retired prior to disposition of the case. The Commission subsequently assigned Commissioner Jananne Sharpless, Presiding, and Commissioner Warren Noteware to the Committee.

All proceedings were publicly noticed to include the participation of members of the public and governmental agencies. The Commission's Associate Public Adviser attended all proceedings to advise the public on how to participate in the certification process. The Commission staff also consulted with appropriate government agencies whose special expertise and recommendations were necessary to process the Application.

Chronology

The Committee conducted an Informational Presentation, Site Visit and Scheduling Conference on December 14, 1993. At this event, the parties explained plans for developing the project and the administrative proceedings involved in reviewing the application. On December 15, the Committee issued its "Committee Order Establishing Schedule for Prehearing Phase of Proceeding."

During the period of December 1993 through May 1994, several publicly noticed workshops were held by the parties to discuss data requests and responses. On April 19, 1994,

the Staff published its Preliminary Staff Assessment (PSA). Additional workshops were held in June, 1994 to discuss the PSA. Staff filed its Final Staff Assessment on July 5, 1994.

Pursuant to a Notice dated May 9, 1994, the Committee conducted a public Prehearing Conference on June 23, 1994 to identify matters that would be considered at the formal Evidentiary Hearings and to establish the schedule for the remainder of the proceeding. Pursuant to a Notice dated June 30, 1994, the Committee conducted Evidentiary Hearings on July 19 and 20, 1994 to take testimony on the Application and to accept documentary evidence into the record. On July 21, 1994, the Committee conducted a Second Public Site Visit to provide Commissioner Sharpless an opportunity to visit the site.

On June 29, 1994, the Sacramento Metropolitan Air Quality Management District issued its Preliminary Determination of Compliance (DOC). The Final DOC was issued on August 19, 1994. Several public workshops were held in August, 1994 to discuss the issues raised in the DOC and to prepare for the Evidentiary Hearings on air quality scheduled for September.

On August 23, 1994, the Committee assigned to this case in conjunction with the Committee conducting proceedings on the Campbell cogeneration project issued a Notice of Joint Evidentiary Hearings to take evidence on issues common to both cases related to air quality and wastewater discharge. The Joint Evidentiary Hearing was conducted by both Committees on September 13, 1994. Following the Joint Evidentiary Hearing, the Committee for this case conducted a separate Evidentiary Hearing in the afternoon of September 13 on issues specific to the Procter & Gamble proceeding.

The evidence presented at the Evidentiary Hearings on July 19, 20, at the Joint Hearing on September 13 and at the Hearing in the afternoon of September 13 was considered in preparing the Presiding Member's Proposed Decision which was issued on October 5, 1994. The Committee conducted a Committee Conference on November 1, 1994 to receive comments and proposed revisions on the Presiding Member's Proposed Decision. The Commission considered and adopted the Proposed Decision at its November 16, 1994 Business Meeting.

APPENDIX C

Exhibit List

STATE OF CALIFORNIA

ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No: 93-AFC-2
	)	
Application for Certification of	)	EXHIBIT LIST
the Sacramento Cogeneration Authority's	)	9/14/94
Procter & Gamble Cogeneration Project	)	
	)	

Exhibit Number

CEC - A	Procter & Gamble Cogeneration Project Final Staff Assessment, dated July 1994. Identified and admitted into evidence on July 19, 1994.
CEC - B	Errata on the Procter & Gamble Final Staff Assessment. Identified and admitted into evidence on July 19, 1994. Additional Errata Identified and admitted on July 20, 1994.
CEC - C	Staff's Supplemental Biological Resources Testimony. Identified and admitted into evidence on July 19, 1994.
CEC - D	Luz Construction, Inc. Post-Construction Aerial Photographs of Harper/Kramer Transmission Line. Identified and admitted into evidence on July 19, 1994.
CEC - E	Supplemental Water and Biological Resources Testimony. Identified and admitted in evidence on September 13, 1994
CEC - F	Staff Testimony and List of Witnesses and List of Exhibits. Errata to Staff Testimony in Air Quality, Public Health and Water Issues. Identified and admitted into evidence on September 13, 1994.
CEC - G	Staff comments to the *Presiding Member's Proposed Decision*, identified for the record on November 1, 1994.
CEC - H	Staff - Applicant Stipulation regarding Biology, identified for the record on November 1, 1994.

SCA - 1	All of SCA Testimony on the Procter & Gamble Cogeneration Project filed July 8, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 2	Application for Certification for Procter & Gamble Cogeneration Project Volumes 1 - 4 filed October 12, 1993. Identified and admitted into evidence on July 19, 1994.
SCA - 3	Transmission Interconnection Study of the AFC filed October 5, 1993. Identified and admitted into evidence on July 19, 1994.
SCA - 4	Revisions made in response to Data Inadequacy comments filed November 8, 1993. Identified and admitted into evidence on July 19, 1994.
SCA - 5	Responses to information requested by CEC Staff filed December 23, 1993. Identified and admitted into evidence on July 19, 1994.
SCA - 6	Submittal of the First Amendment to the Proposed Project - Realignment of a portion of the 230KV transmission line filed December 30, 1993 Identified and admitted into evidence on July 19, 1994.
SCA - 7	First set of Data Requests: Land Use, Industrial Safety, Efficiency, Transmission System Evaluation, Visual, Hazardous Materials, Transportation, Structural, Noise, Air Quality, Potential Transmission Line Construction Emissions, Soils, and Water Resources filed December 31, 1993. Identified and admitted into evidence on July 19, 1994.
SCA - 8	Response to the Data Request Alternatives - 1 filed January 3, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 9	Report on the Archaeological Survey for the proposed realignment of a portion of the 230KV transmission line filed January 12, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 10	Noise and Water Sampling Responses to 1/10/94, Data Response Workshop filed January 26, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 11	Response to CEC Staff questions from 1/10/94 Data Response Workshop filed February 17, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 12	Revised response to Noise B filed February 23, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 13	NPDES permit application submitted to the Central Valley Regional Water Quality Control Board for the proposed project filed February 25, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 14	Attachment B referenced in the NPDES permit application filed March 2, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 15	Minor modification to the proposed project: Deletion of standby generator and change in maximum pole height for the transmission line filed March 9, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 16	Response to Data Requests 2nd set, Haz Mat - 5 and Efficiency - 2 filed March 14, 1994. Identified and admitted into evidence July 19, 1994.
SCA - 17	Responses to Visual Data requests and the Biological Survey for the Fiber Optic line for the proposed project filed March 16, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 18	Response to Cost Effectiveness question from SMAQMD regarding the Auxiliary Boiler at the proposed project filed March 18, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 19	Minor change in use of inlet air chiller, revised site arrangement, and correspondence to the Central Valley Regional Water Quality Control Board re: Hardness and TDS levels filed April 7, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 20	Draft mitigation proposal for Biological Resources filed April 7, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 21	Response to Biology Chapter in the Project PSA and copy of the Spring BioSurvey for the amended portion of the transmission

line route filed May 11, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 22 Minor comments and clarifications on the PSA filed May 13, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 23 Comments on the PSA filed May 13, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 24 Comments on the PSA - Traffic and Water Resources filed May 16, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 25 Response to PSA: Page 3 of Traffic comments docketed 5/13/94 & correspondence re: exterior lighting filed May 19, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 26 Color samples and comments on Air Quality section of PSA filed May 20, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 27 Determination of Fugitive Dust Impacts - Air Quality Section (PSA) filed May 31, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 28 Responses to Cultural Resources - 2, Paleontologic Resources - 2, Noise 1, and Soils - 1, proposed conditions of certification and revised Figure 6.9-1filed May 31, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 29 Revised NPDES application for proposed project filed May 31, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 30 Updated Section VI of application for Facility Permit/Waste Discharge and revised Attachment B filed June 2, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 31 Revised NPDES permit application and revised plume modeling and revised Noise - 6 filed June 2, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 32 Comments on the PSA sections Biology, Industrial Safety, Traffic and Socioeconomics filed June 3, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 33	Analysis of aqueous ammonia, hydrochloric acid, and hydrazine spill modeling, filed June 7, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 34	Response to PSA Air Quality questions re: Emission Offsets, Design & Efficiency comments and sample of fencing material filed June 7, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 35	Revised water resources information filed June 7, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 36	Current proof of service to for May 27th filing filed June 8, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 37	Revised supplement to the June 3, 1994 Air Quality Impact Analysis filed June 9, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 38	Response to PSA: Revised Traffic Table 6, Land Use re: the zoning ordinance, Facility Design proposed conditions, and comments on Facility Design regarding transmission line filed June 9, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 39	Analysis of the Environmental and Infrastructure factors related to the use of surface water filed June 10, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 40	Air Quality modeling input and output computer files filed June 13, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 41	Cooling Tower plume analysis data filed June 15, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 42	Applicant's prehearing conference statement filed June 16, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 43	Supplemental information regarding Arsenic and Chloroform for the revised NPDES permit application for the proposed project filed June 16, 1994. Identified and admitted into evidence on July 19, 1994.

SCA - 44	Conceptual plan for mitigating hydrazine spill for the proposed project filed June 21, 1994. Identified and admitted into evidence on July 19, 1994.
SCA - 45	Display Exhibit, Site Arrangement (to accompany SCA witness Larsen's oral testimony). Identified and admitted into evidence on July 19, 1994.
SCA - 46	Display Exhibit, 3-D project Depiction (to accompany SCA witness Larsen's oral testimony). Identified and admitted into evidence on July 19, 1994.
SCA - 47	Display Exhibit, Transmission/Fiber Optic line route (to accompany SCA witness Larsen's oral testimony). Identified and admitted into evidence on July 19, 1994.
SCA - 48	Pictures of site - Biology slides (to accompany SCA witness Maier's oral testimony). Identified and admitted into evidence on July 19, 1994.
SCA - 49	Physical Features of the Site (to accompany SCA witness Maier's oral testimony). Identified and admitted into evidence on July 19, 1994.
SCA - 50	Steam Sales Agreement between SMUD and the Procter & Gamble Manufacturing Company. Identified and admitted into evidence on July 19, 1994.
SCA - 51	Draft Power Purchase and Operating Agreement. Identified and admitted into evidence on July 20, 1994.
SCA - 52	Draft Steam Services Agreement (Confidential). Identified and admitted into evidence on July 20, 1994.
SCA - 53	SCA Joint Powers Agreement. Identified and admitted into evidence on September 13, 1994.
SCA - 54	Joint Testimony of Gary Rubenstein re: joint SCA/SPAC Air Quality Issues and letters from EPA. Identified and admitted into evidence on September 13, 1994.
SCA - 55	Testimony of Brian Petermann re: Air Quality. Identified and admitted into evidence on September 13, 1994.

SCA - 56	Testimony of Stuart Husband re: Air Quality Offsets and Mitigation. Identified and admitted into evidence on September 13, 1994.
SCA - 57	SCA's Revised Air Quality Impact Analysis, dated 6/3/94. Identified and admitted into evidence on September 13, 1994.
SCA - 58	SCA Comments on Preliminary Determination of Compliance (PDOC). Identified and admitted into evidence on September 13, 1994.
SCA - 59	SCA Submittal re: Air Quality Mitigation and Auxiliary Boiler Operations. Identified and admitted into evidence on September 13, 1994.
SCA - 60	SCA's Revised Offset Package. Identified and admitted into evidence on September 13, 1994.
SCA - 61	SCA's comments on the *Presiding Member's Proposed Decision*, identified for the record on November 1, 1994.
SCA - 62	California Regional Water Quality Control Board, Central Valley Region, Waste Discharge Requirements for Sacramento Cogeneration Authority's Procter & Gamble Cogeneration Plan, identified for the record on November 1, 1994.
SCA - 63	Comments on the *Presiding Member's Proposed Decision* from the City of Sacramento, Planning and Development Department, identified for the record on November 1, 1994.
AA	Sacramento Air Quality Management District's Determination of Compliance. Identified and admitted into evidence on September 13, 1994.

APPENDIX D

Proof of Service List

STATE OF CALIFORNIA

State Energy Resources Conservation
and Development Commission

In the Matter of:	)	Docket No.: 93-AFC-2
	)	
Application for Certification of	)	PROOF OF SERVICE
the Sacramento Cogeneration Authority's	)	(rev. 8/24/94)
Procter & Gamble Cogeneration Project	)	
	)	

PROOF OF SERVICE

I, _____ declare that on _____, I deposited copies of the attached _____ in the United States mail in _____ with first class postage thereon fully prepaid and addressed to the following:

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INTERESTED PARTY
(none listed)

CALIFORNIA ENERGY COMMISSION
(Docket Unit - 12 copies required)

Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814

I declare that under penalty of perjury that the foregoing is true and correct.

(Signature)

* * * * *

INTERNAL DISTRIBUTION LIST

Parties do not mail to the following individuals. The Energy Commission Docket Unit will internally distribute documents filed in this case to the following:

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